

PDSView

Reviewed by Alan Wrigley

pacetech's *PDSView* is an image manipulation package that was developed primarily for viewing and processing images such as those obtained from weather satellites and planetary spacecraft. The "PDS" in the title refers to NASA's Planetary Data System - a vast range of images collected from various sources and made available on CD-ROMs for the benefit of computer users. Given Acorn's decision to promote CD-ROM as an ideal vehicle for developers to provide applications and data for the Archimedes, this package is timely and should help to further that aim, particularly among educational users.

Although *PDSView* was designed with these and similar images in mind, it is a general purpose package equally suited for the processing of images from a wide range of other fields - science and medicine for example.

THE PACKAGE

PDSView comes as a two-disc set together with an A5 manual and a tutorial to take you through some of the steps involved in processing an image. One of the discs contains the *PDSView* application and also a further application *PDSMovies*, which is used to create animated sequences from a set of images. The other disc contains some demo images and a range of palettes to experiment with when processing images.

Spacetech can also supply CD-ROMs for use with the software. A complete set of 12 CDs of images from the Voyager 2 expedition has been released by NASA and is available from Spacetech. There is also a two-CD sampler set, which was used for this review. The first of these two CDs contains Voyager 2 images of Uranus and its system. The set includes many pictures of Uranus itself, of its

major satellites, and of its rings, all taken as the spacecraft flew past. Some are distant images, some are close-ups showing geographical features, often quite stunning. The second CD has a collection of images and data files on a number of subjects. These include Mars, Jupiter, Saturn and their satellites, comet Crommelin, and land and sea images of the Earth. Presumably further sets of NASA pictures may become available in the future if there is sufficient demand.

Each of the CDs in the sampler set has many hundreds of files, all in the form of raw data which makes them ideal for image processing. The images are in 256-greyscale format, but in some cases a palette is supplied with the image, and in other cases it is possible to reconstitute a full-colour picture from three separate images taken through colour filters. A number of the images on both discs were taken consecutively and can be parcelled up into an animated display by using *PDSMovies*. An example of this is a sequence of the earth rotating.

USING PDSVIEW

Once the application is installed on the icon bar it is ready for an image to be dragged in. Apart from raw data files (filetype "Data"), Clear format files and also sprites can be imported. The image can later be saved in any of these formats (*Clear* is a format often used on other computer systems in which an image is held as separate red, green and blue components).

PDS files contain "labels" which provide some technical and background information on the image. These can be read and displayed by *PDSView*. Some images also have associated palettes and these can be loaded

independently. The current palette can also be saved as a Clear file ready for loading in at any time, for the use either of the current or of any other image.

PALETTES

Once an image is loaded, PDSView provides a substantial range of processes which can be performed. For a start, the palette can be manipulated in a number of ways. Dithering can be applied to simulate 256 grey levels (if you have the PCATS Graphics Enhancer this is unnecessary since PDSView works quite happily with the Enhancer to give a full 256 grey levels). The range of shades from lightest to darkest can be arranged in linear, logarithmic or histogram fashion (the latter concentrates the grey levels at the band in the spectrum which contains the highest concentration of image data, and is useful for bringing out detail in areas of low contrast).

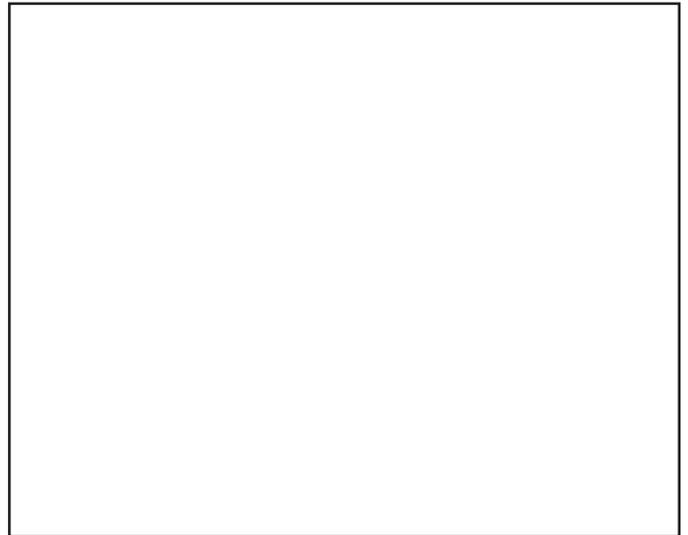
The palette can also be artificially coloured by using RGB slider bars to select a start colour and an end colour, whereupon the palette will become a graduated scale between the two. The palette can be "stretched" over a small range of intensities; for example, if you have an image whose data is concentrated into a small band within the 256 levels, the full brightness and colour range can be extended over this band. Some images benefit greatly from this. You can also choose different colourings for different bands of the scale; this can result in some attractive posterisation effects.

IMAGE MANIPULATION

The image can be maintained within PDSView as both a primary image, which is dependent on the current palette and on which all manipulative operations are performed, and a set of secondary images consisting of the red, green and blue components of the primary. Menu options allow the transfer of images between the primary and secondary bands, and also allow

a composite image to be made from the three secondary images, and each secondary image to be overlaid independently on the primary.

A large number of processes are possible. Arithmetic and binary operators can be



Using PDSView to process an image of Jupiter.

applied to the image to alter the values of pixels; geometric operations can move, scale, reflect or (with RISC OS 3) rotate the image; a convolution matrix can be applied which can be user-defined, and the effect of this can be tested in a preview window before being applied to the whole image. It is not possible in this brief review to go into details of these and other manipulations, but overall they provide a range of powerful facilities for image processing.

MAKING MOVIES

PDSView can be used to create a sprite file containing a sequence of images, which can then be loaded into PDSMovies and displayed as a moving sequence. This is a very simple application with a few rudimentary controls to start, stop, reverse direction and alter the frame speed of the "movie". Some of the images on the NASA CDs were actually intended to be seen in this way; there is a sequence showing the earth rotating, and another which shows a volcano erupting on

one of the solar system's planetary moons. Creating the sequence is very simple; PDSView can operate from command scripts and this facility can be used to compile a movie from individual frames with very little effort, though it can also be done manually if required.

CONCLUSIONS

PDSView has a wide range of facilities and I have not been able to mention or describe all of them here. It takes a little while to appreciate fully just what it can do, and I must say at this point that the manual is not one of the clearest I have seen. The information appears to be all there, but I feel that insufficient attention has been given to making all the options and their effects crystal clear to someone new to image manipulation. I realise that a lot more explanation means a larger manual and more time spent writing it, but when you pay £100 for a piece of software you are entitled to expect a degree of effort put into the documentation.

However, I have no such reservations about the software itself, which appears to work faultlessly and should prove to be very useful for many purposes.

Product	PDSView
Supplier	Spacetech 21 West Wools, Portland, Dorset DT5 2EA. Tel. (0305) 822753
Price	£116.91 inc. VAT Sampler CDs (2): £47 inc. VAT Voyager CDs (12): £235 inc. VAT