DigiFlow v3.0:
Getting Started with a Site Licence

DigiFlow is an advanced image processing system designed specifically for measuring and analysing fluid flows using a wide variety of techniques developed by the author over the last seventeen years.

With a Site Licence, the recommended installation process is a little different from that where there is only a single machine in that a server is used to store a 'master copy' of DigiFlow. Although the initial installation must still take place on each machine using DigiFlow, subsequent updates may be picked up automatically from the master copy on the server.

Server Installation

The master copy of DigiFlow should be placed on a server in a location where all machines can gain access to it. The installation script will set up a network share for this folder (\\MyServer\DigiFlow$, where MyServer is the name of your server) with read access for all Authenticated Users. Note that the $ on the end of the share name hides the share so that it cannot be seen when browsing the network.

Note:

1. An Administrative or Power User account is required to complete the installation process.

2. The destination disk cannot be a network share.

Installing from a CD

To install DigiFlow on the server, insert the distribution CD, change to the DigiFlow installation folder and double-click on ServerInstall.bat. A command prompt will open to control the installation process which should take no more than five minutes.

Installing from a zip file

If you are installing from a zip file, it is simplest to begin by creating the destination folder on the server and unzip the distribution zip file into it. You should then run ServerInstall.bat in that folder, either by double-clicking from Explorer, or running it from a command line. In either case, a command prompt will open to control the installation process which should take no more than five minutes. You should respond with a blank line to the first question of the location of the DigiFlow on the server in order to indicate that it is the current directory.
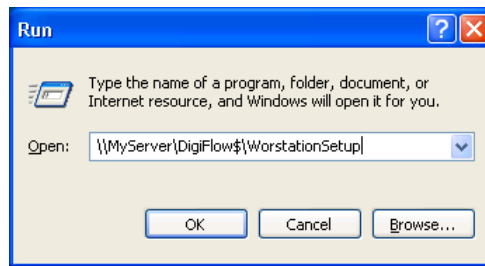
[Alternatively, if you prefer, you can unzip onto a CD then use the instructions for installing from a CD.]
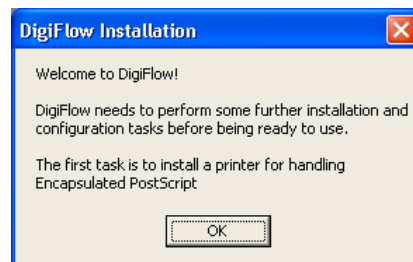
Workstation Installation

The workstation installation may be completed either by logging on to the workstation locally, or via a Remote Desktop connection. In either case, an Administrative or Power User account is necessary for the initial installation. Note that during this installation the workstation must be connected to the network within one of the subdomains for which the site licence was created. Subsequently, DigiFlow can be operated as a stand-alone system.

Initial setup

1. From the Start Menu on the workstation choose Run and enter \\MyServer\DigiFlow$\WorkstationSetup. This will open a command prompt that controls the first stage of installation process:
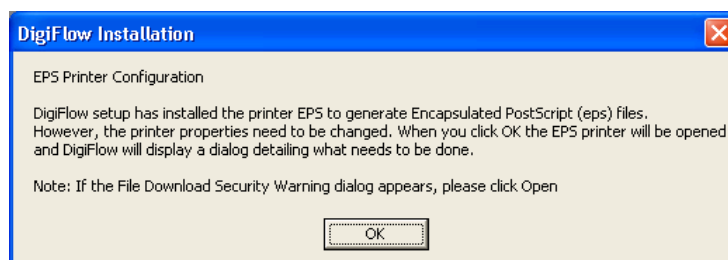
2. DigiFlow is copied from the server to the folder C:\Program files\DigiFlow on the workstation.

3. Shortcuts to DigiFlow and its documentation are set up on the Desktop and Start Menu for All Users. The DigiFlow shortcuts are preset to start in the folder specified by %HomePath%.

4. The permissions on the DigiFlow directory are changed to allow full control by all Authenticated Users. This is necessary to allow DigiFlow to be updated automatically when a new version is found on the server.

5. File associations are set up for the main DigiFlow file types, namely .dfi, .dfd, .dft, .dfc and .dfs files.

6. DigiFlow is started to allow the second phase of installation. Some user interaction will be required during this phase.
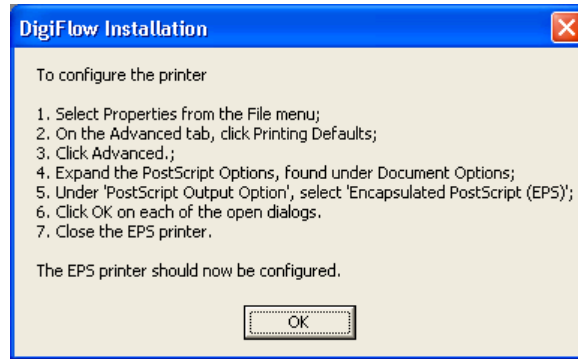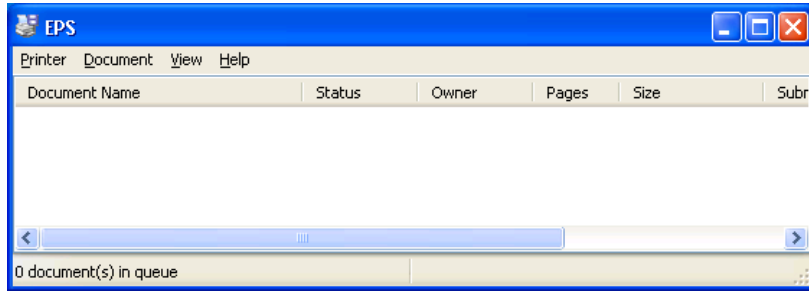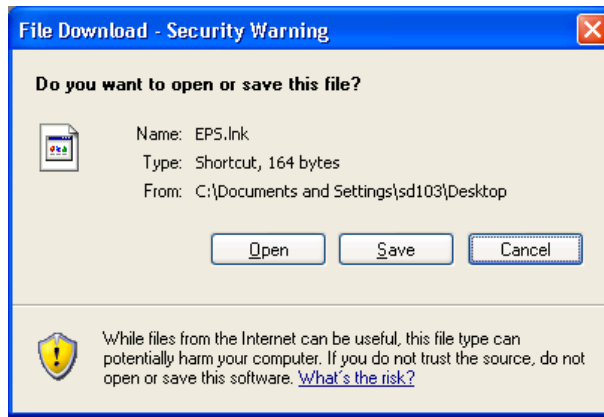
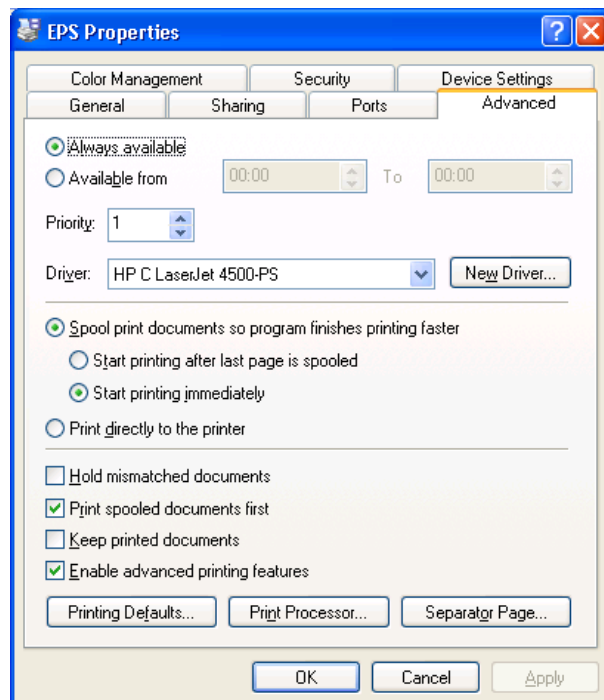*Encapsulated PostScript printer configuration*

7. DigiFlow attempts to install a new printer named EPS which will be used to generate Encapsulated PostScript. During this process, a pair of standard Windows scripts will be run, first to install the printer, then a second to do the initial configuration of the printer. Each of these scripts runs in its own command prompt.
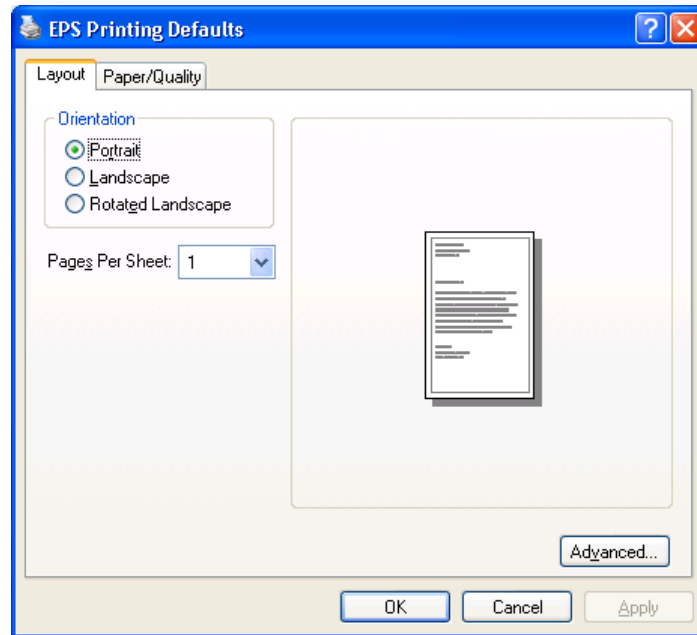
8. Once the printer is installed, it needs to be configured to produce Encapsulated PostScript. While starting the printer dialog, your system may generate a security dialog: you should select Open.
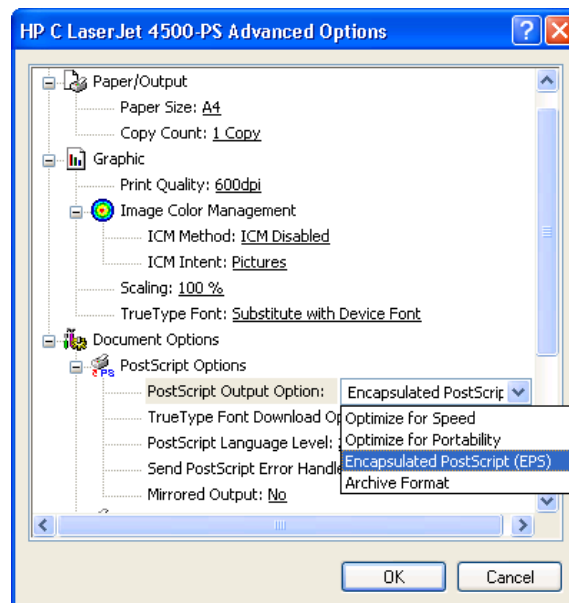
File Download - Security Warning

Do you want to open or save this file?

Name: EPS.lnk
Type: Shortcut, 164 bytes
From: C:\Documents and Settings\sd103\Desktop

[Open] [Save] [Cancel]

While files from the Internet can be useful, this file type can potentially harm your computer. If you do not trust the source, do not open or save this software. What's the risk?

EPS

Printer Document View Help

Document Name	Status	Owner	Pages	Size	Subr

0 document(s) in queue

DigiFlow Installation

To configure the printer

1. Select Properties from the File menu;
2. On the Advanced tab, click Printing Defaults;
3. Click Advanced.;
4. Expand the PostScript Options, found under Document Options;
5. Under 'PostScript Output Option', select 'Encapsulated PostScript (EPS)';
6. Click OK on each of the open dialogs.
7. Close the EPS printer.

The EPS printer should now be configured.

[OK]

9.   Select Properties from the Printer menu.

EPS Properties

| Color Management | Security | Device Settings |
| General | Sharing | Ports | Advanced |

⊙ Always available
○ Available from   [00:00]   To   [00:00]

Priority: [1]

Driver: [HP C LaserJet 4500-PS]   [New Driver...]

⊙ Spool print documents so program finishes printing faster
   ○ Start printing after last page is spooled
   ⊙ Start printing immediately
○ Print directly to the printer

☐ Hold mismatched documents
☑ Print spooled documents first
☐ Keep printed documents
☑ Enable advanced printing features

[Printing Defaults...] [Print Processor...] [Separator Page...]

[OK] [Cancel] [Apply]
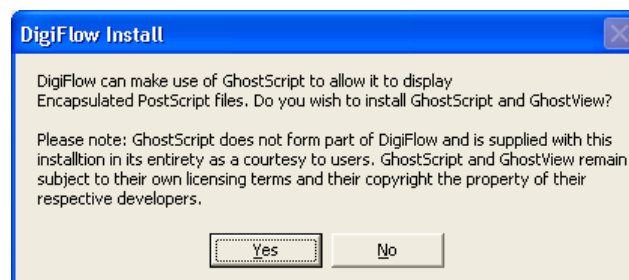
10. Choose Printing Defaults on the Advanced tab.
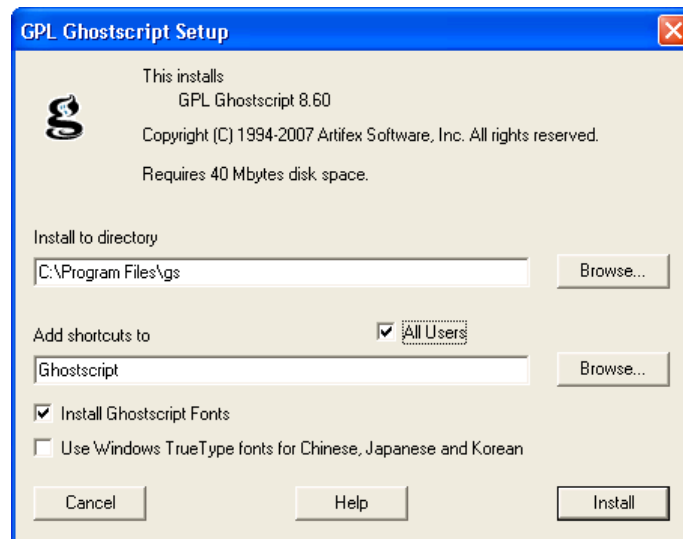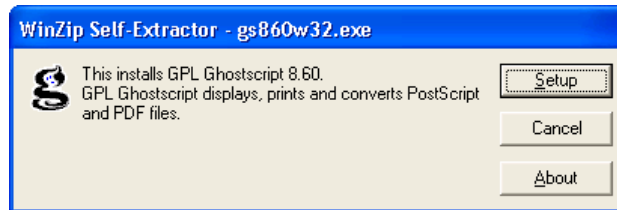

11. Then select the Advanced button.

12. Under PostScript Options, choose Encapsulated PostScript, the OK until all printer dialogs are closed, and close the EPS printer.
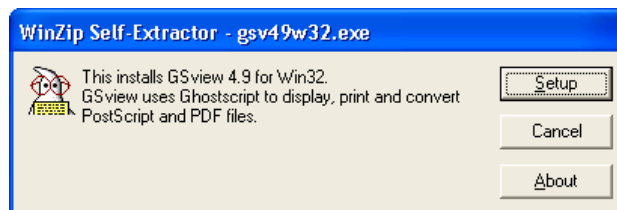
GhostScript and GhostView

13. DigiFlow cannot itself read back in an Encapsulated PostScript file it produces. However, if DigiFlow detects that GhostScript is installed on the machine, then DigiFlow will attempt to use GhostScript to help it load the .eps file in an appropriate format. For this to be achieved,
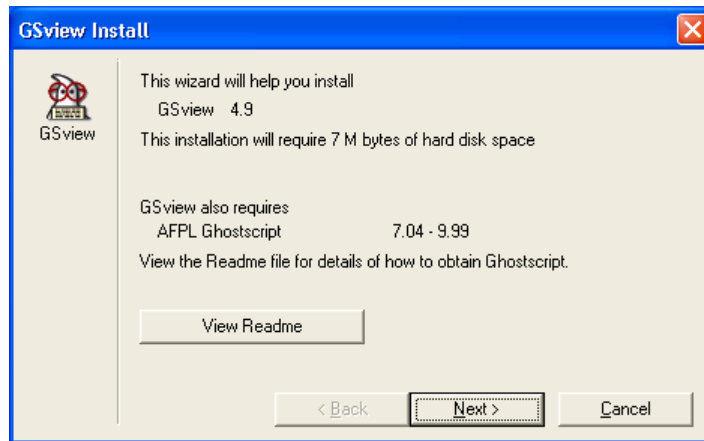
GhostScript must be on the system `PATH` and the `GS_LIB` environment variable must be set up to point to the GhostScript libraries. If you select Yes then DigiFlow will install the version of GhostScript (and GhostView) supplied on the installation disk. Note that GhostScript and GhostView remain the property of their respective developers and do not in any way form part of DigiFlow. They are included on the installation disk and installed in their entirety in accordance with their licences. Use of GhostScript and GhostView is governed entirely by their respective licences and not by the DigiFlow Licence. Refer to the DigiFlow manual for further details.
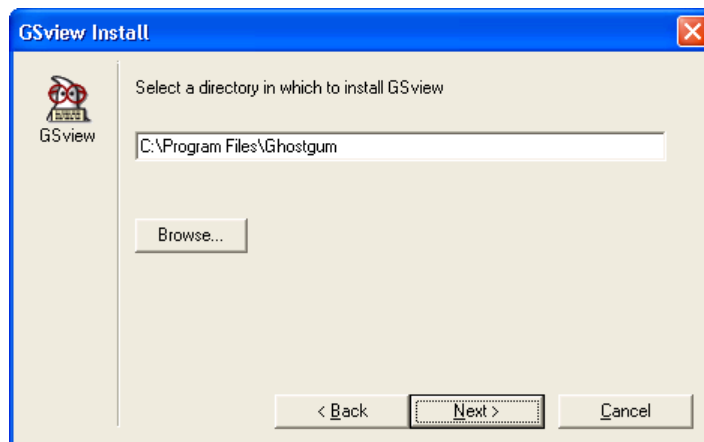

14. Select All Users and click Install. Installation of GhostScript will be completed. Note that DigiFlow will assume installation to the default path (C:\Program Files\gs).
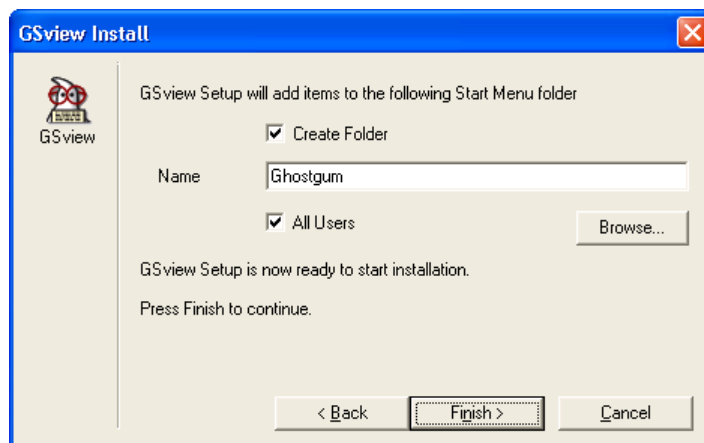

15. GhostView does not interact in any way with DigiFlow, but most users find it a convenient utility when viewing PostScript files. Of course, DigiFlow can be used to view Encapsulated PostScript files, but does not offer the same range of features.

16. The GhostView installation wizard handles the installation. A subset of the wizard dialogs are shown here to emphasise some features.

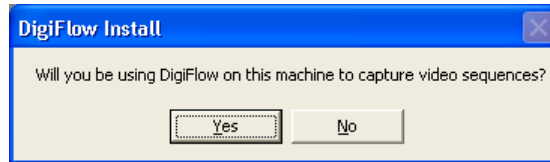17. DigiFlow will assume installation to the default path (`C:\Program Files\gs`).

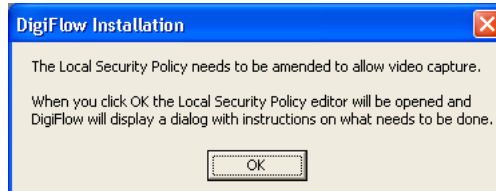18. It is recommended that GhostView is made available to all users.

In addition to overseeing the installation process, DigiFlow has set up the `Path` and `GS_Lib` environment variable to make GhostScript and GhostView available from the command line by typing `gswin32 file.ps` or `gsview file.ps`, respectively.
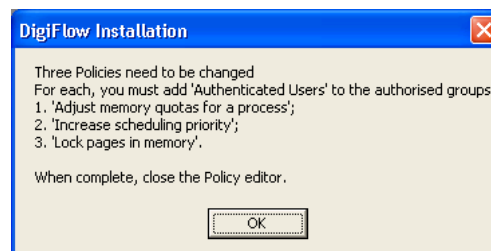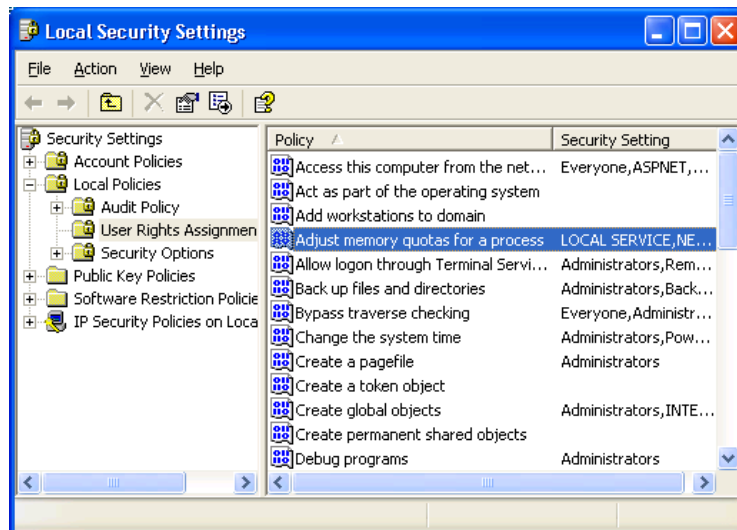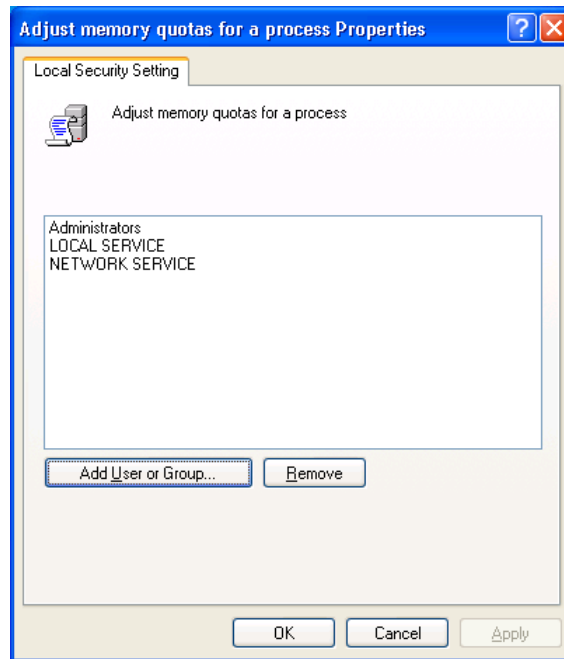
Video capture

19. If you are going to use the workstation for capturing video sequences using a BitFlow framegrabber, then some additional configuration of Windows is required. Answering Yes to this question will start the next phase of configuration.
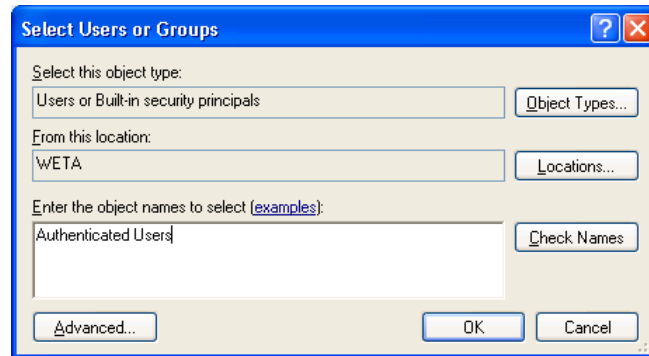

20. When OK is clicked, the Local Security Policy editor will be started.

21. Three policies need to be changed: Adjust memory quotas for a process, Increase scheduling priority and Lock pages in memory.
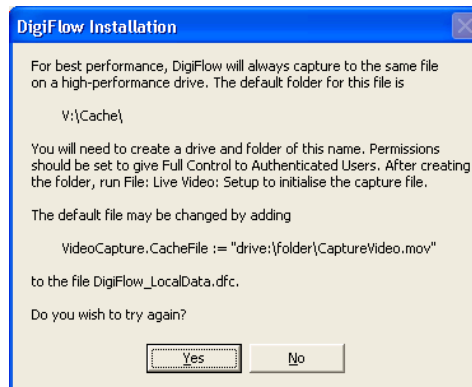
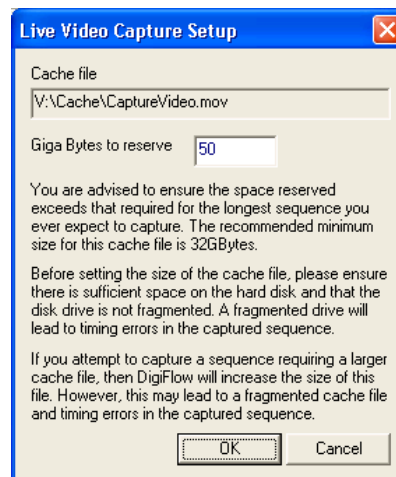22. Double click on each policy in turn and select Add User or Group.

23. Add the group Authenticated Users.

24. When completed, close the Local Security Policy editor and click OK on the DigiFlow dialog.

25. The capture process in DigiFlow can be configured in two ways. Either you can directly specify the capture file and location each time (risking the user specifying a disk system with insufficient bandwidth), or setting up DigiFlow to capture to a fixed location and require the user to 'review' (and possibly edit) the sequence in order to copy it into their own directory space. This second method is the default and is generally preferred for multi-user systems as it allows users to utilise the capture facility like a video recorder while preventing retention of unwanted video footage. DigiFlow will now attempt to do the necessary preparatory work for this, unless you have disabled it by manually editing `DigiFlow_LocalData.dfc` on the server.

26. This dialog will be displayed only if DigiFlow cannot find the drive on which the capture file should reside. By default this is `V:` drive; the default may be changed by manually editing `DigiFlow_LocalData.dfc` on the server. It is strongly recommended that video capture is to a disk other than that containing the operating system in order to obtain adequate performance. The necessary disk system bandwidth may be in excess of 100MB/s in some cases (thus requiring a Mode 0 RAID array, or using Windows to 'stripe' across multiple disks), but for most cameras 40MB/s is sufficient and this may be achieved via a fast IDE or SATA disk (but not the one the operating system is on!). You can either use Disk Manager to re-label one of your existing hard disks (the preferred option), or create a network share on your local machine that you then connect to using `net use`. Either of these can be performed whilst DigiFlow remains open.

27. Once DigiFlow recognises you have created this directory, it will run File: Live Video: Setup (see the DigiFlow manual for further details) to create the initial capture file (the default is V:\Cache\CaptureVideo.dfm). **It is strongly recommended that you do this before writing any other data to the capture disk.** Once created, the capture file will be flagged as Read only by the operating system (although DigiFlow will still be able to write to it). The file will not shrink if a smaller sequence is captured, but may grow if one larger than that specified during File: Live Video: Setup is requested (note that there is a risk of fragmentation if this occurs). It is important, therefore, that you go through the review process outlined in the DigiFlow manual rather than simply copying this file, as in general only a part of the file will contain valid data.

28. The DigiFlow side of the video capture configuration is completed by DigiFlow setting the permissions on the capture folder so that Authenticated Users have Full Control.

29. The BitFlow framegrabber also needs to be set up prior to it being used by DigiFlow. Consult the DigiFlow manual for further details.

Completion of installation

30. Installation of DigiFlow is complete. The current copy of DigiFlow will close. You should restart DigiFlow using the desktop shortcut or by typing `digiflow` at a command prompt when you are ready to start using it. There is no need to reboot.

Running DigiFlow

DigiFlow is normally run in one of two ways: typing `digiflow` at a command prompt or double clicking on a shortcut you have set up. In either case, DigiFlow is best run in a user-owned directory where the images to be processed reside. Experienced users tend to find starting DigiFlow from the command prompt is the most efficient approach.

Additional configuration

Frame grabber

Please refer to the DigiFlow User Guide for details on the configuration of a BitFlow framegrabber, if one is to be used for video capture.

Updates

Updates to DigiFlow are distributed as .zip files on the DigiFlow web site. To make these updates available to all users of DigiFlow, simply download the .zip file and unzip it into the folder containing the master copy of DigiFlow (*i.e.* \\MyServer\DigiFlow$). Each time DigiFlow is opened on a workstation it checks if there is a new version of DigiFlow available on the server and installs it, if appropriate.

Help and documentation

The DigiFlow user guide is distributed in both .pdf and html formats. You may wish to create a shortcut to digiflow.pdf, located in the directory in which DigiFlow is installed. The html version of the documentation (digiflow.htm) is linked with DigiFlow so that pressing the function key `f1` will provide context sensitive help. (Note that this feature requires a suitable web browser, such as Internet Explorer, to be installed.)

Help on the DigiFlow macro language (dfc) is available both through the Help menu, and through specific help features in dialogs that require such code.

User support

Holders of Commercial and Site Licences receive a broad base of support as part of their licence agreement. This support is normally provided via e-mail.

DigiFlow users operating on Free Licences are welcome to e-mail queries and problems to Dalziel Research Partners, although Dalziel Research Partners reserve the right not to follow through on a given query.

Feedback

All users are invited to send in comments or suggestions for improvements to DigiFlow. Dalziel Research Partners welcome copies of any publications that utilise results obtained with DigiFlow and 'favourite' images.

Uninstall

DigiFlow may be removed at any time by simply deleting the directory tree where you installed it, removing this directory from the path, and deleting any shortcuts you created. DigiFlow does not install any files outside its own directory tree.