

IRIS 7.28 Release Notes

These notes cover changes made in IRIS since release 7.27 of 14 Nov 2001. If you are upgrading from an earlier release, please read those notes also.

Installation Changes

1. Linux platforms only: Starting with 7.28, IRIS requires the customers be running at least RedHat 7.1. Check this with a “uname -r” command. You want to see at least 2.4.2.
2. The BITE configuration file has been converted to ASCII. Be sure to run `makeAsciiSetups` after upgrading.

Data Format Changes

1. Because of the change in the number of supported output devices in IRIS, the data format of the stored Product Output Menu header send requests has changed. You will lose this configuration after an upgrade, unless you run the **PomHeader728** convertor program. PomHeader728 is included on the release starting at version 7.30. If you are upgrading from the 7.28 or 7.29 cdrom, then you must download this from the sigmet ftp site in the `iris_patches/7.29` directory. To convert a single file:

```
$ cd ${IRIS_MENU}
$ PomHeader728 < DEFAULT.POMHEADER >Temp
$ mv Temp DEFAULT.POMHEADER
```

To convert all the files in the directory:

```
$ cd ${IRIS_MENU}
$ for FILE in *.POMHEADER; do PomHeader728 <${FILE} >Temp; mv Temp ${FILE}; done
```

The converted files are 116/84 times the old size.

2. Added phase coding sequence to `task_dsp_info` structure. See the *IRIS Programmer's Manual* for details.
3. Added a bit to the `rain_psi_struct` to specify if the input is a CAPPI or SRI product.
4. The melting height has now been added to the ingest data files. The old value of zero indicates that the melting height is unknown.
5. Added mean wind to `product_end` structure. A direction and speed of zero indicates that the wind is unknown. This is only filled in by the DWELL product bird tracking algorithm.

Bug Repairs

1. Fixed a possible name collision in IRIS's temporary directory. If you were using IRIS to output the same product to 2 different output devices, and the file format was something which requires an intermediate temporary file (like TIFF, etc.) then the file names would interfere.

2. Improvements to IRIS → NORDRAD conversion: Added support for polar stereographic input, added parsing of subareas to produce the input count and composite flag and mask, also Y-scale and Z-size of 1.
3. Fixed bug in RHI & PPI Sector scan. If 0 was not in the sector, the scan would probably not start. This was introduced in 7.18 in June 2000.
4. Raised the maximum number of archive devices in archive menu from 4 to the official limit of 8.
5. Fixed bug in 7.27 causing slow ingest file deletes. It was deleting only 1 file every 5 seconds. Now it runs more like 5 per second. This could cause disk overflowing when retrieving data from archive media.
6. Fixed QLW “opt” icons. Now correct opt icon is displayed. Broken in release 7.27.
7. The option to select RHI Shear was missing in release 7.27.
8. The single data value of 254 was displayed incorrectly on IRIS displays since release 7.17. It would only fail with named scales configured using **color_setup**. This value is only likely to be encountered in velocity data, with a color scale which spans a longer range than the Nyquist interval.
9. Fixed bug in look_for_warning function which caused a crash when making TDWR style messages if the protected area name was “_”. Bug was introduced in 7.17. This could cause problems in product generation, product output, network reception, and **productx**.
10. Fixed the background grid on the BEAM product. It was broken with the introduction of the RTI product on 1/14/00 in release 7.13.
11. Fixed converting old **bitex** data to new, when **bitex2** is run the first time.
12. *SGI platforms only:* Fixed broken pixmap icons. This caused errors with the quick-look window and **bitex**. This bug was introduced in release 7.27. There is a patch for this on our ftp site for 7.27 customers.
13. **Siris** was ignoring all product files with no “.” in the file name. This could lead to lost disk space.
14. If a RAIN1’s inputs start with the last product in the inventory, then the product generator will crash with a segmentation violation. This was introduced in Dec 1999 in 7.13. It was unlikely to be seen until the SRI products, because CAPPI products are early in the product inventory.
15. Repaired a bug in the network output which caused it not to work if the hostname was left off the RCP directory.
16. In the **antenna** utility, the background color in the box showing the current polarization request and status is set to yellow when the polarization switch is not ready. This was broken, and tended to remain yellow permanently.
17. Fixed a problem which caused most IRIS utility programs to delay 30 second on startup when the computer has rsh disabled.

New Features

1. The major new feature of 7.28 is the new **SRI** product. This stands for “Surface Rainfall Intensity”. It looks for the lowest clutter free range bin for each pixel of the display, then corrects the intensity based on the reflectivity profile. Related changes include:
 - The RAIN1 product can now select either CAPPI or SRI as input.
 - Numerous changes to **setup** shown below.
 - **Productx** now has support for the SRI product header, as well as the new melting level.
 - **Rays** now shows the radar altitude and melting level
2. Another major new feature of 7.28 is improvements to the Bird detection algorithm in the DWELL product:
 - The code was optimized to speed it up by about a factor of 2.
 - The bird track speeds can now have the current wind added.
 - The input PPI product can now be clipped above a specified height.
3. IRIS Network output now supports a new script file copy mechanism. You can supply an arbitrary script file name. The script file should be placed in the IRIS_PIPES directory. We have also added support for entering a username and password. Both of these are passed to the script file. The username is also used with rcp copying. The rcp command executed is “rcp path1 username@host:path2”. Previously “operator” was hard coded in. Note that we have removed the ability to notify a different host from the host the file is sent to. SIGMET ships an example script to use ftp, called “**sig_ftp**”.
4. The **rtd_echo** utility program is much improved. It now shipped in the IRIS_BIN directory, works on Linux, and can change the port number. This allows efficient distribution of the real-time display to several workstations in a remote office. Here is an example configuration:

```
Radar network 192.168.1.*
All radars xmt to:
#1: 192.168.1.255 port 30730
#2: 192.168.2.1 port 30730
rtdisp works on all machines using port=30730
```

```
Office network 192.168.2.*
On machine 192.168.2.1 run rtd_echo xmt to: |
#1: 192.168.2.255 port 30731
rtdisp works on all machines using port=30731
```

Run the following command on 192.168.2.1 to get the desired effect:

```
rtd_echo 30730 -l 192.168.2.255 30731
```

The first arg is the input port, the second arg is the radar ID (-1 means to all radars) the third arg is the broadcast IP address, and the fourth arg is the broadcast port number.

5. Added **setup_change** program. This allows changing active setup information while IRIS is running. It is meant for automatic changes via script files. Unlike the **setup** program, it does not change the saved state. There is no point in running **setup_change** when IRIS is not running, so in that case you will get the error message: "Sorry, IRIS is not running already". Only a small number of setup questions can be changed on the fly. If you attempt to change something else, you will get an error message like: "lim_kernel(): Can not modify element <iris_setup.Site.imax_clients>". Please send suggestions for questions you would like to change on the fly.

The **-list** option sends the current state to the standard output. The listing is long, so you should use **grep** to find the information you want. The **-load** option reads from the standard input and sets the state. The syntax is similar to the IRIS setup configuration files.

A typical application for this is changing the melting layer at your radar sites to allow the correct functioning of the SRI product. For example, to change the April melting level to 2.5 km, type:

```
$ echo "iris_setup.misc.ifallspd_melts[3] = 25" | setup_change -load  
Succeeded
```

Similarly, to see the current value, type:

```
$ setup_change -list | grep "melt" | grep "\[3"  
iris_setup.misc.ifallspd_melts[3] = 25
```

6. In **ascope**, the "spectrum" menu now has a new feature. If either of the RAW buttons are pushed a second time, then the Raw Residual Spectrum will be displayed. This spectrum shows the data that were kept from the RAW data in order to reconstruct the other trip. This feature requires RVP7 V23.2 or higher.
7. **Rays** now can take all its options on the command line. This makes it much easier to run in a script, or pipe through more.
8. There is now control in IRIS, both in **ingest**, and in **ascope** to control the coding scheme used in second trip processing.
9. Many more RVP7 status errors are now checked and signalled. New latched status: "No trigger during PROC command", "PRF varied from beginning to end of a ray", "Buffer overflow during PROC command", "Range mask error", "Measured phase sequence is incorrect", and "Invalid processor configuration". New immediate status: "Error in sync angle table", "Last burst pulse hunt failed", and "Could not generate the requested phase sequence".
10. The maximum number of output devices is raised from 16 to 24.
11. **Productx** now can read its input file from the local directory.
12. Increased the RPC buffer size used for IRIS menus from 60K to 120K. This means that longer lists can be display in the POM, ISM, and ARC menus.

13. Raised the maximum number of simultaneous network inputs to IRIS from 16 to 18.
14. The number of custom trigger sequences for the RVP7 has been increased from two to four. Only the first two PRT sequences are shown in detail in the **setup** utility, because these lists can easily become unmanageably long. If you need to use sequences above #2, please edit the `setup_dsp.conf` file manually with a text editor.
15. The example utility **change_raw** now has a new “-native” option to request that the product is byte swapped to the native format.
16. **Rays** now shows the average values. This can be used to measure the ZDR and LDR offsets.
17. IRIS’s STAT products are enhanced to store multiple messages if several have arrived since the last STAT product. A new STAT is now made whenever any of the important status of the IRIS system changes. The old scheme only made a new product when the system changed from OK to fault, or back.
18. The DSP driver now checks for consistent range mask spacing between IRIS **setup** and the signal processor itself. This check is only performed for RVP7 revisions 23.5 and higher. This will prevent a range resolution problem caused by setting these numbers inconsistently.
19. Added support in IRIS for separate range mask spacings for each PW. This is to take advantage of this feature in the RVP7, and effects some of the features on the task configuration menu.

Setup Changes

1. The real-time display now supports up to 6 separate output addresses.
2. In the RVP *System Parameters* section there is a new question “Transmitter Type”. This can be set to “Magnetron”, “Klystron”, or “TWT”. For Klystron or TWT types, another question is added “XMT has phase control”. Please set these up after you upgrade.
3. In RCP mode switching, if the mode name is entered blank, and that mode is selected by the RCP, it is treated like 0. This causes no mode change. The old behavior was an error message (repeated until that mode is no longer selected by the RCP).
4. Added new questions related to the reflectivity profile used by the SRI product.
 - The **Ingest** window section on *Melting Levels* now has a new question to enable/disable melting levels. This allows the customer to tag the melting level as being explicitly unknown, and all products which need it will signal errors.
 - The **Product** window has a new section entitled “*Reflectivity Profile*”. Here you can enter the assumed gradient above and below the melting layer, as well as the melting layer thickness and intensity. The gradient above melting is optionally also used to smooth the top of CAPPI and XSECT products as before.

- Also in the **Product** window is the priority for the new SRI product.
 - In **Ingest** window, added a question to enable simulation of clutter. This is needed to test the SRI product.
5. Added 2 new questions on RVP6 systems to support a new noise sample interference filter.
 6. Added default wind speed to the product section. This is currently only used in the bird tracking algorithm.