IRIS 7.27 Release Notes

These notes cover changes made in IRIS since release 7.26 of 9 August 2001. If you are upgrading from an earlier release, please read those notes also.

Upgrade Notes

1. IRIS now insists that all **input** directories are owned by operator. If you see error messages related to this after upgrading, please change your directory ownership.
2. IRIS now insists that the start range of a task is a multiple of the range resolution. If you see error messages for this after upgrading, please edit your task configurations.
3. *Linux platforms only:* Starting with RedHat 7.1, SIGMET recommends installing the Open Motif shipped with the OS. Previously, with RedHat 6.2, we recommended installing Metrolink Motif. For our customers' convenience, we are including the Open Motif RPM on the cdrom in the file linux/o_motif.rpm. There is a bug in the 7.1 version of Open Motif, which causes zauto to crash when the "update" button is pressed. Cdroms labelled "7.27B" contain the repaired 7.2 version, those labelled "7.27" contain the 7.1 version with the bug.

Setup Changes

1. *Dual Polarization systems only:* **Color_setup** was changed to support the new polarization data types. We have added a new color scale for LDR, as well as changed the storage format for Rho and Phi. After upgrading you will need to run **color_setup** and set the default color scales for these data types. SIGMET recommends that you use the example color scales until you get operational experience with these data types. Note that the data format for RhoHV and PhiDP has not changed, just the color scale format.
2. The control for choosing 8-bit or 16-bit data is changed. If you wish to record 16-bit data you may need to run **setup** after the upgrade and reset the question enabling 8&16-bit data in the RVP section.
3. There are numerous changes to **setup** for controlling polarization in the RVP section. If your radar is single polarization, you can now select whether it is horizontal or vertical. For dual-polarization radars you can now select what kind of polarization switching it has, as well as select which kinds of data are available. SIGMET will help you configure this correctly for your radar.

Data Format Changes

1. IRIS now supports potentially up to 160 different data types. Because this no longer fits in a 32-bit word, the bit mask in the task_dsp_info structure is replaced by the new dsp_data_mask structure. This change is backward compatible. If you have a third-party application which needs to read the new Rho and Phi data types, please read our current header files.

Bug Repairs

1. The **UfToIris** convertor now supports an odd number of range bins, as well as range bin counts varying between sweeps due to height truncation, and includes better error messages.
2. Fixed bugs in the **RTI** product: The horizontal time axis was incorrectly extrapolated and displayed for tasks which were halted in the middle. Also the display was wrong for data from CCW scans.
3. A bug was repaired in the **ingest** process in which custom trigger patterns were not being setup correctly in the RVP7.
4. Fixed a bug in remote launching of **setup** from **irisnet**. It would fail to read the remote system's setup configuration files if there was an error in the remote system's .profile file which caused an error message to print. In this case you would get a popup message similar to:
   "**`Setup file converted from  to 7.26`**"
   All setup information would be erased if you saved after getting that message. Customers running 7.25, 7.25.6 or 7.26 should read the alert about this on our web page, as well as download the patch.
5. Fixed a bug which causes byte swapping to fail and get an error if >2046 bytes are in a **RAW** product. The message displayed was "Invalid ray detected during uncompression – overwrite". Since the maximum number of bins supported by IRIS is 2048, you can work around this problem on old systems by recording 2 less bins. For 2-byte data it was failing above 1023 bins.
6. The IRIS will now signal an error at run time if either the start range or the bin spacing of a task is not an integer multiple (to within 1%) of the range mask spacing defined in **setup**/RVP. The task is modified and run when the error is detected. Also the task configuration menu is enhanced to enforce the correct quantization of the start range. The range spacing was always correct.
7. The signal in IRIS showing the system time change was signalling the wrong value. It now shows the correct time change in milliseconds.
8. Fixed bug in **RAW** product: 2-byte data failed if >2042 bins.
9. Fixed a bug causing the first **RAW** product transferred over the network not to reingest automatically. This was introduced in the new inventory many years ago.
10. Fixed missing error signalling from **window** processes. This was broken in 7.26.
11. Fixed a bug in **overlay**, it was crashing if there were no .xbm bitmap files in the overlay directory.
12. Fixed the IRIS flagging feature of control buttons in **bitex**. Also changed momentary buttons to be always out when not pressed.
13. Fixed the screen exposing in the corners of **rtdisp**. Sometimes the corner, roughly 20x20 pixels was not exposed. This had the visible effect of leaving the sweep line in the corner.

14. *Linux platforms only:* Fixed an error message which was displayed when utility programs were started on systems with the IRIS_ROOT was not "/usr/sigmet". Note that the programs still ran fine, the message was the only problem.

15. Fixed a problem with the **input** processes. If you configured an input with a blank search directory, IRIS would execute the command "rm –rf /". Input now checks to make sure operator is the owner of the directory, and does not do the recursive delete.

16. On the Radar Status Menu, the Subsystem Status section is enhanced to show the alias names for the input devices. Also, for archive output devices, the status was improved to more accurately show what the archive is doing. Also, for the RCP device, faults were not being accurately updated to the screen.

17. The ingest signal that a scan is started with radiate off was broken in 7.26. It is back with a vengeance. It used to not signal if you requested radiate off, now it always signals if the radiate is off.

18. Fixed a bug in NDOP when scrolling heights in the quick-look window. It was broken for devices > 1.

19. Repaired problems caused by poor configuration of the site definition table in **setup**. IRIS had trouble if you configured a gap in the site table, or erased the site names but kept the site codes for some sites.

20. Observers were allowed to press **bitex** control buttons.

New Features

1. The major new feature in IRIS 7.27 is enhanced support for **dual-polarization** radars. IRIS can now fully support the new data types: LDR, Rho, and Phi. Each of these data types has 2 versions: Transmit horizontal and receive vertical, or Transmit vertical and receive horizontal. We have also added full support for recording SQI. All of the RVP7 data types can now be recorded in either 8- or 16-bit formats. In previous releases, PhiDP and RhoHV were not supported in 16-bit format. The real-time display now also works when recording 16-bit data.

   There were numerous changes made to support the new larger number of data types. Ingest filenames now have an ASCII data type extension replacing the old single character. More space has been allocated in many menu fields to display recorded data. The product configuration menus support a larger list of possible datatypes. Auto XSECT product names now are of the format "WIN1ZDR", using the 6-letter datanames. It is now generally not possible to express all datatypes in a 2-letter code. We have changed most displays to use our standard 6-letter codes, though some lists will use new 3-letter codes.

   We raised many of the internal limits to support all the new data types. The maximum number of data types allowed in a task is now 16, up from 8. The maximum number of bytes in a single ray has been raised to support the full 16 datatypes with 2-byte data at 2048 bins. It used to start reducing the number of bins above about 6 datatypes of 2-byte data. The

maximum number of bytes in a sweep (it was called "Max bin*moments/sweep") is eliminated entirely. You may need to add more memory to your computer if you push these limits.

2. Increased the maximum number of plots displayed in **ascope** from 4 to 8.

3. Raised the maximum number of centroids in the **TRACK** product from 20 to 80.

4. IRIS now supports 16- and 24-bit TrueColor visuals on graphics displays as well as the old 8-bit Pseudo color visuals.

5. IRIS messages can now support up to 160 characters in the message text. This is needed because some pathnames were overflowing. The error log file, the message menu, and the popup messages all support longer strings, not always the full 160.

6. We have made a major change to the **bitex** utility. The new version supports an arbitrary number of subpanels. Each panel can have a .gif background picture. Control, status, and subpanel widgets can be positioned anywhere on each panel. The old **bitex** program is also supported. The first time you run **bitex** after upgrading, it will configure to run the old program (called "bitex1") in the future. You get just a warning popup. The second time you run it, it will start normally. To switch to the new version type "bitex2".

7. **Ingest** now has a feature which can correct interference problems in the noise sample on the RVP6 processor. Interference during a noise sample can lower the reflectivities until the next sample. It is based on the assumption that the interference is from another scanning radar, so is there for a second or so, then gone for 10 seconds or so. The algorithm is to check the noise sample, if it is bad, then wait 1/2 seconds and take a new sample. Only do two tries. The criteria for detecting a bad sample is to examine the log average and linear average of the noise sample points. These normally track each other, with maybe a 2.5 dB offset. However with interference, the linear average goes up dramatically. The log average goes up a little, but not a lot.

8. Iris now signals when remote sites go up or down as detected by looking at the **STAT** products which arrive. Also signals when a remote site times out because the last **STAT** product becomes too old.

9. DSP errors now show up on the RST menu by changing the color of the DSP section of the subsystem status. Critical faults (such as a timeout) which prevented the task from running or finishing show red. In this case, ingest will pause for 60 seconds, then reset the DSP. Faults (such as missing burst) for which we still run the task will show yellow. In this case, the Fault will be cleared when a task starts without a Fault. Both types of faults are also reflected in the **STAT** products.

10. RCP timeouts (labelled "Dead" in some displays) are now included as critical faults. They show up red on the Radar Status Menu, are signalled in the message log, and are faulted in the **STAT** products.