

# Release Notes

IRIS  
**8.13.x**



**VAISALA**

PUBLISHED BY

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# 1. About This Document

## 1.1 Version Information

This document provides release notes for IRIS 8.13.x.

Table 1 Document Versions

| Document Code | Date              | Description |
|---------------|-------------------|-------------|
| DOC236879-A   | June 2017         | IRIS 8.13.7 |
| --            | April 2016        | IRIS 8.13.6 |
| --            | December 17 2014  | IRIS 8.13.5 |
| --            | September 23 2014 | IRIS 8.13.4 |
| --            | October 1 2013    | IRIS 8.13.3 |
| --            | March 18 2013     | IRIS 8.13.2 |
| --            | August 30 2012    | IRIS 8.13.1 |
| --            | February 24 2012  | IRIS 8.13.0 |

## 1.2 Related Documents

Table 2 Weather Radar Documentation

| Document Code | Name                                                           |
|---------------|----------------------------------------------------------------|
| M211315EN     | <i>IRIS and RDA Software Installation Guide</i>                |
| M211318EN     | <i>IRIS Programming Guide</i>                                  |
| M211316EN     | <i>IRIS and RDA Utilities Guide</i>                            |
| M211319EN     | <i>IRIS Product and Display Guide</i>                          |
| M211317EN     | <i>IRIS Radar User Guide</i>                                   |
| M211452EN     | <i>IRIS and RDA Dual Polarization User Guide</i>               |
| M211322EN     | <i>RVP900 Digital Receiver and Signal Processor User Guide</i> |
| M211320EN     | <i>Radar Control Processor RCP8 User Guide</i>                 |

For information on changes made since your current release was installed, download the latest document versions and check the IRIS and RDA Release Notes from [www.vaisala.com](http://www.vaisala.com).

Vaisala encourages you to send your comments or corrections to [helpdesk@vaisala.com](mailto:helpdesk@vaisala.com)



## 2. IRIS 8.13.7 Release Notes (June 2017)

These notes cover changes made in IRIS since release 8.13.6 April 2016. If you are upgrading from an earlier release, please read those notes also. In these release notes, “RVP” refers to a feature that is in RVP900.

### 2.1 Upgrade Notes

1. KickStart DVD is upgraded to support CentOS 7 operational system. It also supports configuring a computer with RAID. Standard Vaisala RVP computers and IRIS workstations can now be installed using KickStart DVD.

### 2.2 New Features

1. The new IRIS sector scan mode, ‘rapid scan’, can be used to achieve higher time resolution of sector scans in applications where time resolution is critical. (IRIS-1246)  
The task configuration includes a new user option in the **PPI Sector** task configuration for ‘rapid scan’. In such a scan IRIS allows the antenna to decelerate during data collection. When the user specifies a ‘rapid scan,’ they must specify a target overshoot in degrees past the sector boundary and a ‘max deceleration’ in the **Setup** utility. Ultimately the deceleration is limited by RCP8 maximum setting. In this ‘rapid scan’ mode IRIS ignores the velocity error checking when writing data to ingest files. If ‘rapid scan’ is enabled in **Setup**, the task configuration menu shows a toggle button to turn on or off Rapid Scan mode.  
The IRIS **Setup Ingest** menu has three new questions about ‘rapid scan’ mode:
  - **Allow RapidScan**
  - **Targeted Overshoot for RapidScan (deg)**
  - **Max deceleration**
2. There are new data moments available to be recorded. Maximum number of moments in raw data is, however, limited to 16. These new data moments are not compatible with previous versions of IRIS/RDA so if these moments are recorded, all systems that are processing data must be upgraded to 8.13.7. (IRIS-1290)  
New data moments:
  - **Ah, Av**: Integral attenuation for horizontal (H) and vertical (V) channels.
  - **Azdr**: Integral attenuation of ZDR (dB) format.
  - **CCOR**: Polar cross-correlation, uncorrected **RhoHV**. Because this value is not noise corrected, it is a direct indicator of the **PHIDP** uncertainty
  - **CSR**: Doppler channel clutter-to-signal ratio (CSR).
  - **LOG**: Log receiver signal-to-noise ratio.
  - **PMI**: Polarimetric meteorological index.

3. **IrisToOdimHdf5** pipe now supports **OdimHdf5** versions 2.0, 2.1 and 2.2. version of the data format can be selected in pipe configuration file. (IRIS-1327)
4. New formatting pipe to convert Leosphere Windcube 400S wind scan into IRIS data format. (IRIS-1304)

## 2.3 Bug Repairs

1. Fixed a bug that caused HydroClass not to be displayed in real time display. (IRIS-1298)
2. The watchdog process was unable to restart failed IRIS server sub-process on CentOS7. (IRIS-1385)
3. QLW Live was not displaying products with a data type of **HClass** and an output device number greater than 9. (IRIS-1386)
4. In a hybrid scan, after part of a hybrid scan, **hdf52iris** pipe was unable to create 1 bite ingest files from 2 bite ingest files. (IRIS-1420)



## 3. IRIS 8.13.6 Release Notes (April 2016)

These notes cover changes made in IRIS since release 8.13.5 of 17 December 2014. If you are upgrading from an earlier release, please read those notes also. In these release notes, “RVP” refers to a feature that is in both RVP900 and RVP8.

### 3.1 New Features

1. The main new feature for this release is supporting the interface from IRIS Analysis to the new user interface for the display and analysis of weather radar data, Vaisala IRIS Focus.
2. This release also is built for the 64-bit CentOS7 operating system. We retain support of the 32-bit CentOS6 operating system. Support of the CentOS5 operating system has been dropped.
3. To support data tagged with incorrect azimuth angles on mobile platforms due to not knowing the location of true north, we have added a capability to apply an AZ offset angle to the RAW product data using the `change_raw` utility. IRIS-1087

### 3.2 Bug Repairs

1. If low elevation angle data was blocked by topography, the Surface Rainfall Intensity (**SRI**) product logic of using ‘lowest clutter free bin’ as a data source was causing incorrect results. This was because of data below the signal to noise thresholds from due to the blockage making the **SRI** algorithms believe no signal was present in the lower atmosphere. We now have made the **SRI** product aware of areas where terrain blocks the radar beam so that these blocked bins are not used when deciding the altitude of the ‘lowest clutter free bin’ having valid data. IRIS-1039
2. There was a bug in the conversion of data from the **ODIM HDF5** format into IRIS the format if the original data contained more than eight specific sweep definitions or hybrid tasks in IRIS terminology. The conversion program would report a failure to convert the data with such instances. This is now fixed with support of up to 26 unique definitions of a sweep within one volume scan. IRIS-1078
3. **CAPPI** and **XSECT** products could not be generated from the results of the conversion from **ODIM HDF5** data into IRIS format when the input data was a hybrid scan. IRIS-1088
4. The volume data headers indicating if Dual Polarization Attenuation Correction had been applied in the RVP900 were sometimes incorrect. IRIS was obtaining the state of this setting from the user selection in the Task Configurations while the RVP900 could be configured to be forced to always or never perform the correction. This conflict has been resolved. IRIS-1107
5. The real time display would get stuck showing **RHI** type scans while a **PPI** scan was running. IRIS-1036

6. The **ODIM HDF5** to IRIS pipe could not handle input files with sweeps in reverse time order, or top down scans. IRIS-1000
7. When opening the **IRIS Color Utility** and entering the color set editor, the utility would crash when attempting to delete one of the existing color sets. IRIS-1102
8. When performing a cross-section from the **QLW** having a **VIL** product in the display area, the cross-section created would be a double image with the wrong data type. IRIS-1125

## 4. IRIS 8.13.5 Release Notes (17 December 2014)

These notes cover changes made in IRIS since release 8.13.4 of 23 September 2014. If you are upgrading from an earlier release, please read those notes also. In these release notes, the word “RVP” refers to a feature that is in both the RVP900 and RVP8.

### 4.1 New Features

The main new feature for this release is the inclusion of the new IRIS Vision product. IRIS Vision is a combination of a GeoServer and radar data server allowing users to view radar data from web browsers. The GeoServer uses OpenStreetMaps© for geographical information. IRIS Vision uses common software with other applications in Vaisala’s offering. This allows us to improve the velocity of introducing new features in the future. The new IRIS Vision product replaces the legacy IRIS Web and IRIS Webview.

IRIS Vision comes pre-installed on computer server hardware furnished by Vaisala. If users already have an IRIS Web license key, the only additional cost will be the purchase of the computer server hardware from Vaisala. If you do not already have an IRIS Web license, this must be purchased along with IRIS Vision computer server. Please contact your Vaisala Sales Manager for more information.

### 4.2 Bug Repairs

1. The IRIS Product Configuration menus were missing several rain rate conversions. We added **R(Z, ZDR)**, **R(Z, ZDR, KDP)**, and **R(ZDR, KDP)** relationships to the pull-down menu. These relationships have been present for some time, but it required users to type-in the relationship, so it was unclear how to use them. IRIS-1011
2. Fixed a bug when displaying the **WIND** product in the **QLW**. With a resolution other than 720 x 720 pixels, the image was not centered. IRIS-816
3. The **ODIM HDF5** input pipe could not handle files with sweeps in reverse chronological order; this is now fixed. IRIS-1000
4. When **MLHGT** products were attempting to process 1-byte ingest data, a message was reported `internal error in MLHGT product`. This message has now been improved to report `MLHGT product needs 2-byte ingest data`. IRIS-1035
5. If there is no **MLHGT** product scheduled in the **Product Scheduler**, IRIS uses the legacy 0°C isotherm value adoptive from miscellaneous section of setup. At same time a message is given `No valid MLHGT product available for dsp. Schedule a MLHGT product`. This message was meant to be given for three consecutive scans; however, in 8.13.4 the messages went on forever. It is now limited to three consecutive scans in 8.13.5. IRIS-13



## 5. IRIS 8.13.4 Release Notes (23 September 2014)

These notes cover changes made in IRIS since release 8.13.3 of 1 October 2013. If you are upgrading from an earlier release, please read those notes also. In these release notes, the word “RVP” refers to a feature that is in both the RVP900 and RVP8.

### 5.1 Important Upgrade Note

The capability of IRIS to play system sounds now requires the `sox-14.2.0-6.el6.i686.rpm` package.

This package is included in the extras directory of CentOS6 within this release. This package is installed by:

```
# yum -install sox-14.2.0-6.el6.i686.rpm
```

### 5.2 New Features

1. Melting Level Height product (**MLHGT**) – The major improvement in this release is the evaluation of dual polarimetric data to derive the height of the melting level. This is performed for each completed volume scan, including **RHI** products. The melting level product appears as a Cartesian grid of derived heights in locations where there are a sufficient number of scatterers to make an accurate assessment. In cases where the number of scatterers are insufficient, the melting level height from IRIS Setups is inserted.  
This derived melting level may be used as input to Hydrometeor classification in the RVP or IRIS, for improving dual polarimetric attenuation correction, and for setting the 0°C height for the vertical profile correction within the **SRI** product. For more information, see *IRIS and RDA Dual Polarization User Guide*.
2. The **ODIM** HDF5 conversion to IRIS pipe was improved to handle the case where there might be multiple ODIM data files for one complete volume scan. The pipe now also inserts melting level height into the metadata. IRIS-980, IRIS-981
3. The cursor tool in the IRIS **QLW** is now capable of showing the terrain height at the location of the cursor. To use this feature, a GeoTIFF file is created from Digital Elevation Model (DEM) data. This file is stored in the `/usr/sgmet/dt/` path and a filename `dem.tif`. Users can create their own files or contact Vaisala and we can provide them. IRIS-896

## 5.3 Bug Repairs

1. A memory leak was discovered during generation of **VAD** products and has been fixed. IRIS-903
2. The previous version operating system kickstart installation scripts were not including the needed *xorg.x11-fonts-IOS8859-1-75dpi* package. This is fixed. IRIS-908
3. The **ODIM HDF5** input pipe (**hdf52iris**) would produce incorrect IRIS raw files if **Tv** and/or **Th** were present. IRIS-918
4. The **productx** utility was displaying the wrong radar 'site name' in version 8.13.3. IRIS-934
5. In version 8.13.3, HydroClass was no longer able to distinguish between convective and stratiform rain. The functionality was being bypassed during the ingest process. This was fixed and a patch for 8.13.3 was created. It remains fixed in this release. IRIS-957
6. Fixed a bug causing the **WIND** product to not be projected at the correct coordinates when displayed alone due to failing to know the radar's lat/lon.

## 6. IRIS 8.13.3 Release Notes (1 October 2013)

These notes cover changes made in IRIS since release 8.31.2 of 18 March 2013. If you are upgrading from an earlier release, please read those notes also. In these release notes, we the word “RVP” refers to a feature that is in both the RVP900 and RVP8.

### 6.1 Important Upgrade Notes

1. In this release we are switching our default factory operating system to CentOS 6.x. CentOS is a free enterprise class computing platform which is 100% binary compatible with RHEL. This release will introduce a CentOS installation guide and kickstart. For those customers required to use RHEL, we will also continue to provide a separate kickstart CD for that environment.
2. The **sigconfig** installation script now uses **yum** instead of the **rpm** command to install RPMs during installation. The **sigconfig** command line is the same and there is no need for additional user interaction.  
**yum** makes it easier to handle **rpm** dependency issues by automatically installing the dependent RPMs at same time.

### 6.2 New Features

1. IRIS can now ingest **OPERA ODIM HDF5** files and convert them into IRIS data formats for processing and display. This **hdf52iris** pipe will need proper configuration of the **hdf52iris.conf** and **sites\_map.conf** files. These can be found in the templates directory.

2. Based on user feedback about the Surface Weather Station product layer introduced in version 8.13.2, we have now added the capability to display the METARS in a decoded message as shown.

```
WMO code: 2970
ICAO station: EFMA
Latitude: 60.11; Longitude: 19.88
Height: 6 meters ASL
Priority: 6
Report:
  Type: METAR
  Time: 2013-Apr-16 17:20:00
  Message: METAR EFMA 161720Z 17011KT 5000 -RA BR FEW0060VC026 03/03 Q1
  Wind direction: 170 deg
  Wind speed: 5.65888 m/s
  Temperature: 3C
  Dewpoint 3 C
  Sea Level Pressure 1015 mbar
  Visibility 5000 meters
  Weather: light rain
  Weather: mist
  Clouds: cover: 1 okt (few clouds) at 182.88 meters
  Clouds: cover: 8 okt (overcast sky) at 792.48 meters
```

## 6.3 Bug Repairs

1. **Exit**, **New**, and **Delete** buttons in pop-up menu's had been missed when adding language localization feature to IRIS. These text strings will now be translated to the target language. IRIS-219.
2. Removed some fields not needed in the **Exec** style of the task configuration menu. IRIS-736
3. When converting METAR ASCII text files for use with the IRIS surface weather layer, files originating from Microsoft Windows were not converting correctly due to the differences in the end of line character conventions between Windows and Linux. The **metar2iris** pipe will now correctly manage files originating from Windows systems. IRIS-747
4. The cross-section tool on multi-level **CAPPI** products were not producing an complete cross section if part of a hybrid scan was present on the system. The cross-section tool should have been smart enough to generate the slice from the multi-level **CAPPI** instead. This is now fixed. IRIS-772
5. In the **QLW** the additional legend which can be added to the product display area was not always showing the correct date, while the legend always in view was showing the correct date. This was due to an obscure error in accounting for daylight savings time when the files were stored in Local time vs GMT. IRIS-775
6. The timeout function was not working properly when an IRIS server was expecting to receive a **STAT** product from another node. This was limited to systems in the eastern hemisphere using local time versus UTC time. IRIS-783



7. In the “IIA” filenaming convention, the **VIL** data type contained a typo. IRIS-794
8. The product display area in the IRIS **QLW** would sometimes get garbled if the **QLW** was re-sized and data animated. IRIS-849
9. The **Setup** utility is shared by both IRIS and RDA. When RDA only is installed onto a computer the **Setup** utility user interface should display only the areas pertaining to RDA configuration. Since release 8.13.1 **Setup** was showing all configurable areas for any type of install but is now fixed. IRIS-750



## 7. IRIS 8.13.2 Release Notes (18 March 2013)

These notes cover changes made in IRIS since release 8.13.1 of 30 August 2012. If you are upgrading from an earlier release, please read those notes also. In these release notes, the word “RVP” refers to a feature which is in both the RVP900 and RVP8. Revised to svn 29191.

### 7.1 Important Upgrade Notes

1. If you are upgrading or installing IRIS, and wish to run the legacy IRIS/Web server be sure to install a new version of IRIS/Web. You will find instructions for how to do this in the extras directory. This is accessible on our FTP site, and via the manuals utility after a new 8.13.2 installation. After an upgrade, you must copy the files with the following command:

```
# cd /usr/sigmet
# cp -p config_template/extraspdf/* config/extraspdf
```

2. To improve your data quality on an IRIS Radar computer, consider doing the following after you upgrade to 8.13.2:
  - a. Turn on the Clutter MicroSuppression on your RVP. Do this by running **dspx**, entering the **mp** command to enter the **Processing Options** section. Then hit a few **ENTER** keys to get to **Clutter MicroSuppression**. Set this to 2 for **Always**. This improves data quality when you are doing range averaging. The feature is unchanged, but was broken in PPP mode, and may have been overlooked.
  - b. Turn on the 2D Clutter filter in all your IRIS Task Configurations. This is a new button. Previously this feature was controlled by the RVP's non-volatile configurations accessed via dspx. If you wish to see how it was configured before, you can search your RVP900 config file with a command like:

```
$ grep force_2Dpass /usr/sigmat/config/rvp9.conf
```

If the value was 0, the feature was off, if the result was 1 or 2, the feature was on. This is also an old feature, which was broken in PPP mode.

- c. Turn on point clutter filter in all your IRIS Task Configurations. This is a filter which removes very short range spikes in power, and replaces the data with averages from the neighboring range bins. Such spikes are not normal for weather signals, but are common with returns from airplane and tower targets. You should set the bin offset to 2 (for range bin spacings matching the pulse width) and the threshold to 5 to 10 dB. Yet another old feature which was broken in PPP mode.
- d. Turn on the dual-polarization attenuation correction in your IRIS Task Configurations. This is a new button labelled **DP AttnCor Z ZDR** in the processor configuration section. This is only applicable to dual-polarization radars.
- e. If you are displaying the IRIS menus on a low resolution monitor (that is a 75 dpi monitor) the font size of the scrolling text may be wrong. This causes a problem because it will not align with the titles at the top of the list. And right-clicking on the text will often not bring up the correct pop-up.

This affects the **Product Output Menu**, **Product Scheduler Menu**, **Ingest Summary Menu**, etc.

The solution is to fool the system by overriding the resolution of the monitor in Gnome as follows: Select **System > Preferences > Appearance**. From the pop up window select the **Fonts** tab, then select **Details** button. Change the resolution to 93 or more on the top left corner of the window. You must restart the IRIS menu bar for the change to take effect. This changes lots of fonts in the user interface, so experiment with the size to get the best trade off. IRIS-702

## 7.2 New Features

1. IRIS now supports a new product type **SWS** (Surface Weather Stations). This is data from a network of weather stations, and can be displayed on the **Quick Look Window**. These are displayed using the fairly standard “station plot”, which consists of a wind barb surrounded by various numbers showing the current temperature, pressure, visibility, etc. We supply a new input pipe `metar2iris` which can read in either a file full of METAR reports, or a file full of SYNOP reports. When you click the right button on the display near a station, it will pop-up a window showing the RAW station reports. IRIS-569, IRIS-601, IRIS-602, IRIS-603, IRIS-619, IRIS-634, IRIS-635, IRIS-685, IRIS-691
2. IRIS support for Russian is now complete in both the **Quick Look Window**, and in the IRIS menus. Previously we had done just a subset of the menus. IRIS-127, IRIS-163
3. We added a button to the IRIS **Task Configuration Menu** to turn on/off the dual-pol intervening attenuation correction feature. This feature has been in the RVP’s for a while, but was not explicitly controlled. IRIS-637, IRIS-701
4. We added a button to both the IRIS **Task Configuration Menu**, and **Ascope** to control the 2D (Also known as “3x3”) speckle filter in the RVP. Previously, this feature was turned on or off in the RVP using the `dspx mp` command. IRIS-649
5. The legacy IRIS/Web Java applet has been improved and tested to be able to handle 500 simultaneous users without getting errors. IRIS-686
6. The online manuals supplied with IRIS and RDA are now shipped as single PDF files, and are built using modern tools, so more features, like a side-panel Table of Contents are available. IRIS-700

## 7.3 Bug Repairs

1. In the **QLW**, the **Live Action Tool** had a lot of problems when generating products from hybrid input tasks. Generally it would get stuck in the “Running” state, and would not work after. The problem was always seen if, for example, you started viewing data from the “B” portion of a volume, then switched to “AB”. It is now able to search forwards and backwards as needed from the starting task to find the correct full volume scan. IRIS-553
2. The range was scaled wrong in all Polar Stereographic projection products. IRIS-582
3. The **SRI** product was crashing when the input data contained a blanked sector. As part of this repair, we modified all IRIS products to show data beyond the maximum height cut off to be “area-not-scanned”. IRIS-599
4. The ingest process would crash if the antenna control was not working. This happened for any time the error message “EL Position not reached”, “AZ Position not reached”, “EL velocity not settled”, or “AZ velocity not settled” should be signaled. This would happen, for example, if you shut off the RCP8. Bug introduced in 8.13.1. IRIS-607
5. The **VIL** and **LAYER** products were broken when they were configured to output **VIL** or **VIL** density outputs. They would generate the maximum possible data value when there was any data at all. This bug was only in release 8.13.1, and there is a patch for this for 8.13.1 on our ftp site. IRIS-614

6. We found some bugs in the **QLW** Animation Loops. The loop speed would slow after running overnight. This was due to allocating 1 color in X each time a frame was displayed. Also excessive CPU time was consumed by Xorg and metrocity daemons while looping. This was enough to slow down the maximum possible loop speed by about a factor of 2. These bugs were introduced in release 8.13.0. We have patches on our ftp site to fix this for 8.13.0. IRIS-707
7. The **HClass** data frequently has bad ray segments with data type set to **NoMet**. These segments usually are half the range interval. This happens more frequently on the RVP8, less often on the RVP900. IRIS-577
8. The IRIS3DView program was displaying radar data flipped in the North-South direction. IRIS-623 Since this is a stand-alone program, this can be upgraded separately from IRIS. If you have this bug on your existing IRIS 3DView, you can download version 1.0.2-1 from:  
`ftp://ftp.sigmet.vaisala.com/outgoing/patches/iris3d/RHEL6/`
9. The background daemon process of IRIS3DView was crashing on RHEL6 only. This was caused by a bug in the **vtk** code package. IRIS-624  
 You can fix this by installing version 5.8 of **vtk**. RPM packages for **vtk** 5.8, and dependent packages are all found at:  
`ftp://ftp.sigmet.vaisala.com/outgoing/patches/iris3d/RHEL6/RPMS/`
10. Fixed many bugs in the **PictureToIris** pipe. This is used by IRIS3DView to feed 3D image views back into IRIS for distribution. The logging feature was broken, and it was always writing an empty log file. It now also logs an informative message if an unknown file format is fed in. It can now handle an input file name with contains embedded spaces. A similar change was made to the IRIS input process, which could not handle an input file with embedded spaces. IRIS-688
11. The **grib2iris** and **iris2grib** pipes were broken in release 8.13.1. When run, they got an error caused by the new environment variable added to specify the location of *IRIS and RDA Dual Polarization User Guide*. IRIS-611
12. There were several bugs fixed in the **KnmiHDF5ToIris** pipe. If the image was not square, the image was not converted correctly because the dimensions were reversed in the code. And the time was off by the local time offset. IRIS-620
13. Fixed a bug in the **AsciiToGage** pipe. It was not correctly parsing the "**--device=**" command line argument. This bug dates back to svn [23843], so this pipe has not worked since release 8.12.6. IRIS-621
14. In the IRIS menus, the **Output Options Tool**, and all the product-specific **Output Options** tools would pop-under the menu, not pop-over. This happened anytime except the first launch, and it would pop-over on a second click. IRIS-638
15. The new **DMRLToIris** pipe was missing from the release media on release 8.13.1. IRIS-651
16. The **IrisToOdinHdf5** pipe was getting an error on RAW hybrid data if the site name has a space in it. It was confusing because the error said there was a syntax error in the state file. IRIS-670

17. We had a problem with `acoread` which is used by default to display the online help. When launched from a daemon program, such as the **Quick Look Window**, it was writing its private config file as owner `root`. This caused `acoread` launched from other applications to be unable to read the saved config. We have fixed this to not write as owner `root`, and to save the daemon state in the `/usr/sigmet/config` directory. IRIS-703
18. When using the IRIS print mechanism to print to a file, there was a problem. It was trying to write the file always in the `/home/operator` directory. This causes a problem on systems which do not have such a directory. This is changed to use the actual user's home directory, if available. If the program was a daemon, such as the **Quick Look Window** (which has no home directory), then it writes the file in the `${IRIS_PRINT_DIR}` location, or if this is not available, then in `/usr/iris_data/print_out`. Also printing was failing if the print queue name was longer than 16 characters. This limit is raised to 99 characters. Also increased the maximum number of print queues shown in the print GUI from 4 to 6. IRIS-705
19. If you requested data types **SNR** and either **Zv** or **Tv**, the data values were switched. IRIS-713





## 8. IRIS 8.13.1 Release Notes (30 August 2012)

These notes cover changes made in IRIS since release 8.13.0 of 24 February 2012. If you are upgrading from an earlier release, please read those notes also. Revised to svn [28449].

### 8.1 Important Upgrade Note

There were changes in the recommended template *dualpol.conf* file. Please after upgrading to 8.13.1 copy that file with the following command:

```
$ cp /usr/sigmat/config_template/dualpol.conf $IRIS_CONFIG
```

### 8.2 New Feature

The release includes the new *IRIS and RDA Dual Polarization User Guide*. This covers Dual Pol related topics, including: RVP900 dual-pol signal processing; Attenuation correction using KDP; HydroClass; Wide-Dynamic range; Calibration. IRIS-551

### 8.3 Bug Repairs

1. Fixed a memory leak in the **Quick Look Window**. It lost memory every time a picture was displayed. If looping, memory would be used up in a few days. This bug was in 8.13.0, and there is a patch available for 8.13.0 on our ftp site. IRIS-548
2. Fixed a long standing problem in the way IRIS and RDA changes pulse widths and PRFs. The fundamental problem is that the controls to set the PW (pulse width) and the PRF (Pulse Repetition Frequency) have variable delays, and we do not want to ever exceed the duty cycle of the transmitter. There are two transitions of interest: 1) Long PW / Low PRF to Short PW / High PRF, and 2) Short PW / High PRF to Long PW / Low PRF.  
We have always handled case 1 correctly, which is to change the PW first, wait a small delay, then raise the PRF. However case 2 was not handled correctly. We changed the PW and PRF at the same time. This assumed that the delay was always greater for the PW control. This is not true. In the RVP900, if the major mode was changed from FFT to PPP at the same time, the PRF control had a delay. Case 2 is now repaired to set the PRF low, wait the delay, then set the PW long. This may lengthen the time required to start IRIS tasks a bit. IRIS-510
3. On analysis/display systems, you could get a system lockup in which you see data files piling up in the input directory, and RPC time out messages from the IRIS menus. This happens only when the operator configures product overlays. This bug was introduced in release 8.13.0. Customers running 8.13.0 can upgrade to 8.13.0.2 to fix this. IRIS- 549

4. Fixed a bug of when overlaying **FCAST**, **WARN**, **SLINE**, **TRACK**, or **VVP** over a **CAPPI**. Doing so would cause some of the following errors: 1) Invalid color set number. 2) requested an invalid number of colors. 3) Invalid custom data seam. The problem is there isn't any color scale associated with these type of products, but in the function where the layers are combined it failed to check correctly. IRIS-427
5. Fixed several problems in the dual-pol attenuation correction implementation. ECR-3687
  - a. Occasionally in individual rays, or in short sequences of rays, attenuation correction appeared partially applied, leading to distinct rays in which **dBZ** was biased downwards.
  - b. Occasionally in individual rays, distinctly too high attenuation correction was applied, leading to abruptly very high **dBZ**.
  - c. The `dualpol.conf` file was reorganized to make the attenuation correction parameters separate and more understandable. Also set the default values correctly for typical conditions in warm climates.
6. Fixed missing installation of new RPMs in sigconfig on RHEL5 systems. The rpms added are: **acoread**, **blas**, **lapack-devel**, **proj**, **libgeotiff**, **jasper**, and **grib\_api**. IRIS-529
7. Enhanced the **UfToIris** pipe to allow the user to override the polarization stored in the UF file. This was motivated by UF files with incorrect polarization. To enable, edit your `UfToIris.conf` file. Add to the **TASK** line an 8th parameter which could be blank or one of the following: **FORCE\_VERT**, **FORCE\_HORZ**, **FORCE\_ALT**, **FORCE\_HV**, **NO\_CHANGE**. IRIS-511
8. The IRIS **Task Configuration Menu** will now allow a maximum sample size of 1024 samples. The previous maximum was 256. IRIS-484
9. Fixed some bugs in the **iris2grib** and **grib2iris** pipes. The IRIS site name was not being used by **iris2grib** to set site information. The log messages were improved, and errors were not always signalling an error to IRIS. The bitmap used to mark area- scanned was not implemented. The **PPI** elevation angle was not stored and retrieved in GRIB2 files. Improved the comments in the template config files. Fixed errors when converting **RAIN1** products. Added accumulation time for **RAIN1/RAINN** products. Version was increased from 1.0 to 1.1. IRIS-543
10. The QPE code no longer will crash if an old or badly formatted `qpe.conf` file is read. IRIS-256 and IRIS-481
11. The **BASE**, **CAPPI**, **HMAX**, **LAYER**, **MAX**, **SRI**, **TOPS**, **VIL**, and **XSECT** products now use input **PPI** products down to -10 degrees elevation. Previously they stopped at 0 degrees. IRIS-462
12. The IRIS **QLW** cursor tool was showing the wrong values for data for **XSECT** products. It turned out that there was a bug when the top and bottom margins about the data window are different size. This only is possible for a few products, like **XSECT**, **RHI**, and **BEAM**. IRIS-552
13. The **show\_availability** utility was enhanced by adding start time, stop time, and output type options. It also now works with a mix of the old and new logrotate file naming conventions. IRIS-547
14. The radar location was set wrong vertically in some products made by IRIS. It was wrong only on horizontally georeferenced non-square products. IRIS-563

15. Modified the UALF input to accept new VALF data format which is used in Turkey. The config file is now called *UalfRelayIn.conf* to match the name of the program it configures. IRIS-561
16. The IRIS menubar **Connect** pulldown will now force in **localhost** as the first choice. This allows a user to easily connect after a new install, without having to configure their system. IRIS-169
17. We removed the tabulations feature from the **QLW** and **POM**. IRIS-364
18. Fixed broken **QLW** colors on a 16-bit display. IRIS-579
19. Fixed the bug in the **QLW** of not switching modes from “USER” to “AUTO” after 5 minutes of no activity. IRIS-406
20. There was a bug in data type in the cross section window. Products **TOPS**, **BASE**, **HMAX**, and **THICK** all displayed a data type of **Height**, but what should have been displayed was the data type that was selected by the user i.e. **dBZ**, **dbT**, **V**, **Vc**, and **W**. IRIS-410
21. The **restart\_iris** program is removed. If you need the features previously provided by **restart\_iris**, you can get them with the following commands. IRIS-583  
To restart crashed IRIS daemon threads:

```
$ sudo /sbin/service iris refork
```

To reload the color scale configuration:

```
$ sudo /sbin/service iris colors
```

To scan the product directories for possible new files:

```
$ sudo /sbin/service iris scan
```

22. When IRIS made an unnamed Mercator projection, it drew the data with a vertical position offset. IRIS-565
23. **Productx** now has a new command line option “**-geolocation**”. This causes the output of the latitude and longitude of every pixel displayed for Cartesian products. IRIS-570
24. The **IrisToOdimHdf5** pipe was not handling 3D **CAPPI** products. It was only outputting one layer. This is now fixed. IRIS-592
25. There were mistakes in the messages signaled when a network connection to a target computer goes up and down. There are two different possible problems, IRIS turning on/off, and the network turning on/off. When IRIS is turned off, you should get the message “Network server has been stopped on node <hostname>”. When IRIS is back, similar message “Network server has resumed on node <hostname>”. When the network goes down, you should get “Remote host is unreachable <hostname>”. Similarly, “Remove host is reachable <hostname>” when the network resumes. We were instead getting the message “Remote host is reachable” when IRIS was turned off. This was technically correct, since the host was reachable, but it is not the correct message. IRIS-593

26. The new QPE mechanism to configure Rainrate calculations is now enhanced to allow disdrometer based  $R(Z)$  coefficients to be used. Also, if the algorithm is  $R(Z)$  only, then we now fill in the  $Z/R$  constant and exponent in the IRIS header meta-data. IRIS-594

## 9. IRIS 8.13.0 Release Notes (24 February 2012)

These notes cover changes made in IRIS since release 8.12.9 of 15 July 2011. If you are upgrading from an earlier release, please read those notes also. Revised to svn [27877].

### 9.1 Important Upgrade Notes

1. *RHEL5 systems only*: The `openmotif` rpm patch for RHEL5.\* mentioned in the 8.12.9 release notes is changed. If you are upgrading from a pre-8.12.9 system, you must install these:

```
openmotif-2.3.1-6.el5.i386.rpm  
openmotif-devel-2.3.1-6.el5.i386.rpm
```

These are supplied on our installation media in the *RHEL5/extras/RPMS* directory, and are also available on our FTP site. To install, run:

```
# rpm -Uhv openmotif-*
```

Also, if you are upgrading from a pre-8.12.9 installed IRIS system, you must edit the */etc/sysconfig/i18n* file. It should read similar to the following:

```
LANG="en_US.UTF-8"  
SYSFONT="latarcyrheb-sun16"
```

2. Sigconfig will now edit the `/etc/sudoers` file to give radarop and operator permission to execute `/sbin/service` and `/sbin/chkconfig`. This is important because starting and stopping IRIS and antenna daemons are now done with a command which translates into `sudo /sbin/service iris start`, for example. If you are upgrading be sure to make these changes manually. IRIS-478  
Comment out the line so it reads:

```
# Defaults requiretty
```

Uncomment the line so it reads:

```
Cmd_Alias SERVICES = /sbin/service, /sbin/chkconfig
```

Add the following two lines to the end:

```
operator ALL=(ALL) NOPASSWD: SERVICES
radarop ALL=(ALL) NOPASSWD: SERVICES
```

You must use the program `visudo` to edit the `sudoers` file.

3. The C++ boost libraries are now required for various IRIS programs. This should automatically install on new systems. If you are upgrading, you may need to install them. If missing, you will get a message similar to: `error while loading shared libraries: libboost_system.so.5: cannot open shared object file: No such file or directory`.
4. *RHEL5 systems only*: These are supplied on our installation media in the *RHEL5/extras/ RPMS* directory, and are also available on our FTP site. To install:

```
# rpm -Uhv boost-*
```

5. Many feature changes in this release will force the IRIS menus not to connect correctly between pre-8.13.0 and 8.13.0 (and later) releases.

## 9.1.1 Setup Changes

1. In **setup/General** in the **File and System Quotas** section there is a new question **Maximum number of output devices**.  
This controls the maximum number you can select in the output button. It will default to 24 (the old maximum). Set this to just a few larger than the number you expect to use. See New Features 3.
2. In **setup/General** in the **File and System Quotas** section there is a new question **Maximum Product Configurations**.  
This is the maximum number of product configuration header lines you expect in the product inventory. The default value of 1000 should be reasonable on most systems.

3. In **setup/Ingest** in the **Z: Clutter Suppression via Clutter Map** section there is a new question **Cluttermap in ReIngest**.  
Set this to **Enabled** if you wish to use this feature. See New Features 9.
4. In **setup/Product** in the **Product Transmission and Display** section there is a new question **Display options menu for Web display**.  
Set this to **Enabled** if you wish to use the old IRIS/Web application. See Bug Repairs 7.

## 9.2 New Features

1. A major new feature in this release is continuous opacity control for product overlay layers. The **Display Options Tool** launched from the **Product Output Menu** now includes opacity slide bars for each product in the Product Overlays section. Other layout changes to the **Display Options Tool** were made at the same time. In the Quick- Look Menu changes were different. We moved the **Product Overlays** section from the **Display Options Tool**, to the new **Product Overlay Tool**. See the next bullet for details on this. IRIS-376, IRIS-375, IRIS-377
2. We added a new **Overlay Tool** launched from the **Quick Look** menu's top row buttons. The main purpose is displaying legend information (including the color scales) about the product overlays in use. It made sense to also move the **Product Overlays** selection and opacity controls here from their old location in the **Display Options Tool**. IRIS-371
3. We have enhanced IRIS to support up to 200 output devices. The old maximum was 24. All of the output selection dropdowns are now scrolled lists. We have removed the previous "unit number" from the output configuration to simplify configuration. In all cases where we refer to an output by a number, it is just the output device index. Because of the large time it requires to launch the **setup/output** window when there are a lot of outputs configured, we have added a maximum number of outputs in the **setup/general** section. IRIS-430  
Part of this change involved refactoring the product inventory to place the header lines (one for each product configuration name) into a separate table. There is now a new setup question for the maximum product configuration names in the product inventory. IRIS-432
4. Our Meteogram pop-ups from the rain gage display have always shown the time history of rainrate from the specified rain gage. We now can also show the rainrate calculated from the radar returns over the same time range. These radar rainrates can be generated on the fly when the user specifies a **RAIN1** product to pull them from. To implement this we changed the pop-up to add a **Radar Rain** section at the top which includes a push button and a textfield. Pressing the push button will pop-up a list of **RAIN1** products that can be used instead of the default overlaid **RAIN1** product. IRIS-353, IRIS-348, IRIS-392  
Also fixed a bug in the rain gage pop-up window. After you popped-up 10 such windows, you cannot pop-up any more, even when you close the others. IRIS-360

5. There were significant changes made to the way **VVP** data is thresholded and displayed in IRIS. We have enhanced the output options for **VVP** to now allow you to threshold velocity based data on any or all of the following:

- Maximum horizontal velocity standard deviation (was there before)
- Maximum and Minimum Horizontal velocity values
- Maximum magnitude of vertical velocity
- Maximum average reflectivity value
- Minimum number of velocity data samples

For Average reflectivity and RhoHV, thresholding is just on the Minimum number of data samples.

A significant part of this feature is that all outputs can have these thresholds applied. This includes outputs to other data formats, and outputs to other IRIS systems. This allows us to meet higher quality standards for wind profile output to data models, and at the same time move towards display-time thresholding, rather than generation-time thresholding. We are including meta data indicating which thresholds were applied, so there were changes to the data format, to productx, and to the **VVP**-specific output options menus in both the **Quick Look Window** and the **Product Output** menu. If you use **VVP** products, then after upgrading be sure to launch the output options, and set the **Max Horz Velocity STD** to a reasonable value near 1.3 m/s, and a **Max Mag Vert Velocity** to something like 20 m/s, and save it. The other thresholds are not as useful. See poster 112 from the 35th AMS Weather Radar conference for more information.

IRIS-287, IRIS-397

6. The **THICK** product now stores two different data fields: Echo thickness, and average reflectivity in that region. We now have display time output options to specify which to display. So there is a new product specific output options tool for the **THICK** product. The IRIS product format was changed to support extended product headers, using the new field `iExtendedHeaderOffset` in the `product_end` structure. IRIS-84, IRIS-83, IRIS-82, IRIS-354, IRIS-85



7. We have new pipe programs to convert to and from GRIB Edition 2 format: **iris2grib** and **grib2iris**. See the config files for more details. If you are upgrading, and you wish to use these pipes, you need to install some additional support rpms.

For RHEL6:

```
# rpm -Uvh ksh*.el6.i686.rpm
# rpm -Uvh jasper*.el6.i686.rpm
# rpm -Uvh grib_api*.el6.i686.rpm
```

For RHEL5:

```
# rpm -Uvh jasper*.el5.i686.rpm
# rpm -Uvh grib_api*.el5.i686.rpm
```

This pipe uses a slightly different config file scheme. Site mapping between IRIS and the foreign format is configured in the *sites\_map.conf* file. Other GRIB specific information is configured in the *iris2grib.conf* and *grip2iris.conf* files as usual. IRIS-24

8. Added new **dBTe** and **dBZe** data types. The **e** stands for “enhanced”. This is the dual-polarization cross-correlation power measurement. In other words, this is  $|T\theta_{hv}|$  and  $|R\theta_{hv}|$ . These types are added to the task configuration menu, and support is added throughout the IRIS and RVP900 processing chain. IRIS-316, IRIS-313, IRIS-442  
The **dBZe** has several advantages over the conventional **dBZ** based on horizontal polarization only. These advantages are:

- It effectively allows you to recover the sensitivity loss caused by splitting half the transmit power to vertical polarization. This is true when the ZDR of the target is near 0, and the differential attenuation is also near 0.
- It is dramatically less sensitive to errors in the noise level. On most radars, the signal-to-noise threshold has to be set artificially high to remove false positives due to noise level variations caused by (for example) elevation angle changes, random drifts, and mistakes in the calibration. This can give you many dB of added sensitivity.

9. We have added a new feature which allows the IRIS clutter map to be applied by an analysis system to data from any radar.

There is a new setup/ingest question, “Apply clutter map on Reingest”. If this is turned on, and if RAW data arrives from another radar, and that RAW data did not already have a clutter map applied to it, IRIS will apply the map, and thus modify the dBZ values.

For this to work, there must be an ingest file from that radar site, with the same task name, which is marked as a clutter map. If no such file exists, an error message is signalled. If the customer wants some data clutter map modified, and other data not, they will need to modify their *SIGNALS.DAT* file to disable the messages for the sites without clutter map files. Also repaired the clutter map feature to work on 2-byte data in addition to 1-byte. Rays is enhanced to now display the cluttermap-on-Z flag to help with debugging. IRIS-293

10. We have added a new utility to IRIS which allows sending commands to the socket server from the command line. IRIS-37, IRIS-469  
The initial intent of this program is twofold:
  - To allow command line generation of a specified product over a specified time interval.
  - To allow output of a specified product to a specified output over a specified time interval. The program is called **sclient**. Run **sclient --help** for the command options to do those two cases.
11. We have a new input pipe program **DMRLtoIris**. This is an input pipe which converts **LEMZ DMRL** scan data into an IRIS RAW product.
12. We have a new input pipe called **IMDSatToIris**. This was written by Fritz O'Hora (from Vaisala) together with Rekha and Sai from Indian Meteorological Department. It converts an IMD Satellite format to IRIS satellite format.
13. IRIS inputs can now take input files with a name matching **\*.zip**, and will automatically unzip them. IRIS-457
14. Enhanced the **UfToIris** pipe to allow assigning task name based on maximum range (in addition to the elevation of the first sweep). IRIS-294
15. As part of getting help working from IRIS 3DView, we are now installing **acoread** when we install 3DView. IRIS-450
16. We now ship a documented mechanism to start up an ssh tunnel to read UALF lighting data from a data server. See the current **UalfToIris.conf** file for details. IRIS-458
17. IRIS **WARN** products made from radial velocity inputs will now threshold on the absolute value of the velocity. IRIS-283
18. The IRIS/RDA antenna daemons are now also started and stopped with a service script. You can now type: "**sudo /sbin/service antennad start**", etc. This is explicitly run by programs which previously implicitly did this, such as **antenna**, and **service iris start**. The **qant** program is modified to call this, and we added a new script **sant** for starting the antenna daemons explicitly. IRIS-500

## 9.3 Bug Repairs

1. The **VVP** time-height display was black below the 0-km height. This was a problem because you could not see black wind barbs if the wind was from the south. This was fixed by using a lighter background color. IRIS-237
2. Fixed a bug in our velocity displays. For the last year or so, there was a purple line on the displays where the Doppler fold was. IRIS-332
3. Fixed several bugs in the GeoTIFF output. IRIS-307
  - Added **GeographicTypeGeoKey = WGS- 84** in all cases, override the ellipsoid if different.
  - **TIFFTAG\_DATETIME** time format was not correct, now it is **YYYY:MM:DD HH:MM:SS** in all cases.
  - Added Natural Origin Longitude to Polar Stereographic projection.
  - Fixed some miscellaneous wrong ellipse values.
  - Correctly handle blank areas when the IRIS product does not exactly fill the TIFF image.

4. Increased the maximum buffer size for data sent from an LLWAS system to 400 from 200 characters. This was needed for IIA. Also the runway names at IIA were changed. The problem was fixed when we removed all use of the RCP8 IO-62 card timer interrupts. We also added a new 'help debug' command to print the mutex state. This may be useful in future lockup problems. IRIS-400
5. There was a bug in the **Quick Look Window** color legend. On RHEL6 machines, the vertical text (which shows the data type) was missing. This was because the font we used for this was renamed from RHEL5. IRIS-388, IRIS-429
6. It turned out that when we changed our command line argument format for input pipes in 8.12.5, and output pipes in 8.12.7, it caused problems for some of our customers. We have now added two new script files called `post_8.12.5_wrap` and `post_8.12.7_wrap` which allow you to run older pipes on the current system. The reverse scripts to allow newer pipes on older systems were previously supplied. Please read the script for instructions on how to use. IRIS-414
7. We added some support back in for the old IRIS/Web. This mainly consisted of adding more to the web display options menu. We can now specify if overlays and legends are added to the image. This is enabled if we enable **Display options menu for Web display** in **setup**. IRIS-443
8. IRIS RHEL6 systems were having a problem authorizing IRIS windows to be displayed on their own display. We were temporarily fixing this by asking customers to type "xhost +" on their computers. This is now fixed. There are new lines in the `/etc/profile.d/sigmat.sh` file, which will automatically be installed on upgrade. IRIS-491
9. The **runways** utility has its own authorized operators list in `runways.conf`. We have added **radarop** to the template list, and improved the error message to clarify where to look when you are not authorized. IRIS-492
10. The `siris` and `qiris` programs have been replaced by scripts which simply run **sudo /sbin/service iris start** and **sudo /sbin/service iris stop** respectively. The old programs are now called `start_iris` and `stop_iris`, and must be run with **root** privilege. IRIS-358
11. The iris service startup script was writing error messages to files `iris_out` and `iris_err` in `/tmp`. We moved that to `/usr/iris_data/log`.
12. To help users running `csh` or `tcsh`, we have fixed a syntax error in the `/etc/profile.d/sigmat.csh` file which caused problems when `ssh`'ing into the system.
13. Fixed a bug in iris init script which causes it to say [OK] when starting, even when it failed to start correctly.
14. We raised the maximum number of Sub-catchments in the **CATCH** product from 512 to 1024, IRIS-352
15. We have changed our horizontally geo-referenced products to default to be marked as using the WGS84 ellipsoid. This means products made by IRIS which do not use a named projection configuration file. Previously these products were marked as using a circular earth. Note that the radar location entered in setup should be a WGS84 location, which is unchanged.



# Warranty

For standard warranty terms and conditions, see [www.vaisala.com/warranty](http://www.vaisala.com/warranty).

Please observe that any such warranty may not be valid in case of damage due to normal wear and tear, exceptional operating conditions, negligent handling or installation, or unauthorized modifications. Please see the applicable supply contract or Conditions of Sale for details of the warranty for each product.

# Technical Support



Contact Vaisala technical support at [helpdesk@vaisala.com](mailto:helpdesk@vaisala.com). Provide at least the following supporting information:

- Product name, model, and serial number
- Name and location of the installation site
- Name and contact information of a technical person who can provide further information on the problem

For more information, see [www.vaisala.com/support](http://www.vaisala.com/support).

# Recycling



Recycle all applicable material.



Follow the statutory regulations for disposing of the product and packaging.





# VAISALA

