

DIGITAL PRINTING POLICY

2.10

Introduction

1 In recent years there has been an increase in the printing of maps directly from digital postscript files generated in OCAD (or similar software) to high quality printers. This process (referred to as Digital Printing to distinguish it from the conventional Offset Printing where printing plates are made) has the following benefits:

- A large capital outlay for a large print run is not required
- Maps are printed as required thus excess maps, which may become out-of-date, are not printed.
- Courses can be overprinted at the same time that the map is printed.

2 The Digital Printing process is now common for all standards of events (up to and including State Championships). Recent technological advances in four colour printing including the random placement of dots and improved registration has meant that the printing of competition-quality O-maps is now a reality.

3 People using the process need to be aware of the following factors, which can affect the quality of the result.

Printers

4 The quality of the product depends largely on the quality of the digital printing machine. The number of companies providing quality digital printing is increasing as the technology improves and becomes more economical. Contact details for printers offering high-quality services is available through state mapping representatives.

Paper

5 Some digital printing machines limit the size of the paper in at least one dimension. This situation should be checked when arranging printing. The maps should be printed on paper of at least 100gsm weight. Previous experiments in NSW with printing on "plastic paper" have been discontinued due to thinness of the film and the high cost. Printing at a slower speed may result in better ink retention. It may be necessary to experiment with papers and printers to get the best product.

Colours

6 The OCAD program has a default set of colours for use for obtaining proof copies off personal desktop printers. These colours do not create standard IOF printing colours. The CMYK colour table for OCAD recommended by the IOF (from International Specification for Orienteering Maps - ISOM 2000) is given in attachment A, and is available on the mapping page of the OA website. This tables makes a good starting point, however each different machine and type of paper will give a slightly different result, and it will usually be necessary to create a customised colour table to suit the printing machine and paper being used. This may require a few draft prints and some trial and error.

Overprinting

7 OCAD has a hierarchy of colours in its colour table. The higher a colour's position in the table the higher its priority. The default setting has purple on top, which means that purple will replace any colour below it in the table (only one colour can print on a particular spot). This may eliminate important detail. The best alternative is to alter the hierarchy so that black, brown and possibly solid blue

come above purple. This can be done simply by moving colours up or down in the OCAD colour table.

8 Whilst placing the purple below the black, brown and possibly the blue is a good idea it doesn't avoid the need to break control circles and lines between controls. Black and brown detail that coincides with purple may still be difficult to see as the contrast between the colours is not great. Where there is possible confusion caused by the purple control circle, the circle can be simply cut as follows:

- create a control circle using the usual OCAD symbol.
- if it needs a break (or breaks) select that object and click on *<to graphics>* (edit menu or icon in tool bar). The symbol now becomes a line that can be cut using the *<cut>* tool.

Note: it is also a good idea to lock (using *<protect>* from the Symbol menu) all the symbols except for the purple ones when doing courses so that other detail on the map isn't accidentally disturbed. Other techniques for creating a broken circle are also possible

9 Where a number of courses are being printed, it is recommended that a version of the map be used as a master map to set up **all** the controls (this is the point at which colour sets and colour hierarchies are checked and amended as necessary). Versions of this master map are then used to edit the controls not needed for each of the courses. This will ensure that every time a control is used on a different course, its location will be constant. The controller will need to check the master to ensure the siting of controls is correct and each of the course maps to ensure that the correct controls are used

Scale

10 The scale will influence the legibility of a digitally printed map. Thus, an area which may be considered unsuitable for digital printing at 1:15000, may be suitable for digital printing at a larger scale (e.g. 1:10000).

Other Limitations

11 Areas of grey are printed with a black screen in digital printing. This may make the rock illegible, especially where bare rock areas are small, or mixed with other area features such as vegetation.

12 Areas of complex contours may be difficult to read when digitally printed.

Approval for Digital Printing

13 Approval for digital printing made as follows:

- For Group B and C events - State/Territory Association level.
- For Group A events - must be obtained from the OA mapping committee convenor at least six months before the event.
- For International Events in Australia (World Cup, World Championships or equivalent) – IOF Mapping Commission

Guidelines for Approval

14 Digital Printing will be approved when it can be demonstrated that there will be no significant loss of line quality, legibility, colour appearance and map durability for the competing orienteer.

15 Maps with the following terrain will require a demonstrated high standard of digital printing before approval is given:

- Significant areas of bare rock, especially those with small areas of bare rock amongst other detail
- Complex contour features (eg. gold mining)

Note that complex maps printed at a larger scale (such as 1:10000) are more legible and more likely to be suitable for digital printing

16 ISOM 2000 recommends spot colour printing for all IOF events. Other printing methods can be used if colours and line width have the same quality as printing with spot colours. Any request for a variation from traditional spot colour printing would need to be approved by the IOF Map Committee.

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APPENDIX A

| OCAD COLOUR DEFINITIONS | | | | | |
|--|-------------------------|------|---------|--------|-------|
| <p>The printer colours in the OCAD colour table should set to these values to produce the correct IOF colours. Note: It may be necessary to customise the colour table for individual printers to achieve the exact PMS colours as specified in the ISOM2000 mapping guidelines</p> | | | | | |
| # | COLOUR NAME | CYAN | MAGENTA | YELLOW | BLACK |
| 0 | BLACK (Process) | 0 | 0 | 0 | 100* |
| 1 | BLACK 30% | 0 | 0 | 0 | 23 |
| 2 | BLUE (PMS299) | 87 | 18 | 0 | 0 |
| 3 | BLUE 50% | 43.5 | 9.5 | 0 | 0 |
| 4 | BROWN (PMS 471) | 0 | 56 | 100* | 18 |
| 5 | BROWN 50% | 0 | 28 | 50 | 9.5 |
| 6 | GREEN (PMS361) | 76 | 0 | 91 | 0 |
| 7 | GREEN 50% | 38 | 0 | 45.5 | 0 |
| 8 | GREEN 20% | 15 | 0 | 18 | 0 |
| 9 | YELLOW (PMS136) | 0 | 27 | 79 | 0 |
| 10 | YELLOW 50% | 0 | 13.5 | 39.5 | 0 |
| 11 | PURPLE | 0 | 100* | 0 | 0 |
| 12 | YELLOW 100% / GREEN 50% | 38 | 27 | 100* | 0 |
| 13 | WHITE FOR GREEN | 0 | 0 | 0 | 0 |
| 14 | ALL | 0 | 0 | 0 | 100* |
| 15 | STREET INFILL | 0 | 28 | 50 | 9.5 |
| 16 | YELLOW 20% | 0 | 5.5 | 16 | 0 |
| 17 | PURPLE 50% | 0 | 50 | 0 | 0 |
| 18 | PURPLE 20% | 0 | 20 | 0 | 0 |
| 19 | BLACK 50% | 0 | 0 | 0 | 49.5 |
| 20 | BLUE 20% | 17.5 | 4 | 0 | 0 |
| 21 | BROWN 20% | 0 | 11 | 20 | 4 |
| 22 | GREY | 0 | 0 | 0 | 23 |
| 23 | GREY 50% | 0 | 0 | 0 | 11.5 |
| 24 | GREY 20% | 0 | 0 | 0 | 5 |
| 25 | STREET BORDER LINES | 0 | 0 | 0 | 100* |
| 26 | WHITE FOR YELLOW | 0 | 0 | 0 | 0 |
| 27 | YELLOW 50% / GREEN 50% | 38 | 13.5 | 85 | 0 |
| 28 | YELLOW 50% / GREEN 20% | 15 | 13.5 | 57.5 | 0 |
| | | | | | |
| *OCAD5 can't do 100%, USE 81%. Later versions of OCAD do 100% | | | | | |