

# Changing to IDL\_HS 4

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Internally, IDL\_HS 4 represents a major rewrite of the whole codebase. However, to the user, this should not be a concern.

From the point of view of a user (as opposed to a developer or an installer), the main difference of philosophy is that instead of thinking in terms of programs (e.g. PLOT\_RATES or PLOT\_PAD) the central concept is that of a dataset.

## Datasets

A dataset is a collection of data and settings that will go to generate an output plot. Five types of dataset are defined; RATES, SPECT, PAD, PHA MATRIX and XFLARE (activity plot) datasets.

It is possible to have several datasets defined simultaneously, and to switch between them, this is unlike V3 where making new settings destroyed the old ones. Most operations are performed on the current dataset.

The data in a dataset are divided into streams; which can be added, deleted and moved within the dataset.

## Streams

Within a dataset, the data are organized into streams. A stream corresponds to a single channel in RATES or PAD datasets, or a head in a SPECT dataset. (In PAD and SPECT datasets, the internals of the dataset group the streams into the panels that are displayed).

It is possible for different classes of stream to be included in the same dataset; for example a RATES dataset can contain a mixture of HISCALE and EPAM streams, or particle fluxes and magnetic field.

## Housekeeping

Unlike Version 3, where there was a single data directory; in version 4 there is a search path associated with each class of data. This search path is stored along with the IDF information for the data class. If your installation has been

properly set up, then the normal sources of data should be in the search paths when you start the system, if they aren't then complain to whoever installed it.

The IDF information is global (i.e. it applies to all datasets and their streams) but changing an IDF file will not update the information for streams that have already been defined.

The plot setup is very similar to that used in version 3, and is also global. The main changes are that there are now separate spool commands for PS and EPS files.

## New Capabilities

- Multiple datasets available simultaneously.
- Heterogeneous plots.
  - HISCALE, EPAM, ULEIS, UDS and MAG data can be freely mixed in any rate dataset.
  - Spectra from Rates, MFSA or Track data can be freely mixed.
  - Sectorised plots can be made for rates streams with different numbers of sectors.
- Selecting an arbitrary list of sectors in RATES datasets.
- PAD plots can now be ganged.
- Traces on PAD plots can be coloured.
- Composition and rate spectra can be mixed.
- ULEIS rates and spectra.
- UDS and MAG plots are part of the rates dataset system.
- Spectral index and ratio plots can now appear on the same pages as the rates from which they were derived.
- Matrix histograms are now stored.
- Activity plots can now use Carrington rotations and longitude, also histograms of number of flares against longitude and/or time can be added.

## Not implemented

- CDF streams.
- Heterogeneous PAD plots (at present all PAD streams must refer to a common time array for the plotting to work). It may not be feasible to change this.
- Movies.