

Photographic Alliance of Great Britain

Technical Standards Committee



Fifth Interim Report February 2007

Projected Digital Images Standards for Events

Version	Date	State
1.0	Jan-07	Outlines of individual standards
1.1	Jan-07	Standards ordered and confirmed as a set.
1.2	25/01/2007	Composite draft for Executive

Projected Digital Images Standards for Events

Introduction

Citation

This document should be cited as the Fifth Interim Report of the Technical Standards Committee. It is prepared as a draft for review by the Executive. Subject to approval by the Executive, it will be available for wide comment before a definitive standards document is prepared for publication.

Technical Standards Committee

The Committee was established by the Alliance Executive in April 2005. The membership has been - Mark Buckley-Sharp (CACC) (Chair), Ian Lyons (NIPA), Roger Force (KCPA) (until April 2006), and Mike Wheatley (WCPF) (from April 2006).

Progress

The Committee collated information about Projected Digital Images, and published this in April 2006 as its Third Interim Report. Subsequently the Executive agreed (in October 2006) that the format of standards documents for projected digital images should be

- A short checklist of standards for event organisers
- Supporting guidance about the standards, for event organisers
- Supporting guidance for authors

and that the checklist should be available by February 2007. This Fifth Interim Report has achieved both the checklist and the guidance to organisers.

Scope

The Alliance can only set standards for its own events, and has no jurisdiction over events held by Federations, their member Clubs, or any other photographic organisation. Federations, Clubs and others may find these standards useful, and the guidance has been written to include advice relevant to them, especially where that advice might vary from that for Alliance and Patronage events. The different levels of events, and the applicability of these standards is set out in the Table

Alliance event	An event organised directly by the Alliance Executive, including competitions, exhibitions, and the awards scheme. Compliance will be mandatory.
Patronage event	An event requesting and accepting PAGB Patronage. Note that Alliance events, except the awards, are also Patronage events. Compliance will be mandatory, and must be confirmed via the Patronage application.
Federation event	An event organised by a PAGB Federation, unless

	that event has accepted PAGB Patronage, in which case it is a Patronage event. Compliance voluntary. The guidance with the standards may be helpful.
Inter-Club event	An event between any group of Clubs, unless that event has accepted PAGB Patronage, in which case it is a Patronage event. Compliance voluntary. The guidance with the standards may be helpful.
Club event	An event within a single Club, unless that event has accepted PAGB Patronage, in which case it is a Patronage event. Compliance voluntary. The guidance with the standards may be helpful.

Format

The standards and guidance follow this Introduction.

The standards show what is to be achieved, but there will be many ways to meet and comply with each standard. The standards are pragmatic and abstracted from current practice. The Committee is grateful to Tony Riley who produced a suggested standards list. The Committee also reviewed the published requirements (or rules) from a range of UK events, and analysed these into good practice, some omissions, and some mistakes.

- The ‘A’-series standards are those exclusively for the event organiser when designing the event and its procedures.
- The ‘B’-series standards are also part of the event design, but where the outcome of that design must be announced to the authors as the requirements or rules for the event.

The guidance is tabulated to match with each standard. It summarises current practice and draws heavily on the detailed content of the Committee’s Third Interim Report.

Terminology

Event	Anything from an internal Club competition to an open international exhibition. Refer to Scope for the applicability of these standards.
Organiser	The person, team, or organisation responsible for running the event.
Author	Anyone submitting an entry to an event.
‘must’	In these standards and guidance, anything which is mandatory.
‘should’	In these standards and guidance, anything which is not mandatory but which is strongly recommended.
‘may’	In these standards and guidance, anything which is an option or alternative worth considering.

The Standards for Projected Digital Images

For the Event Organiser:

A.01	Equipment. The organiser must install and commission digital projection equipment such that judges, and preferably any other audience, observe a fair and common representation of the authors' submitted images.
A.02	Interpixel Processing. The organiser must avoid, as far as possible, any interpixel processing of an author's image file.
A.03	Data Governance. The organiser must establish data governance policies and procedures for the event.

For Announcement to Authors:

B.01	Image Size: The organiser must state the pixel dimensions (width and height) permitted for image data files.
B.02	Colour Model and Space. The organiser must state the colour model(s) and colour space(s) permitted for image data files.
B.03	File Type. The organiser must state the file type(s) permitted for image data files.
B.04	File Size. The organiser must state any maximum permitted file size for submission of image data files.
B.05	File Name. The organiser must state the format(s) of file name permitted for image data files.
B.06	Media. The organiser must state the media permitted for submission of image data files; the organisation of files within the media; and how the media will be handled.
B.07	Metadata. The organiser must state what information is required to be submitted with image data files, and in what format(s).
B.08	Publication. The organiser must state if images from the event are to be reproduced in a catalogue, on CD/DVD, or on a website.
B.09	Advice. The organiser may issue advice to authors about how to comply with any specific requirements for the event.
B.10	Compliance. The organiser must state if entries will be rejected if authors fail to comply with particular requirements.

Guidance to Organisers About Standards

For the Event Organiser:

A.01	<p>Equipment.</p> <p>Digital projection involves imaging software in a computer system driving a digital projector system. This standard requires careful selection, installation, setup and use of equipment, but does not require any particular software, computer or projector.</p> <p>The projected digital display system is driven by software which may be general purpose imaging software, or by software specially designed to support competitions and exhibitions in photography. In turn, the event software will determine the organiser's workflow for receiving, managing and displaying the images. No firm recommendation can be given for any software. A more important requirement is that the organiser is fully trained and conversant with the chosen software so that the event runs smoothly.</p> <p>The most commonly chosen image size for projectors is XGA (1024 pixels wide by 768 pixels high). Many models are available, mostly designed for presentations. The merits of LCD and DLP display technologies are debated: models of either type may be suitable. Other images sizes coming into use include SXGA+ (1400 pixels wide by 1050 pixels high). Models include those with LCOS display technology. For highest quality display, the system configuration should exclude automatic inter-pixel processing: see standard A.02.</p> <p>A fair representation means that some care must be taken to adjust settings of brightness, contrast, and colour. These adjustments may be made in the graphics driver system of the computer, or in the projector, or both. In any case, the computer and projector are set up when paired as a single system, and not as two separately transferable units.</p> <p>PAGB has collated information on acceptable screen brightness (white value). Measured at ISO100, EV in the range 7-9, measured by reflection from a white screen, is generally suitable. There is some evidence that smaller screen images may be brighter, and that large screen images should be less bright. This may be an observer preference related to image size within a blackout.</p> <p>Opinion is divided on the various methods of calibrating systems for colour. There is neither any one correct method, nor any one achievable standard. For all calibration methods, the user must be familiar with the basic concepts of brightness, tonality and colour in order to judge what adjustments might be required. Ultimately, the quality of projection is a subjective assessment, which should be based on viewing a range of typical photographic images.</p> <ul style="list-style-type: none">• With time and care, it is perfectly possible to achieve a good result by manual adjustments.• Simple aids such as Adobe Gamma can be used, and are quite effective.
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	<ul style="list-style-type: none"> • More expensive hardware systems can be used, but it cannot be assumed that they always give the best results. These systems rely on spectrophotometric detectors whose repeatability and calibration are not maintainable by the user. • Records of settings should be kept, so that the system can be returned to a known state.
<p>A.02</p>	<p>Interpixel Processing.</p> <p>Interpixel processing happens whenever any interpolation is applied to the pixels of the image data. Interpolation by the organiser always degrades the image so that it differs unpredictably from the image submitted by the author.</p> <p>“As far as possible” should be interpreted according to the quality expectations of the authors submitting to the event. For Patronage events, authors will expect the highest possible quality of image reproduction, meeting all the following recommendations. For Club events, the organiser may need to enable novice authors to submit so that their work is shown, even if not at optimum quality.</p> <p>Driver/Display Matching:</p> <ul style="list-style-type: none"> • The settings of the projector’s display driver must match the native resolution of the projector. <p>Data Cabling:</p> <ul style="list-style-type: none"> • In practice, the quality difference between analog and digital connection is difficult to see. VGA and DVI cabling are acceptable alternatives. • The computer and projector may be connected using an analog (‘VGA’) cable (connector colour-code, blue). The data on individual display lines is converted from digital to analog by the computer and back again by the projector. There is some loss of horizontal definition with no exact pixel mapping from the image data to the display. There may be some setup difficulty with 1-2 pixels error on either side of the display. • Use of a digital (DVI-D) cable (connector colour code, white) allows pixel mapping to be exact. [Note. This does not mean use of the analog signals available on a DVI-I socket.] However, relatively few computers, and not all projectors, have a DVI connector as standard. <p>Colour Mode:</p> <ul style="list-style-type: none"> • The projector must have, and must be set to use, a static colour mode such as sRGB. • Colour modes intended to correct for screen colour eg, blackboard mode, or which adjust the image based on image content, must not be used. <p>Keystoning Correction:</p> <ul style="list-style-type: none"> • For optimum quality, digital keystoning correction in the projector must be set to zero or disabled.

	<ul style="list-style-type: none"> • Optical keystone correction is permitted. Methods include <ul style="list-style-type: none"> ○ Mechanical lens shift (available on some projectors) ○ Set the projector exactly level, and at a suitable height to project the required image on a vertical screen. ○ Allow the projector to be tilted, but also tilt the screen to retain a rectangular image. • Some uncorrected optical keystone may be acceptable. <p>Resizing:</p> <ul style="list-style-type: none"> • For optimum quality, resizing by display software must be turned off. • Using display software to automatically resize an image file to the pixel dimensions of the display may be useful at Club level as it is tolerant of faults by novice authors.
<p>A.03</p>	<p>Data Governance.</p> <p>Data governance means the arrangements in place to manage data according to law and good practice.</p> <ul style="list-style-type: none"> • Law relevant to projected digital events includes that for data protection and copyright. • Good practice means being aware of the typical standards of behaviour expected within amateur and professional photography, both for all events, and for projected digital events. This documentation only covers standards specific to projected digital events. <p>Data Protection:</p> <ul style="list-style-type: none"> • The organisation running the event must have a policy for data protection relating to information about authors. • While all events handle personal data, digital events tend to store more data, which may be inadvertently copied, lost, or retained excessively. <p>Copyright:</p> <ul style="list-style-type: none"> • Digital events store all images electronically. There must be a plan for publication eg, of catalogues, and for secure destruction of the images after the event. • Examples of good practice for publication follow and give the detail referred to by standard B.08. <p>For a printed catalogue:</p> <ul style="list-style-type: none"> • Catalogues may have a limited circulation, and the risk of copying is then correspondingly lower. • The image data file submitted for projection will have sufficient pixels (width and height) for an adequate size and quality of printing. <p>For CD/DVD publication:</p> <ul style="list-style-type: none"> • Copying of CD/DVD media is easy, and there are few ways to make them secure from copying. Attention should be given instead to securing the images.

- The images may be managed as for web publication (see below), with the same risks.
- It may be possible to secure the images within display software. For example, Pictures2exe does not expose the individual images for copying. But, such display software may not be cross-platform (Microsoft/Apple) compatible.
- Image files placed within software such as Microsoft PowerPoint or Adobe PDF are not secure.

For web publication:

- Consideration must be given to the possibility of the author's image being copied from the web by anyone. It is inherent in web browsers that any web file is downloaded and can be saved.
- Consideration should also be given to the overall file size when published on the web so as to avoid excessive download times for all users. A file size below 50KB should be achieved if possible.
- Where image file submission is specifically to a web managed event, then the image dimensions and compression quality may have been limited already. The organiser should still consider whether any further reductions are necessary before long-term publication.
- An image data file submitted for projection will have more pixels (width and height), and will be at higher quality than it is wise to publish on the web.
- The organiser should manage file size and quality reduction from the projection images eg, by automation in website creation software. A dimension of 350-450 pixels on the long side of the image is usually sufficient; with JPEG-5 compression.
- It is feasible to overlay the author's name and copyright within the image file before it is published on the web.

For Announcement to Authors:

B.01	<p>Image Size.</p> <p>The image size is expressed as the pixel dimensions of the image data file, and must be quoted as width followed by height. These dimensions must not be greater than the native resolution of the projector.</p> <p>Image resolution, which is expressed as pixels/inch, dots/inch (or per centimetre), has no relevance for projection or any other use by the event, and must not be specified.</p> <p>The pixel dimensions may equal the native resolution of the projector:</p> <ul style="list-style-type: none">• The most commonly used dimensions are 1024 pixels wide by 768 pixels high (XGA projector).• Other dimensions coming into more frequent use include 1400 pixels wide by 1050 pixels high (SXGA+ projector) <p>The pixel dimensions may use less than the full width for the projector, with the outer areas unused and displayed black. This is so that portrait images and landscape images both use a similar screen area.</p> <ul style="list-style-type: none">• For an XGA projector, some organisers have specified use of 900 pixels wide by 768 pixels high.• For an XGA projector, some organisers have specified use of 768 pixels wide by 768 pixels high ie, square format like slide projection.• Equivalent ratios may be used for SXGA+ projectors eg, the square format would be 1050 pixels wide by 1050 pixels high. <p>The pixel dimensions may be smaller than both full width and full height, with the surround unused and displayed black. Organisers may want this for web-based events where file size and transfer times must be minimised.</p> <p>Authors remain inexperienced in sizing images correctly for the projection space. In the interim, it may help to be very explicit about both the maximum width of 'landscape' images, and the maximum height of 'portrait' images.</p>
B.02	<p>Colour Model and Space</p> <p>Almost invariably, the only permitted colour model will be RGB (as opposed to CMYK, Indexed colour, Grayscale, Lab, etc)</p> <p>Within the RGB colour model the only two colour spaces likely to be permitted are:</p> <ul style="list-style-type: none">• sRGB• AdobeRGB <p>Where only a single colour space is permitted, then sRGB should be chosen. This is likely to lead to fewer errors by authors. Image display software assumes that files lacking a colour space tag are in sRGB.</p> <p>If the display software used by the organiser is not colour aware, then the organiser must restrict entries to a single colour space.</p>

	<p>The organiser may choose to restrict entries to a single colour space anyway.</p> <p>If the display software used by the organiser is fully colour aware, then the organiser may choose to permit entries in either colour space. The organiser must then remind authors to embed the correct colour space tag/profile within the image file.</p>
<p>B.03</p>	<p>File Type.</p> <p>For both Microsoft and Apple systems, the file type is typically 3 but may be 4 characters, and it follows the last period character of the file name. Although case insensitive, it is conventionally in lower case.</p> <p>There are many file types available for image data files, and each has detailed options. In practice, only the following file types are likely to be permitted:</p> <ul style="list-style-type: none"> • jpg (and optionally jpeg) • tif (and optionally tiff) <p>The organiser's published requirement, and any examples in advice to authors, should use only the 3-character lower-case format.</p> <p>Practical experience is that projected digital display of a maximum quality jpg file is indistinguishable from display of a tif file. There is no specific advantage is either permitting or requiring tif files</p> <p>Options for jpg file type:</p> <ul style="list-style-type: none"> • Where files are submitted on CD media, then the organiser should recommend the maximum quality setting of jpg-12 or 100%. Limitations on file size must not be stated. • Where files are submitted by e-mail, then standard B.04 permits the organiser to state a maximum file size for ease of handling. <p>Options for tif file type are chosen to minimise variation and maximise compatibility across the submitted files:</p> <ul style="list-style-type: none"> • The organiser must instruct authors to: <ul style="list-style-type: none"> ○ flatten all layers. ○ use 8-bit colour (24-bit pixels in RGB). ○ not use any tif compression method.
<p>B.04</p>	<p>File Size.</p> <p>This standard does not apply where submission uses hard media such as CD/DVD or memory card/stick. In these cases, file size should not be mentioned and all file sizes must be accepted.</p> <p>This standard only applies where submission uses e-mail/web submission of jpg files, where the organiser may want to limit the bandwidth and time for image downloading. Only the jpg file type allows the author to vary the file size, for given pixel dimensions, by choosing the amount of compression.</p> <p>For events which are displayed and managed entirely on the internet, the organiser may already have limited the pixel dimensions of images, and this</p>

	<p>will itself limit the file size.</p> <p>The organiser must be sure, by evaluating typical images, that any file size limit will give a satisfactory quality of image when displayed.</p>
<p>B.05</p>	<p>File Name.</p> <p>No specific file name format(s) are required by this standard.</p> <p>Authors may be using either Microsoft or Apple systems, and the file name specification must suit both.</p> <ul style="list-style-type: none"> • For Microsoft systems, some punctuation characters are permitted within the file name, some are prohibited and some are deprecated. For a complete list refer to Microsoft systems Help. • For Apple systems, most punctuation characters are permitted, colon is prohibited, and slash is deprecated. • As the Microsoft list is more restrictive, all filenames must conform to the Microsoft specification, so that files may be exchanged without difficulty. <p>The period character should be avoided within the permitted format(s) of file name, as it can be confused with the period required to separate off the file type.</p> <p>Use of spaces within the permitted format(s) should be clarified. Underscore is sometimes preferred instead of space.</p> <p>When stating the organiser's required format, and when illustrating with any examples, the comparison between the two must be exact.</p> <p>The permitted format(s) of file name may be determined by the organiser's choice of display/competition software. In turn, this will dictate how much assistance the file name gives to the organiser when planning an effective and secure workflow for the event.</p> <p>The file name is only one part of the information provided by the author with the image data file (see standard B.07). The following may apply to particular events.</p> <ul style="list-style-type: none"> • The file name format should be devised to help run the event efficiently, and avoid the need for mass renaming of files after receipt. • Some display software can only show images in one folder in file name alphabetic order. Organisers will often want to show images in a differently sorted order. It may be possible to devise a file name format where the authors randomise their own entries eg, by including the image title in the filename. • The event may require a hierarchy of file sorting. The file name may then be divided into fields in the hierarchical order: highest first. <p>Examples:</p> <ul style="list-style-type: none"> ○ An event has 3 classes, called '1' '2', '3'. The class number must come first in the file name. There must be a way of ensuring that the remainder of the file name is unique within the class. ○ An inter-Club event has 6 entries per Club, and the entries

	<p>must be shown in cyclical order by Club. The entry number (1-6) must come first in the file name. Clubs must be allocated unique codes, and the Club code must come second in the file name. As these first two fields will be unique amongst all entries, the remainder of the file name can be anything (or nothing).</p> <ul style="list-style-type: none"> ○ Allocating codes eg, to classes or Clubs as above, is not essential if the entities are unique when expressed in full. Codes may be convenient abbreviations and may minimise typing errors, but code tables must be managed. Codes are unlikely to be understandable outside their domain. Eg, PAGB Federation codes are only relevant within PAGB events. ○ When fields are used in the file name, they may be directly concatenated, although this may be less readable than the use of a separator character or keyword. <ul style="list-style-type: none"> ▪ A chosen separator character must be permitted within a file name but unlikely to be otherwise required eg, hash '#’. ▪ A keyword can be made unique by requiring a case change eg, <title in mixed case> BY <author>, where <title> might contain ‘by’ but probably not ‘BY’. • The display software may allow a play list, so that the organiser can assign the display order ignoring the alphabetic order of file name. It would still be necessary to devise a file name format such that all the submitted image data files have a unique file name. • It will be apparent that different events may require very different file name formats for the same image file from the same author. <ul style="list-style-type: none"> ○ For events accepting entries direct from authors, the authors must personally comply with the file name format(s) required. ○ For events involving intermediate selection and assembly eg, by a Club or Federation, then the selectors may be required to rename the authors’ image files into the format(s) required by the event.
<p>B.06</p>	<p>Media.</p> <p>The permitted range of media might include any/all of:</p> <ul style="list-style-type: none"> • CD (or DVD) • Memory card/stick • e-mail attachment • other as required <p>For CD/DVD media:</p> <ul style="list-style-type: none"> • The organiser should not permit use of preformatted RW type media. Such disks are frequently only readable on the originating drive. • The organiser must state any permitted or required folder structure for the data files.

	<ul style="list-style-type: none"> ○ Files may be required to be all in the root folder. ○ Files may be required to be all in a single folder, which may be permitted or recommended to be either a normal folder or a zip folder. There may be a specification for the name of the folder, such as the name of the author, or a fixed name like 'Entries'. ○ Allowing files in any more complex folder structure is not recommended. <ul style="list-style-type: none"> • The organiser may state that all media will be destroyed after the event, or may state the arrangements for returning media to some or all authors. <p>For Memory card/stick media:</p> <ul style="list-style-type: none"> • The organiser must state the permitted types. • The organiser must state any permitted or required folder structure for the image data files. <ul style="list-style-type: none"> ○ (The options are the same as for CD media, above.) • Cards (CF, SD, xD etc.) and USB flash memory are relatively expensive media, likely to be confined to Club events where authors are readily available for the return of media. • Each individual type and make of these media may require hardware registration on the computer when first presented. Allowing authors a free choice of type and make can waste a lot of the organiser's time. Coordinating a pool of identical media eg, within a Club, may be feasible. <p>For e-mail attachment:</p> <ul style="list-style-type: none"> • There are normally no compatibility or security issues when attaching image data files or zip folders to e-mails. • The organiser should state whether multiple entries are to be submitted as separate attachments, or whether their collation within a single zip folder is either permitted or recommended. • Image data files attached to e-mails do not need to be returned.
<p>B.07</p>	<p>Metadata.</p> <p>The image data file alone is anonymous (as is an unlabelled print or slide), and the organiser must state how the image data file is to be linked to other information to make a manageable entry.</p> <p>The complete set of information about the image file is called the metadata, and will comprise a combination of the following:</p> <ul style="list-style-type: none"> • The colour model and space of the image. See standard B.02. • The file type of the image. See standard B.03. • The file name of the image. See standard B.05. • The media for recording the image, and how it is formatted and labelled. See standard B.06. • Metadata embedded within the image file. Examples include colour tag/profile, EXIF metadata (recorded by the image capturing device), and IPTC metadata (added by an image management system).

	<ul style="list-style-type: none"> • Electronic metadata external to the image file. Examples include 'readme' text files, e-mail text with the image file attached, and XML metadata. • A paper or web-based entry form. <p>Ideally, the metadata will support a level of automated handling of the image files. Automation has the capability of reducing data handling errors. The organiser's metadata requirements are likely to be closely linked to the capabilities of the display software chosen for the event.</p> <p>IPTC metadata is intended to manage press and professional images through wide-area publication, and has been used by some event organisers. However, not all imaging software likely to be used by amateur authors includes the ability to set and edit IPTC metadata. A requirement to use IPTC metadata may not be feasible in all cases.</p> <p>At least one display system designer has built a system allowing an author to submit the image data file complete with metadata taken from an on-screen form, sent to the organiser as an XML structured message on CD or by e-mail. On receipt, the organiser has all the information to automate addition of the entries into the event. Like IPTC, this ability depends upon the author having the appropriate software.</p> <p>Otherwise, there is likely to be ongoing reliance on paper forms (or e-mail text equivalents) linking author details to labelled media and the image filename.</p>
B.08	<p>Publication.</p> <p>Particular considerations apply to handling digital images because of the ease with which they can be copied, and the possible lack of any record of such copying.</p> <p>Separate image data files merely for catalogue or CD/DVD or web publications are not necessary and should not be requested</p> <p>Examples of the data governance requirements for publication in various forms is given with standard A.03</p>
B.09	<p>Advice.</p> <p>The advice which authors may find useful will vary from event to event.</p> <p>The format of advice may vary from simple text, through text illustrated with screenshots from particular software, to a significant educational programme.</p> <p>Organisers may choose to collaborate to issue compatible, or even identical, forms of advice for their events.</p>
B.10	<p>Compliance.</p> <p>Events vary in scope from Patronage level to Club level.</p> <p>At Patronage level, an organiser should reject entries for non-compliance.</p>

	<p>At Federation level, an organiser will need to encourage Clubs to comply. Acceptable non-compliance might allow eg, file naming corrections, but must not extend to the organiser making any change to the authors' image files.</p>
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At Club level, an organiser will need to encourage a full range of authors, including novices. The organiser should have tolerant processes for handling image files. Minor faults are those which can be rectified easily by the organiser and which do not unduly affect the quality of the projected image eg, resizing. Non-compliance by authors should be managed by an educational programme. This will also help authors progress to events at higher levels.