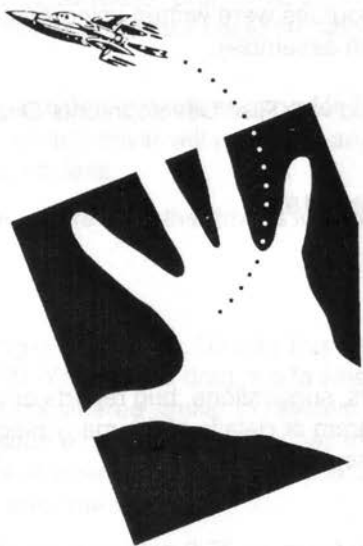


# TWAIN

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## Linking Applications and Images

David Pilling



Archimedes Software

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TWAIN and the TWAIN sources were written using Acorn's ANSI C compiler release 4, and the Objasm assembler.

This manual was produced with Risc Developments Ovation DTP program.

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If you have any comments, suggestions, bug reports or complaints or would like further copies of this program or details of the many pieces of software available for the Archimedes, please write to;

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From time to time enhanced versions of programs will appear. You can upgrade your copy to the latest one by sending your original disc with return postage to the above address.

## **Introduction**

TWAIN is an image acquisition standard for easy communication between image capturing devices and software applications, developed by a coalition of companies including Aldus, Caere, Hewlett-Packard, Kodak and Logitech. TWAIN was originally released in Spring 1992 for Windows and the Macintosh. TWAIN for RISC OS was released at the end of 1993. In brief TWAIN does for scanners what printer drivers do for printers.

Without a system like TWAIN, every application has to support every scanner. In practice most application authors give up and support no scanners at all. Scanner support is then left to dedicated programs, as a result the market is broken up and software is not as good as it could be, and scanners cost more than they should.

With TWAIN, applications need only provide support for TWAIN. Each scanner requires a different driver, but any driver will work with any TWAIN application. So the amount of work is much less.

A scanner is a 'data source', we refer to the drivers for such devices as 'sources'

## **Installing TWAIN**

TWAIN is provided on a single floppy disc. Usually this disc will just contain an application directory !TWAIN. You should drag this to where you want to install TWAIN. !TWAIN should be considered similar to !System, !Scrap, or !Fonts. Before you can use the resources contained in it, it has to be 'seen', a desktop disc window has to have been opened on it. If you try to use TWAIN before it has been seen, you will get an error message.

To use TWAIN, you need to have version 3.75 (or greater) of the shared C library in the modules subdirectory of your !System directory (usually on Applications disc 1) or to have RISC OS 3.10 fitted. If this is not present, the program will fail to run and give an error message. A copy of CLib version 3.75 is included on the ImageMaster disc. To update your System resources (including the CLib module), you should insert the disc, open a window on it and double click the Sysmerge application and follow any instructions that are issued. This will ensure that both ImageMaster and other new programs will run correctly.

## **Installing your scanner**

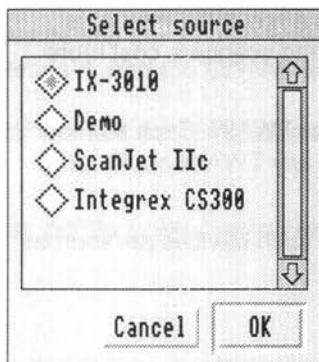
Read through what follows, the last section contains important information on connecting your hardware and configuring TWAIN for it.

## Using TWAIN

Select source... ⌘F10  
Acquire... F10

All TWAIN compliant applications, will have two standard menu items, 'Select source' and 'Acquire'. The first allows you to choose which data source you are going to acquire images from. If you only have one scanner, or only one installed TWAIN source, there is no need to worry about selecting a source. The second item, allows you to start the process of acquiring an image.

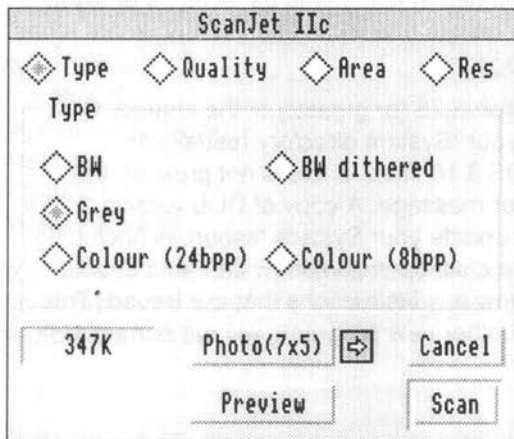
## Select Source



Choosing this, will open the TWAIN source manager window.

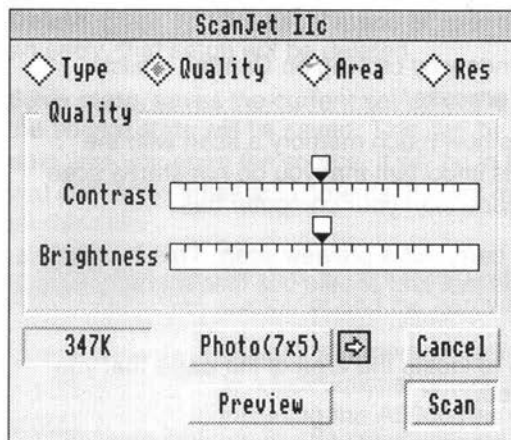
You can choose a data source by clicking on the icons. Finally, clicking on OK, will tell your program which source to use for acquiring images.

## Acquire



This opens the window for the current source. What will appear can vary from one source to another. We explain how a typical source works.

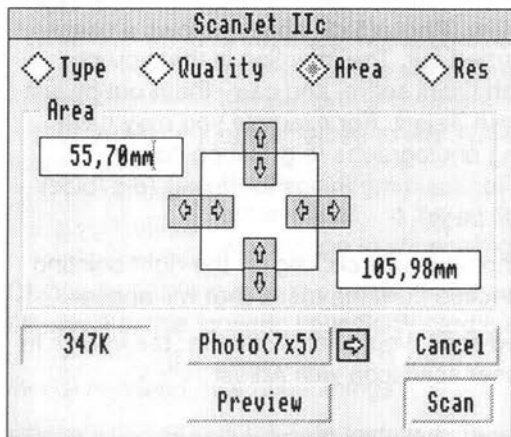
The row of icons at the top, control what aspects of the source you can alter from the panel in the middle of the window. **Type** is the format of the image, how many bits per pixel, how many colours or shades of grey.



**Quality** allows you to alter the contrast and brightness of the image by dragging two sliders.

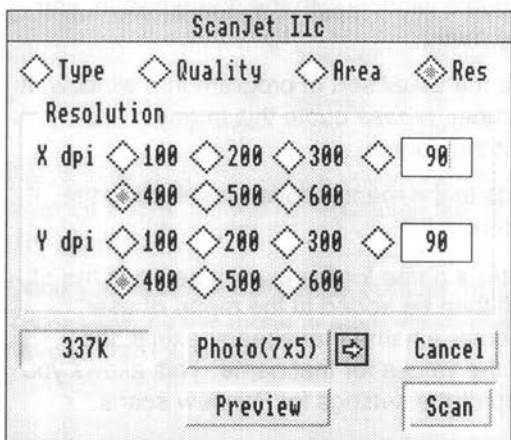
For black and white images, there is usually only a variable threshold which controls if a pixel is black or white. This is normally altered by the brightness slider.

The centre of the scales is zero, values to the left are negative, and those to the right positive.



**Area** sets the area to be scanned. Often this will be set by the scanning application and you need not bother. The two boxes show you the coordinates of the top left and bottom right corners of the area to be scanned relative to the top corner of the page. Positive measurements run down the page.

You can type in new numbers or use the arrow icons to change the values.



**Res.** lets you set the X and Y resolutions for the scan. On some scanners you will just have a number of discrete values that can be selected with icons. Other scanners may provide writable icons into which you can type any (sensible) value.

## General operation

You can always get rid of the source window by clicking on **Cancel**, whilst clicking on **Scan** will start the scanning process.

The icon in the bottom left corner shows how much memory a scan with the current parameter values would use. It is important that you do not start a scan that would use more memory or disc space than your computer has.

The **Preview** icon will when clicked on, carry out a preview scan. This is usually a low resolution black and white scan - it is fast and should use little memory for a full page scan.

The idea is that you do a **Preview** scan to locate the area of the page that you want to scan at high resolution or in colour.

Setup
Preview
Fax
✓ Photo(5x3)
Photo(6x4)
Photo(7x5)

The icon above **Preview (Photo(5x3))** allows a user defined scan to be carried out. The intention is that you can have a number of scan types setup, and carry them out by just clicking on this icon with Select. For example you may have one setup for scanning photographs (e.g. 24bpp colour, 300dpi), and another for scanning things for faxing (e.g. black and white, 200 dpi, full page).

You can change what the user scan button does by clicking on the right pointing arrow to the right of it, and making a selection from the menu that will appear.

If instead of carrying out the user defined scan, you want to transfer the values to the usual set up windows, click on the user scan icon with Adjust.

## Source Menu

Source
Info ⇅
Current ⇅
New ⇅
Delete ⇅
Save state
Device ⇅

By clicking over the source window with the menu button, you can display the source menu.

The first entry leads to the usual sort of program info window. It contains a version number, please quote this in any correspondence about the source.

The second entry leads to the menu above for selecting the current user scan button.

Name

**New** allows you to enter a name for the current setup of the source. This name will then be added to the menu of user defined scans. If you enter a name that already exists, the settings will overwrite the values for that name. This allows you to change a user setup or the settings for Preview scans.

**Delete**, gives you the usual menu of user defined setups. However if you select an entry, that setup will be deleted.

**Save state**, saves the current set up of the source. Whenever you set off a scan, the source state will be saved. This can be very useful, because you know that next time you open the source, it will be in the state it was for the last scan, and you can make small adjustments. It does mean that !TWIN must be on a write enabled disc.

Device
Printer port
SCSI 0
SCSI 1
✓ SCSI 2
SCSI 3
SCSI 4
SCSI 5
SCSI 6
SCSI 7
SCSI auto(?)

**Device**, is concerned with the connection between your computer and the hardware device which is supplying images.

Usually scanners will either be connected to the SCSI bus, or to a bidirectional printer port. Only Acorn hardware after and including the A5000 has one of these. There are some third party cards that provide such ports.

If your scanner is connected to the SCSI bus, you should click on the appropriate device number. SCSI devices all have unique device numbers, which must be set when the hardware is connected to the SCSI bus.

Finally, SCSI auto will attempt to find your device automatically. If the device has been found the (?) after 'auto' will change to show which device it is e.g. (5).

Obviously 'SCSI auto' is the easiest method to use. There are some snags though. For this to work, your SCSI card must allow all devices to be scanned - some don't. Also the source must know what it is looking for. Slight differences in model numbers may upset things.

With your SCSI bus scanner installed. Typing (at the F12 prompt) \*devices will produce a display akin to this;

Device	Type	Capacity	Vendor	Product	Rev	Trans
0	Direct Access	116 Mbytes	CONNER	CP30100-121mb	3131	Async
6	Processor	Unknown	HP	C1750A	3125	Async
7	Host (Uncached)		MORLEY	SCSI EXPANSION	1.12	

For auto to work, the strings under Vendor e.g. HP and Product e.g. C1750A must be entered in the configuration file for the source - see the next few paragraphs.

Once you have set the device number for the source, it may be useful to use 'Save state' on the menu to save the device setting to disc. You'll then never have to change it again.

## Installing another source.

To install another TWAIN source, hold down the SHIFT key and double click on !TWAIN. You will see a directory 'Sources' double click on this. Sources may now be installed by dragging them into this directory.

## Source configuration

You can examine the inside of sources by again holding down SHIFT and double clicking on the source icon. There will be a resource directory for each country of the form 'UK', 'D' etc. inside this directory, there is a file 'Config' that holds the configuration of the source. Each line in the file consists of a tag and a value. Probably the only two of general interest are Vendor and Product these should hold the values from \*devices if you want the auto SCSI setting to work.

## Technicalities

There is a directory 'Info' on the TWAIN source disc which contains an archive of information suitable for programmers interested in adding TWAIN to programs or writing their own TWAIN sources.