Mapping Bulletin – New Sprint Specification

Orienteering NZ Mapping Committee

23 Sep 19 Mappers Version

Summary: The IOF has introduced a new mapping specification for sprint orienteering events, called ISSprOM2019. A parallel bulletin gives advice to clubs on adopting this. This bulletin is aimed at mappers. It covers changes at the Fieldwork, Drawing and Printing stages, and advice on converting existing maps.

What Are the Changes?

There are few changes which NZ orienteering participants would notice, but there are lots "under the skin" designed to improve legibility. Some of these changes have already shown up in ISOM (standard) maps.

Some examples: the green circle and cross get a white halo, and the green dot gets a tiny white hole in the middle. The dark green/black disappears. There's a new symbol for an elevated paved area, and some things which are obvious extensions of existing symbols. The rural/urban colour distinction for paved areas and roads/tracks has gone, but now there's a high/low traffic distinction. There is more emphasis on minimum separations of features on the map.

Find the new spec at https://orienteering.sport/iof/mapping/ The IOF has a changes document but unfortunately it covers every tiny dimensional change. If you insist, you'll find it at the above link 😊

There have been some very minor changes to ISOM maps too, such as the white halo on the green circle and cross. This bulletin is not aimed at these but see the Postscript at the end.

When Do They Take Effect?

The new spec is optional for sprint events during 2019, and comes into effect from 1 Jan 2020.

Major events should use it from Jan 2020; but it will take time to convert all existing sprint maps. Clubs should tell competitors which specification their maps use - in event information and on the map.

The sprint spec is used by some clubs for small close-to-home reserve areas, which may be steep and/or bushclad. The new spec is even more attuned to the urban landscape than before. It is not necessarily the right answer for these areas. The ONZ Mapping Committee is happy to discuss.

Fieldwork

We recommend a reading of the mapping spec, see above. Actually it's a good idea to read it once a year, it's amazing what you discover on a fresh look😊 The following summary is our interpretation of the main changes.

Scale and Contour Interval

The standard scale is now 1:4000. Many urban sprint maps were using it anyway. You are now allowed to use 5m contours for steep areas.

Clubs who used the sprint spec for steep or bushclad areas such as parks and reserves need to re-think, as the spec has become more urban-focussed. The Mapping Committee has some ideas about these useful in-between areas.

New Area Types at Fieldwork Stage

If you base your fieldwork code numbers on the IOF symbol numbers, lots of symbol numbers have changed. The saving grace is that they have come into line with the new ISOM numbers.

You will need to invent new fieldwork codes to distinguish scattered trees with white (tree) vs green (bush) dots - both smooth and rough scattered areas. An orchard and a vineyard can now be smooth or rough. There are a couple of new paved area types - paved area in multilevel structure (eg bridge over a street) and paved area with scattered trees. Be careful with the multi-level one especially on a slope - the picture must be crystal clear at a glance.

So-Called Impassable Features

The situation around "impassable" features is now quite weird. The IOF council decreed that all restrictions must be in the RULES rather than the SPEC. Yet the spec continues to use terms like "impassable", "shall not" etc etc. We think the net result will be business as usual with ONE EXCEPTION. The green/black mixture has gone, and we're expecting the rules will bar passage thru ordinary dark green, for sprints. One less vegetation grade to use in the field.

(We think that new rules for sprints will also ban the crossing of high walls, high fences and deep water, so continue to engage with planners and controllers over how high is "high".)

Minimum Heights and Depths

The minimum height of knolls, boulders, and some other features has reduced - they are no longer the same as ISOM. We have some misgivings about this, remember the high speeds of competitors and map only those features that are immediately recognisable in the terrain.

Paving and the Brown Roads/Tracks

You don't need to distinguish urban and rural for roads and paving (apparently we found it difficult!). But you now have to decide whether traffic is heavy and or light. The darker and

lighter shades of brown infill are used for this. It will take a while to evolve consistent practice here - maybe footpaths and carparks will be light and "proper" roads dark. There is no longer any difference in the sideline thickness.

We are worried about using light brown road and track symbols in a background of yellows and greens; and on a slope they often get mixed up with brown contours too. This spec is really focussed on urban terrain. You'll need all your skill to make legible maps in rural terrain.

Black Tracks

You can use the small black dashed track in urban areas now (and it's 50% bigger). Ditto the indistinct track and narrow ride. We wish they had included the larger black track from ISOM.

Passable Walls

Passable walls are simplified (and more legible) - it's the ISOM type now, whether urban or rural (black with black dots). A one-sided passable wall (eg retaining wall) needs to be recorded separately - it has half dots. There is still an issue of when does passable become impassable and a tapering wall is always difficult for us and competitors to assess.

Minimum Dimensions and Gaps

There's a greater emphasis on minimum dimensions and gaps. The minimum gap between impassable objects is the same as the minimum thickness of an impassable wall - 0.4mm. You need to be in the habit of drawing such gaps at fieldwork scale😊 Fieldworkers who draw their own maps may be able to use new OCAD facilities for compliance checking. Others will have to accept feedback from their cartographers about things that are too close.

Troughs and Water Tanks - Same as ISOM

Two years ago when the new ISOM came in, ONZ changed a water trough to a blue asterisk and a water tank to a blue hollow square - the sprint would follow this. There is still a black hollow circle – but we suggest NOT using it, as for some years we will have unconverted maps where this means tank.

Out of Bounds Areas

No real change except that purple stripe becomes purple cross-hatch. The new wording suggests it's for artificial barriers for course setting reasons, so you wouldn't be using this normally. The majority of private, sensitive and dangerous area will be olive green with minimal detail.

Fieldwork Legend

The Mapping Committee has prepared a one-page "Fieldwork Legend" of the new symbol numbers, as supplied by OCAD. It is available as a PDF and an OCAD11 file from www.mapsport.co.nz/mapresources.html .

Drawing – Starting A New Map under ISSprOM2019

A huge number of tiny changes has been made to thicknesses, minimum lengths/areas, and separations.

Latest OCAD

The latest OCAD is on a subscription basis. Your computer may know it as OCAD2018 or OCAD2019 and your subscription entitles you to updates – first ensure that all available updates have been applied.

You can pick up the new symbols by starting a new file from the File menu. Once the map is under way you can use a "Check Legibility" function in the Map menu. This identifies too-small objects, and puts a red dot or line where the separation isn't enough.

Note: This symbol table and checking procedure is an interpretation of the IOF specification by a software supplier – it's not the definitive statement. The same goes for the CMYK colour table that accompanies the symbols. There have already been some changes to their first-issued symbol sets and colours. We talk more below about colours.

OCAD 12 and before

OCAD12 only provided a "final draft" of the symbols, and they have since changed. Do not use these symbols. OCAD12 and OCAD 11 users can open or transfer symbol definitions from the "Fieldwork Legend" file at http://www.mapsport.co.nz/mapresources.html . Users of earlier versions of OCAD should contact the ONZ Mapping Committee to discuss options.

OOM

Users of OOM can open the OCAD 11 version of the symbols above. In due course you will be able to get ISSprOM symbols directly from OOM.

All

If you have your own extra symbols or variations (e.g. roads of differing widths, GPS waypoints and tracks) you'll have to add them in. Your symbol numbering for these may be upset by the new specification. Michael Wood has documented his variations and given them a new numbering which he hopes will stay clear of present IOF and OCAD numbers. You can find an OCAD11 file with the ISSprOM symbols and Michael's extensions at http://www.mapsport.co.nz/mapresources.html .

Drawing - Converting Existing Maps

You may have a single map to worry about, or you may be in charge of a club's collection. The best course for the latter is probably to compile a translation table from old to new (CRT). This avoids going thru the same process many times over. It is similar to what you may have done to convert ISOM (standard) maps. There's a CRT liberally sprinkled with comments at http://www.mapsport.co.nz/mapresources.html which may make the job easier. If you need help with this please ask the Mapping Committee.

We deal here with converting a single map. The amount of work depends on how many variations from the most recent OCAD symbol set there are. Variations have come from OCAD over the years (ISSOM came out 12 years ago!) And many variations have been made by mappers for common NZ purposes - and passed on to others.

If you're not sure what symbol set you have, read this OCAD resource:
https://ocad.com/wiki/ocad/en/index.php?title=Symbol_Set_Overview

Software versions

If you're using OCAD2018/2019 you're off to a head start. You can get a new symbol table and a symbol converter.

If you are using OCAD 12 you won't have the new symbol set, but you can access an OCAD11 version of it, saved as the "Fieldwork Legend" file by the NZ Mapping Committee. It's at www.mapsport.co.nz/mapresources.html. You also have the symbol converter.

If you're using OCAD 11 or prior you don't have the symbols or the converter. You have to use a more basic method using a translation table (CRT). We aren't going to deal with CRTs in this document. However advice on the ONZ website about converting ISOM maps is relevant.

If you're using OOM consult the Mapping Committee, we are building up experience there.

Step by Step

1. Make a copy of your map A. Do not work on your original file.

2. In the Map menu choose "Symbol Set Conversion"

3. For all the lines that are green, there's an obvious translation from old symbol to new. For lines that are NOT green, OCAD can't tell what to do with an old symbol. Perhaps you can identify a translation - in this case click in the red box and choose it.

4. Other symbols can be carried thru unchanged if you tick them. You might be influenced by whether there are any objects; files often have many symbols which are unused. Don't ignore any that have objects – the objects will end up as "undefined symbol".

5. Click "OK" and a conversion will be done. Is this a copy of the original? You MUST work on a copy, OR "save as" at this point. There is NO un-do.

Everything will be easy if your file used only symbols in a recent OCAD symbol set. Be aware that OCAD has added symbols to its set since 2007 - eg different width roads/tracks. It may have changed symbol numbers too - eg symbol variants such as .001, .002 Many mappers have made their own symbols or borrowed symbol sets from other mappers. Expect some or many symbols to deal with.

That was the easy bit. You now need to do several sorts of check.

1. Does the new map B look right? Go up and down each grid square and eyeball. Refer to A if in any doubt. Its very likely some symbols haven't converted sensibly – look particularly for spidery purple lines and tiny purple crosses which indicate objects with an "undefined symbol". Sometimes you can fix them in B, sometimes it's best to go back to re-convert from A, with some different choices.

There are a number of very particular oddities that we are documenting in a list at www.mapsport.co.nz/mapresources.html. We have for example found errors in both the OCAD symbols and the converter so some of these may have been fixed. You'll need to decide whether each slope tick is a full one or the thinner one for formlines. All "T" objects move a tiny bit south.

2. Look closely to see if any objects are now too close together. Some symbols have got larger (U depression), or the file may have used under-size symbols before. OCAD2018/2019 has a "Check Legibility" function in the Map menu. It will check minimum lengths and areas of all objects and give you a warning. It will also check separations and put a red dot or line between. It's up to you to action these. The point of the new specification is more legible maps.

3. If you carried across some of your old symbols, they will have brought in some "old" colours. These colours sit at the top of the colour table and will clobber "new" colours below them. All these symbols should be edited to use new colour numbers; then the old colours deleted.

4. For future maintenance its advisable to renumber carried-across old symbols to fit the new numbering scheme. (Yes there are many numbering changes, sigh.) For example you might have 123.001 as your special thick version of symbol 123.000, but now 123 had become 125 and the link has been lost. We would recommend changing the number to eg 125.900. This will give you protection if OCAD decides to add a variation, too. (Note: you can't simply change the number of a symbol if it has objects; you have to make a new symbol and copy objects across.)

5. Lastly you have inherited OCAD's latest colour table. It has used a set of recommendations the IOF put out for OFFSET printing. See the section on printing for more on this.

Printing

Scale

The standard scale is 1:4000. The specifications are tailored for elite competition. It was always the case that younger and especially older orienteers need printing at a larger scale. The new spec puts this in black and white. Don't skimp on the enlargement, you can now use A3.

You would normally print a standard map (theoretically 1:15,000) at 1:10,000 for older classes, this suggests 1:2666 for sprints. (1:2500 if you want a round number.) Older orienteers enjoy sprints too!

Colours

By picking up a symbol table derived from OCAD, you have inherited OCAD's latest colour table. That is, the CMYK values for each colour and shade, the order of colours, and whether show-through (overprint) is in effect. OCAD has used a set of recommendations the IOF put out for OFFSET printing.

The LASER printing industry which we use for almost everything is not nearly as consistent as the offset industry, and we have always had to test our colours. The new values may be OK for your printshop. Or they may not.

The result is also affected by your course setting software and how you send the file to the printer (PDF or OCAD file). And of course the printshop's hardware, systems and paper. The only advice we have is to test your process - right thru to the printed page. ONZ has recently sent to clubs an IOF test sheet, against which you can compare colours.

This new colour table contains some substantial changes. Do not leave the testing until the week before your important event. If your maps are all on the same symbol set, then minor events can serve as tests for major events.

If you want to go back to the colours you had before, stand by. We have asked OCAD to help us here, and they admit that in Switzerland almost everything is laser printed too. We hope it will provide colour settings for its favourite laser printshop. In the meantime if your tests are unsatisfactory, talk to us – we're still testing too.

Conclusion

Adopt the new spec ISSprOM as you can for its legibility benefits for urban orienteering. We know that full compliance for existing maps will take some time to achieve. Before converting, consider whether all your maps are really used for urban sprints. Print larger for older and younger orienteers.

At least we don't have many very old sprint maps, and we've had the experience of an ISOM update to help us.

This one has the potential "trojan horse", in that the latest OCAD symbols will bring in colours that may turn out differently at your printshop. Testing is needed.

This advice was prepared quickly, and does not purport to cover all situations. The Mapping Committee would welcome comments, corrections and questions about these or other mapping topics. You can email the convenor at any time: ***michael.wood@mapsport.co.nz***

Post Script

Some tiny changes have also been rolled out for standard (ISOM) maps. Maps which have been drawn or converted to ISOM2017 may be updated with a couple of clicks by users of OCAD2018/2019. Look in the Map menu for “Update Symbol Set”.

OCAD2018/2019’s “Check Legibility” can be used on ISOM maps too. For maps still on the old ISOM2000, conversion is a bigger task, but is helped by recent software tools.

Distribution

This bulletin goes to regular mappers known to the Mapping Committee, and ONZ clubs.