

## IRIS 8.09.12 Release Notes (8 Dec 2005)

### Data Format Changes

1. We are in the process of adding new projection support. We are adding the Lambert Conformal Conic projection, as well as support for an ellipsoidal earth shape. As a consequence the **product\_end** structure is augmented to add the equatorial radius of the earth, the earth flattening, and 2 standard parallels. See the *IRIS Programmer's Manual* for the format. Note that if the earth radius is zero, the legacy interpretation is a spherical earth with radius 6371 km. These new fields are also added to the projection configuration menu. As of this release the new fields are not being used, and the Lambert projection is mapped instead to AED.

### Bug Repairs

1. Fixed broken network output of IRIS format data. This was broken in release 8.09.11.

## IRIS 8.09.11 Release Notes (2 Dec 2005)

### New Features

1. The Projection Configuration Menu now allows the user to specify and save a reference latitude for the Polar Stereographic projection. This number is not used in the coordinate transformation.
2. IRIS now supports output pipes which produce multiple output files from one IRIS product. The pipe can control this by writing multiple file name in its meta file.
3. The **IrisToEwis** pipe can now produce multiple polar volumes from one RAW input. Because this feature requires support from the IRIS invoking the pipe, this pipe can only be used on version 8.09.11 or later.

## IRIS 8.09.10 Release Notes (23 Nov 2005)

### Data Format Changes

1. The dwell\_psi\_struct structure has a new field iTargetMergeRange. For legacy data, a value of 0 indicates the previous 3km was in effect. See New Features 3. below

### Bug Repairs

1. The RHIs were constrained to allow no finer than 0.35 degree resolution. This is the finest PPI resolution because of the angle sync table size. Bug introduced on 27 June 2005 in release 8.09.3.

2. The BEAM product produced the wrong display for sector scan inputs, since day one.
3. The WARN output options tool in the QLW was missing the speed option for the Centroid Label.
4. A missing setup\_color.conf file was being signalled under the old file name of COLOR\_SETUP.DAT. This was true for **siris**, **rtdisp**, and **rtest**.

## New Features

1. **Sigbru** now has added a mandatory exclude for directories /proc/ and /sys/.
2. The WARN product display has a new feature. We can now display a white arrow showing the forecasted position of the centroids at the current speed and direction. The forecast time is selected in the WARN specific output options menu in both the QLM and POM menus.
3. The DWELL product configuration menu now has a new option in the Target Detection section. Labelled "Merge", it is the merge range in km, which is used to combine different detected targets which are actually the same target. If two targets are detected for which in input data is within this range, only the stronger is kept. The legacy code used a hard coded 3 km for this number. This was based on bird tracking. For airplane tracking a value of 6 km is better.
4. Added a fault tolerant feature to the IRIS network output. It will now time out on a file transfer after 60 seconds. This is to solve a problem with intermittent networks. If a network transfer starts, and then the network goes partly down causing some of the packets to be blocked, then IRIS output would block forever.
5. We now have a new scan type in the IRIS task configuration menu. It is called "Exec", and allows the scheduling of a arbitrary shell command from the task scheduler. Before the command is executed, Ingest will release the signal processor control so that a DSP utility such as zauto can be run. This feature is available in active mode only.
6. The **tdwr\_llwas\_int** program was enhanced to allow specification of a minimum gain and loss number which is allowed in IRIS inputs. This is specified in the runways.conf file in a format like:  
  

|                          |             |
|--------------------------|-------------|
| <b>IRIS_IN_WARN_MIN</b>  | <b>7.72</b> |
| <b>IRIS_IN_SLINE_MIN</b> | <b>7.72</b> |
7. The antenna library now makes named log files that cycle each day at midnight. There is a setup question to choose how many of the old files you want to keep at any given time. Also, the symlink "antlib.log" always points to the most recent log file for convenience during manual access, e.g., if you just want to run 'tail' or 'more' on the logfile. This file contains messages from all antenna related processes managed by the new ant\_log process.
8. Extensive changes were made to the antenna library file logging. It is cycled to a new file each day, and only the recent N are retained.

9. Added new BITE history plot to **bitex**. Using this feature you can display a history graph of the state of any of the **bitex** status bits or QBITE values.
10. IRIS network output pipe now have the option of controlling the actual final filename produced by the pipe. It will override the filename selected in **setup**.
11. Announcing a new pipe program **IrisToEwis** available with IRIS. This program converts IRIS products into the legacy Ericsson EWIS format. We also supply a utility program **ewisview** used to examine the EWIS files for testing.

## IRIS 8.09.9, 8.08.8, 8.08.7 Release Notes

No such releases was made

## IRIS 8.09.6 Release Notes (2 Sep 2005)

### Data Format Changes

1. The NDOP product is enhanced to allow the user to select the site name for the output product. This now matches the COMP product. After upgrading, the NDOP product will continue to run as before, that is by using the site of the first input as the output site. The `ndop_psi_struct` is augmented to add this field. All customers should remember to interpret a zero in this field as the old format and use the first input.

### Bug Repairs

1. Fixed bug in **sigbru** Backup Mode when changing the File name. This would cause the Start pushbutton to become insensitive and pressed in.
2. Fixed a bug in the IRIS Task Configuration Menu. When Selecting Scan Mode of PPI Sector and pressing the Azimuth pushbutton. The Popup was missing it's resource file label. The same was true for RHI and pressing Elevation pushbutton.
3. The Product Configuration Menu COMP Product was missing the XY Smoother (km) label. This was caused by Widget array overrun from the change to the "Combine By" option menu. Bug introduced on 3/27/01 in Version 7.24.2.
4. Fixed bug preventing mounting DVDs on RHEL4.
5. In the **RainbowToIris** pipe, the scan file name was clipped at 15 characters. It now can go to 79 characters.
6. When displaying an NDOP product in the QWL, the Output Options Tool fields for controlling the maximum string length and wind quality threshold were broken. The same control fields in the POM worked correctly. This was broken in 8.05.2.
7. Fixed another uninitialized projection problem in in the product generator dating back to release 8.00. The NDOP product was sometimes getting the signal "Invalid argument to

- mpj\_pin\_region". When the happened, the NDOP product was not produced, and an input file was left open causing an open file leak which eventually will stop the product generator from running.
8. When running IRIS in the new Batch mode ingest was turning off the Doppler data range unfolding by setting the max range to 0. Thus no velocities or widths were produced. It is now set to 600 km by default.
  9. Added a new possible message. "Radiate control not responding" means that IRIS tried to turn off the radiate before a polarization change or pulse width change and the radiate did not go off. If this happens, IRIS will not change the polarization or pulse width. This change was required to prevent arcing on systems which have manual override on the radiate control.
  10. The wind barb displays used in VVP, WIND, and NDOP products are changed to now switch sides in the southern hemisphere. Also fixed a missing pixel in wind barb triangles.
  11. Fixed a bug in the GIF underlay drawing. If you specify more than one GIF underlay in the file, it was always drawing the first one even if that layer was turned off. It now draws the first underlay GIF which is enabled.
  12. **Sigbrush** had a bug in tape archiving when using the list command. **Sigbru** uses the **sigbrush** list command to make an inventory. The initial tape index was 1 record to many. Problems which you might have seen are:
    - Never being able to list a very small tape archive less than 8k.
    - Sometimes needing to enter the list command twice to get a tape archive list.
  13. The DWELL, RAIN1, RAINN, and TRACK products were changed to allow up to 2km of radar motion between their inputs. This helps these products run on input products centered on slowly moving ships.

## IRIS 8.09.5 Release Notes (27 July 2005)

### Data Format Changes

1. The server format used between IRIS and the menus has changed. This means that you will not connect the POM, ISM, and ARC menus to previous versions. One up side to this change is that the POM list size is smaller, so the maximum number of files you can see is 1000, up from 574.

### Bug Repairs

1. When loading the RST menu from a saved file, it is possible that the saved POM configuration file is missing. In this case, it would not load any POM config at all, and

- no error was signalled. This is repaired so now it generates a message. All other sub-menu load errors are signalled.
2. Repaired a color count compression bug in VtvCompressColors2(). When using a colorful IRIS underlay, the total number of colors needed on the screen could exceed 256. This needs to be compressed down, and the routine doing this was failing in some cases. It would produce a picture with crazy colors, or potentially crash the output process.
  3. The IRIS menus were crashing in the Product Configuration Menu when pressing the “Type” pushbutton in WARN, COMP, TRACK, FCAST and DWELL. Introduced on 16 May 2005 in release 8.08.13.
  4. It is possible now to configure the COMP product to use a blank projection configuration file name. This means to take the center from the first input, and take the pixel size and maximum range from the Product Configuration Menu. Previously it set the center to lat=0 and lon=0, and took the size and range from the first input.

## IRIS 8.09.4 Release Notes (18 July 2005)

### Important Upgrade Changes

1. For web server customers only: We changed the path to access the servlet from `irisservlets/servlet/WebLookWinServlet` to `irisservlets/WebLookWinServlet`. After upgrading, Web Server customers need to manually edit a line in the file `/etc/httpd/conf/workers2.properties`. Change from `“uri:/irisservlets/servlet/*”` to `“uri:/irisservlets/*”`.

### Data Format Changes

1. The `ingest_configuration` structure is changed to add a flag word `ilcfFlags`. Currently just bit zero is used in this word. If set to one, it indicates that the first ray is not centered on zero degrees azimuth. Instead it is centered half the azimuth resolution clockwise. This feature was added to interface to such systems. Sigmet does not recommend that customers use this feature.
2. The `server_filter` structure used to pass information in the IRIS menus POM, ISM and Archive is changed. This means you cannot connect new and old versions.

### Bug Repairs

1. The network receiver now treats TRACK product specially. It will always overwrite a previous track product with a newly received one.
2. The three Sigmet supplied RTD data formatting routines (`rtd_v1_xmt`, `rtd_v2_xmt`, and `rtd_nids3_xmt`) were not detecting a configuration change within a volume scan. Such

- changes are not done in IRIS, but are done in other applications. We now detect changes and set the appropriate header information.
3. **Tsarchive** was enhanced to call the `rvp8tsEndCurrentAcqMode()` function between cuts when playing back data. This should force an immediate timeout ray, which allows the application to detect the change quickly. Similarly `tsarchive` will wait a minimum of 500 ms before inserting the first pulse of the new cut. This allows the application time to prepare for it.
  4. Changes were made in IRIS passive TS-Playback mode. It will now synchronize the sweeps at playback time with the sweeps originally recorded. This is done by detecting the end of a sweep with either a timeout ray, or a change to the task ID structure. IRIS will always end its sweep if it detects an original end. Similarly once IRIS has ended its sweep it will continue to read extra rays from the original data until the end arrives. Appendix C of the *IRIS Radar Manual* for is revised to cover the new passive features.
  5. Fixed a bug introduced in the product generator on 17 Dec 2004 in release 8.00. The product generator had uninitialized memory when using named projections. This could have the effect stopping or producing the wrong results in the COMP, NDOP, SLINE, and any other product using named projections. A typical error message might be “Invalid argument to `mpj_pin_region`” or “Product contains invalid size (0x0)”.
  6. In general IRIS is designed to be tolerant of single missing rays in its ingest data. This is now extended to the seam of PPI continuous scans. If a sweep is missing just one ray between the start and end ray, it will no longer be flagged as an incomplete scan. This is particularly helpful with time series playback.

## IRIS 8.09.3 Release Notes

No such release was made

## IRIS 8.09.2 Release Notes (23 Jun 2005)

### Installation Changes

1. IRIS speech no longer uses the dictionary. After upgrading be sure to upgrade your `/usr/sigmet/config/profile` file to match the `/usr/sigmet/config_template/init/profile` file. This includes removing the `IRIS_DICTIONARY` env variable. You should also remove the dictionary from your config directory as follows:

```
$ cd /usr/sigmet/config
$ rm -r dict
```

### New Features

1. The maximum number of minor tasks in an IRIS hybrid task was raised to 26 from 3. This will allow much more complicated volume scans such as the NEXRAD VCP, and

- can use all suffixes from “\_A” to “\_Z”. We also raised the maximum number of tasks in the task scheduler from 16 to 100. The maximum number of major tasks remains at 8.
2. Improvements in ingest related to detecting the end of a sweep in continuous PPI scans. It will now stop as soon as the sweep is filled. Previously ingest would require 1 or 2 extra rays after filling the full 360 degrees. This is particularly important in passive mode where there may not be any extra rays.
  3. In passive ingest, the end of sweep detection is improved for time series playback. It will now also force an end if we detect a 1 second gap in the time series, or if we detect a change in the sweep number.
  4. The **rays** utility now displays Batch mode options and point clutter options.

## Bug Repairs

1. The **tsarchive** utility was inserting a small pause between files when playing back a group of files. The pause was after the first pulse rather than before it.

## IRIS 8.09.1 Release Notes (19 Jun 2005)

### Data Format Changes

1. We have added new fields in the task\_calib\_info structure to support configuring the NEXRAD point clutter removal algorithm. Similarly the task\_dsp\_info structure has new fields to specify the configuration of the NEXRAD Batch mode. You can see the *IRIS Programmer's Manual* for more details.

### New Features

1. CATCH products are now kept 24 hours longer than other products in the product inventory. This is how RAIN1 and RAINN products are handled.
2. **Tsview** is enhanced to display average header information at the end of its list. This included the average elevation angle, azimuth speed, and maximum and minimum PRTs.
3. In the task configuration menu, we now have added a pop-up to allow selection of mode specific options for the Nexrad Batch Mode.
4. In the task configuration menu, we now have added a pop-up to allow control of the Nexrad point clutter removal algorithm.

## 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..