

IRIS 7.23 Release Notes

These notes cover changes made in IRIS since release 7.22 of 18 October 2000. If you are upgrading from an earlier release, please read those notes also.

Important Upgrade Changes

1. IRIS now uses a new environment variable called **IRIS_LISTINGS**. When upgrading please create this directory and add this variable to your `${IRIS_CONFIG}profile` file. This defines the directory where listing files are placed. Here is how the definition should look:

```
export IRIS_LISTINGS="${IRIS_CONFIG}listings/"
```

Both **setup** and **color_setup** now place their listing files in this directory. Each time a listing is made, it creates a new file with a machine generated filename including the date, with a format like: `YYYYMMDDHHMM.setup`. After editing your profile file, be sure to log out and back in for it to take effect.

2. The IRIS setup files have been converted from binary structure format to human readable ASCII format. The following original binary files in your `IRIS_CONFIG` directory have been converted and renamed:

```
DSPSETUP1.DAT -> setup_dsp.conf
ANTSETUP1.DAT -> setup_ant.conf
SITESETUP.DAT -> setup_site.conf
COLOR_SETUP.DAT -> setup_color.conf
IRISSETUP.DAT -> setup_link.conf
                  setup_misc.conf
                  setup_rtdisp.conf
                  setup_protect.conf
                  setup_device.conf
input_setup.conf -> setup_input.conf
license.conf -> setup_license.conf
```

Please run the **makeAsciiSetups** conversion utility immediately after you install IRIS. This utility will carry out all of the above conversions, and will then archive the original binary files into the directory `IRIS_CONFIG/retired`. You may eventually delete the retired files after confirming that everything is working properly.

The new ASCII setup files have many advantages over the old binary files. The contents can be inspected and modified using any text editor. The files are exchangeable across systems that use different byte ordering conventions. The files are also viewable with a **setup** version (post 7.23) different from that used to write them.

3. The format of the overlay files has changed a little. The old “color” command is changed to “fill_color” to remind users that it refers only to fill colors. Please make this change to your overlay file. The valid colors are “underlay2” and “underlay3”. See the template files, or the **overlay** section of the *IRIS Utilities Manual* for details. Also commented lines must now have the “;” as the *first* character on the line.

Data Format Changes

1. The format of the GAGE products has changed, so that those made with version 7.22 will not display. They will work correctly for raingage corrections. Be sure to install the new **AsciiToGage** pipe when upgrading.
2. The IRIS tape inventory file format was changed from that used in 7.22. When mounting an old tape you will get the “incomplete log” message when there is an old log file on disk. Either you can re-inventory your tapes, or you can run the convertor pipe **TapeInv723**. The convertor pipe is available on our ftp site for IRIS 7.23, and it is on your IRIS system starting at 7.30. Here is an example of converting a single file:

```
$ cd ${IRIS_TAPE_INV}
$ TapeInv723 < HAZ_98_04_14_EB4. >Temp
$ mv Temp HAZ_98_04_14_EB4.
```

Here is an example of converting all the files in the directory:

```
$ cd ${IRIS_TAPE_INV}
$ for FILE in *.; do TapeInv723 <${FILE} >Temp; mv Temp ${FILE}; done
```

The converted files are 228 bytes larger.

Setup Changes

1. Removed the **setup** question for time zone. This information is now obtained from the operating system. Be sure to check that you time zone is set correctly. Do this by typing “date” and looking at the code shown before the year.
2. Fixed RCP mode reporting delay by moving it out of the *Network Status Reports to the RCP* section of **setup**, where the question was often suppressed. This delay applies to all systems, the bug was introduced in release 7.11, Oct. 22, 1999. Make sure this delay is set to a small number like 1 second, or zero for systems not needing this feature.
3. In the **setup** output menu, you can now specify compression using either **compress** or **gzip** for network devices. This is applicable only to “IRIS” and “Pipe” file formats. Note that NORDRAD and TIFF use their own compression schemes automatically. When upgrading be sure to turn off the compression for NORDRAD and TIFF outputs. When **compress** is used, the filename automatically gets a suffix of “.Z”, similarly **gzip** gets a suffix of “.gz”.
4. Raised the maximum number of archive devices in **setup** from 4 to 8. This is needed because it is easy to use a lot of LDA devices.

Bug Repairs

1. Improvements were made to the **IrisToUf** convertor program. Both dates are now include the century. Added optional header to the first ray. The stored polarization was off by 1.

2. Improvements were made to the **ufview** utility. It now can show all the header information and data. Type “ufview –help” for details.
3. Fixed a problem in **make_iris_tape** script which caused the platform specific patch files to appear 2 times on the release cdrom. Also the Linux patch files were missing from the 7.22 cdrom, they are now back on the release.
4. Fixed the lat/lon grid on IRIS displays when the North pole is included in the image. This has never worked correctly.
5. The maximum number of products on disk and tape raised from 64000 to 200000.
6. Fixed an error introduced in version 7.13. A DSP error in the middle of a task (such as a timeout) now interrupts the task, but does not deschedule. It was descheduling the task but not interrupting. This lead to an infinite series of error messages.
7. The IRIS composite product no longer complains when asked to composite products when some have a 0 and some have a 1 for the Z-size. Also made PPI and all 2-D products have a 1 Z-Size
8. Fixed bugs in SLINE immediate scheduling. It was using the wrong angle for scheduling. It was scheduling as immediate, but running as volume scan. It now will fill in the actual elevation angles used. It was scheduling elevation shear as immediate, which is not correct.
9. Fixed a problem in the **install** utility, it was sometimes running the wrong version of **instiris**. Now we only check in current working directory. If it is missing then it's an error. Be sure to cd to the cdrom before running **install**.
10. Running the XSECT product would crash the process if the radar was below the reference height.
11. Fixed a bug in **zauto7**. When changing fit limits, Io and Zcal were not being updated with new values. It would update if a new noise level was measured. Previously, to get a valid calibration, it was necessary to set the fit limits before running the calibration.

New Features

1. Added a default button to projection menu. This allows a quick way to get a valid configuration defined.
2. **Ingest** and **ascope** now detect and signal a new error bit from the RVP7 which indicates when the burst pulse has drifted out of its optimal window.
3. IRIS inputs and the network receiver now support .Z and .gz files. The filename is examined if it ends with “.Z” **uncompress** is applied, similarly if it ends with a “.gz”, **gunzip** is applied. Previously just **uncompress** was supported just on the network receiver.
4. IRIS Input pipes now support two different command line syntaxes: “Pipe” and “Pathnames”. If you are using input pipes, please see the manual on the **setup** utility for

- details. The new **UfToIris** pipe uses “Pathnames”, while all the older pipes use “Pipe” syntax.
5. **Zauto7** now can customize the siggen limits in the config menu.
 6. IRIS projections now include polar stereographic and Universal Transverse Mercator (UTM) projections.
 7. Added in Cursor Menu: North and East distances relative to reference point
 8. Added support for rainrate to the RTI product.
 9. Added to the **irisnet** Config menu a field to type in a .gif background filename. File must be stored in the IRIS_OVERLAY directory. Paired with this is a new feature in the **overlay** utility to output a .gif file. This is a “pending” type change, which means you have to save, then exit and restart **irisnet** for it to take effect.
 10. Raised the maximum product size from 2000 to 3100 pixels.
 11. Raised the maximum number of sites from 20 to 31.
 12. The GAGE product display is now working, including GAGE product window popups. This means that you can quickly popup a display of the rainrates reported from an individual raingage. Both GAGE and CATCH APO displays are now working. Gage products made with version 7.22 will not display because we have made some format changes. Be sure to install the new **AsciiToGage** pipe when upgrading. The new pipe also includes a “skip” feature. The skip feature allows you to mark individual raingages so they will not be included in the correction calculation. This is appropriate for a gage located in a region of clutter or blocked from the radar. These gages can still be displayed in the IRIS displays.
 13. **Ingest** and **ascope** will now signal a message whenever the RVP7 is running with a possibly reduced count of DSP chips, or whenever errors were detected during the signal processor powerup diagnostics.
 14. Announcing the new **overlay** utility replacing the old **overx**. There are dramatic improvements in convenience. You can zoom and pan your display with the cursor, as well as add and remove text, icon, and fill points interactively. **Overlay** is included in the programs which can be launched by **irisnet**.
 15. Overlay file strings now can be multiple lines. This is done including “\n” in the string. Note that you must manually edit the file, **overlay** does not yet support this feature.
 16. Now all 5 lines of the text legend can be customized both in the X display and in non-windows outputs such as direct TIFF. This involves using the OUTPUT_LEGEND.DAT file. See the revised section 2.4 of the *IRIS Programmer’s Manual* for details. All remaining support for customizing the color scale using the OUTPUT_DATATYPE.DAT file is removed.
 17. *Linux systems only:* Fixed a bug in outputting an IRIS window to GIF format: Depending on the window manager it would sometimes print the whole screen, not just the IRIS window. This same bug was fixed for printing back in 7.17.

18. **Show_machine_code** now takes a “-site” option. This allows customers to more easily request licenses for a radar standby computer. Customers who purchase an IRIS/radar and an IRIS/analysis system for a single radar can receive a third license for use when the radar computer fails. In this case, the analysis machine is used to replace the radar machine, and the sitename is changed to match the old radar machine.
19. The CATCH product popup for an individual subcatchment now shows the total rainfall accumulation. This number is much more accurate than the user cursor value (which is based on the color scale).
20. The product output menu is enhanced to replace the old **show headers** toggle button with the following 4 choices:
 - 1) **Files Only** is similar to the old list with **show headers** off, except that it includes headers with send requests.
 - 2) **Headers Only** is self explanatory.
 - 3) **Files + Headers** is the same as the old **show headers** on mode.
 - 4) **Headers in Use** lists only headers which have send requests for some output device. If the currently selected output device is different, then the header line is shown, but the request will be blank.
21. IRIS now supports a custom trigger feature in the RVP7, making it possible to define an arbitrary trigger pattern as a sequence of up to 64 PRTs. The trigger period sequences are configured in the **RVP** section of the **setup** utility, and they are selected in the “Dual PRF” section of the **IRIS/TCF** and **ascope** menus. This feature is intended primarily for research customers who are using the raw (I,Q) data stream from the RVP7.
22. It is now possible to run an arbitrary shell command in response to an IRIS signal. A new action called “Exec” can be included in your IRIS_CONFIG/SIGNALS.DAT file to associate a shell command with a signal or set of signals. The command will be forked so that it runs as a child process of whichever IRIS process generated the signal. The IRIS process is not blocked in any way, and the shell command is allowed to run to completion in the background.



Warning: This new feature is very powerful, and hence potentially dangerous to the integrity of an operational system. Be sure that any commands you run are well tested, are not CPU or IO intensive, and are carefully associated with a particular signal or set of signals.

For example, the following line would cause an email message to be sent to Joe whenever the IRIS settings were manually altered via the **restart_iris** utility.

```
Process:IRIS_RESTART Exec:"echo 'IRIS was altered' | mail joe"
```

Signal rules are applied in succession, and this can be used to alter the scope of matching conditions. For example, the following two lines will notify Joe whenever any critical fault is detected, except for the “Interlock” fault for which no action is taken.

```
Text:"**Critical BITE**" Exec:"echo 'BITE Fault' | mail joe"  
Text:"**Critical BITE*Interlock**" Exec:""
```

23. The IRIS/INGEST process now produces “silent” signals at certain key points during its operation. These signals are ignored by default, but may be awakened by adding rules to your SIGNALS.DAT file. The new signal texts to key on are:
- “Beginning a new Volume Scan” : Issued at the start of each volume scan.
 - “Beginning a new Sweep” : Issued at the start of each sweep.
 - “Taking a Noise Sample” : Issued when DSP noise is being measured.

For example, the following signal rule will cause custom side-effects to happen whenever a DSP noise sample is acquired:

```
Text:"Taking a Noise Sample" Exec:"/usr/local/bin/side-effects"
```

24. The fault status of IRIS is now sampled at the start of each task and is stored in the ingest_configuration structure (byte offset 216), as well as the product_end structure (byte offset 228) in all products that are made from these data. The faults being sampled are:
- BITE fault, and BITE critical fault (bits 0 & 1)
 - RCP fault, and RCP critical fault (bits 1 & 2)
 - Overall system critical fault (bit 3)
 - Product Generator fault, and Output Master fault (bits 4 & 5)
25. The maximum window size was raised to 1500x1100 pixels from 1180x940.