

Revision of the International Specification for Orienteering maps, final draft

In separate documents you will find the ISOM201X symbol part (in a graphically near complete state) and the ISOM201X first part (neither graphically nor otherwise complete). There are two important parts that are missing: the printing part and the precise specification of the symbols. The printing part has been delayed due to lack of progress on colour (we would like to find colours and a way of specifying them that would facilitate better colour for non-spot colour offset printing while not having colour deficient orienteers suffer too much). The precise specification of symbols is just a job that needs to be done, and is not important at this stage.

The IOF Map Commission is now seeking feedback on these documents. In the following you will find some information that we hope will help you understand the changes that have been made.

We have provided unofficial symbol sets in OCAD 8 and OpenOrienteering Mapper formats if you would like to test the symbols.

Goals of the ISOM revision

- Align with the ISSOM. For fairness and consistency reasons, the semantics of some symbols have been changed to barrier. Most of these symbols were «high», «impassable» or «uncrossable» variants in ISOM2000. If a feature was mapped as «high», «impassable» or «uncrossable», the competitor could not know in advance if she could effectively pass/cross that feature. Some would take the chance, and some would not. That kind of uncertainty influences the result a competition and should not have a place in a fair sport. For fairness reasons, such symbols now imply that the features are forbidden to pass / cross.
- There shall only be one ISOM. This means that the drawing does shall not depend in any way on the map scale that is used for the printed map. The 1:10000 variant shall be a strict enlargement of the 1:15000 version. Consequently, scale dependent symbols (ISOM201X 601, magnetic north lines, and the overprint symbols, 701-713) have been modified.
- Focus on generalisation. More emphasis on minimum dimensions and distances. Add symbol footprints. Restricting the use of individual symbols that are part of area symbols (broken ground, stony ground).
- Fix inconsistency with the green runnability screens
- Higher precision and greater consistency.
- Adapt the ISOM colours according to developments in print technology. High quality printing is now possible using non-spot colour offset printing, but colour fidelity is a problem with alternative printing, and there is a need to adapt the ISOM colour system to these alternative technologies while continue to support orienteers with colour vision

impairment.

Changes in the first part

To clarify the meaning of words use in the specification, an explanation of terminology (shall, should, may, ...) has been added.

To help mappers understand the need for legibility, more focus will be put on minimum dimensions and minimum distances between symbols.

The symbol part

Significant changes from ISOM2000:

- All symbols shall now be enlarged for larger map scales. This has consequences only for symbols ISOM201X 601 and ISOM201X 701-713.
- ISOM201X 103 Form line: Thinner line (0.14->0.10), narrower gap (0.25->0.20). Reason: reduce the visual impact of the form line and reduce the potential problems of gap positions.
- ISOM201X 113-114: Specifying maximum and minimum densities and introducing a second broken ground symbol for reduced runnability. Reason: Emphasize that this is an area symbol and add a variant that shows reduced runnability.
- ISOM201X 208-209: Specifying maximum and minimum densities and introducing two densities - one for runnable boulder fields and the other for boulder fields with reduced runnability. Reason: Emphasize that this is an area symbol add a variant that shows reduced runnability.
- ISOM201X 210-212: Specifying maximum and minimum densities and introducing three levels of runnability for stony ground, corresponding to vegetation runnability. Reason: Emphasize that this is an area symbol that shall communicate reduced runnability.
- ISOM201X 301-302: Alignment with ISSOM by introducing a signature for shallow water.
- ISOM201X 402 and 404: 402 inverted, and the holes can now be white or green – colour percentages adjusted. Reason: Consistency in the representation, demand for green dots to be able to show areas with patches of dense / less runnable vegetation.
- ISOM201X 407 and 409: The vertical line screens have been made denser to give a green impression that corresponds better with the runnability (shall correspond to 406 and 408). Reason: Make the greens consistent with respect to runnability and green percentage. The Map Commission is considering a proposal to change the green percentage of 406 and 408 to 20% green and 50% green respectfully. Such a change would make it possible to reduce the densities also for 407 / 409.
- ISOM201X 601: The distance between the magnetic north lines has been adjusted so that it will be reasonable when enlarged to 1:10000. Reason: Larger scale maps shall be strict enlargements.
- ISOM201X 700-: Overprint symbols shall behave as the map symbols (strict enlargement for larger scale maps). Control circle, start triangle, finish circles have been reduced in size to cater better for middle distance courses.
- Allow the use of dark grey for rock in areas of much rock and tracks in order to be able to distinguish paths / tracks from rock.

Smaller changes

There have been a number of small changes. For instance has the spacing between dots on most of the dotted lines been reduced to make it easier to understand that these are line features (108 small erosion gully, 309 narrow marsh, 416 distinct vegetation boundary). The changes are listed below (grouped by category).

Barriers - changes in semantics:

- Impassable features: The ISOM has been aligned with the ISSOM with respect to impassable features. The change has been made to increase the fairness of orienteering (features mapped as impassable are also forbidden to pass / cross – this means that the map shows where the competitor can get through and not get through). Consequently, the following symbols have changed semantics:
- ISOM2000 201 (ISOM201X 201) Impassable cliff – a cliff that can not be crossed or shall not be crossed for some reason.
- ISOM2000 301 (ISOM201X 301) Uncrossable body of water - body of water that can not be crossed or shall not be crossed for some reason.
- ISOM2000 309 (ISOM201X 307) Uncrossable marsh - a marsh that can not be crossed or shall not be crossed for some reason.
- ISOM2000 521 (ISOM201X 515) Impassable wall – a wall that can not be crossed or shall not be crossed for some reason.
- ISOM2000 524 (ISOM201X 518) Impassable fence - a fence that can not be crossed or shall not be crossed for some reason.
- ISOM2000 526 (ISOM201X 521) Building – is now forbidden to cross / pass through (unless there is a mapped passage through)
- ISOM2000 534 (ISOM201X 529) Uncrossable pipeline / prominent impassable line feature– can not be crossed or shall not be crossed for some reason
- New symbol 411: Vegetation, impassable: Vegetation that can not or shall not be crossed.
- ISOM2000 528 (ISOM201X 520) has changed graphical implementation, but has the same semantics (forbidden area).

Changed semantics

- ISOM2000 418-420 -> ISOM201X 418 Prominent big tree & ISOM201X 419 Prominent bush or tree & ISOM201X 420 Prominent vegetation feature x: Align with ISSOM.
- ISOM2000 501-503 Roads -> ISOM201X Wide road: These are applications.
- ISOM2000 509 Narrow ride -> ISOM201X 508 Narrow ride or linear trace through the terrain: Allow this symbol to be used also for traces over open areas (often caused by forestry machines). This symbol can be combined with lines of different colour to indicate runnability.
- ISOM2000 533-534 Pipelines -> ISOM201X 528-529 Prominent line features: Open up for other prominent line features.

Removed and added symbols

Removed symbols:

- ISOM2000 104 Slope line: Moved to 101, 102, 103

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- ISOM2000 105 Contour value: Moved to 102
- ISOM2000 111 Knoll: Application of 101, 102, 103
- ISOM2000 114 Depression: Application of 101, 102, 103
- ISOM2000 205 Cave: Combined with 204 rocky pit to ISOM201X 203 Rocky pit or cave
- ISOM2000 302 Pond: Application of 302
- ISOM2000 304 Uncrossable river: Application of ISOM201X 301
- ISOM2000 501 Motorway: Turned into applications of ISOM201X 502 Wide road
- ISOM2000 502 Major road: Turned into applications of ISOM201X 502 Wide road
- ISOM2000 510 Visible path junction: Application of the path / track symbols
- ISOM2000 511 Indistinct junction: Application of the path / track symbols
- ISOM2000 512 Footbridge: Application of the path / track symbols
- ISOM2000 513 Crossing point with bridge: Application of the path / track symbols
- ISOM2000 514 Crossing point without bridge: Application of the path / track symbols
- ISOM2000 527 Settlement: ISOM201X 520 Area with forbidden access is an alternative
- ISOM2000 531 Firing range: Could use forbidden area if in use
- ISOM2000 532 Grave: Problematic with religious connotations
- ISOM2000 710 Dangerous area: Dangerous areas must be forbidden, so there should be no use for this symbol. Use ISOM201X 709 forbidden area. Align with ISSOM.

Added symbols:

- ISOM201X 114 Very broken ground: Distinguish broken ground with reduced runnability
- ISOM201X 116 Special prominent landform feature triangle: Request from GB
- ISOM201X 209 Dense boulder field: Distinguish boulder fields with reduced runnability
- ISOM201X 211 Stony ground difficult to run: Represent runnability of stony ground in the same way as for vegetation
- ISOM201X 212 Stony ground very difficult to run: Represent runnability of stony ground in the same way as for vegetation
- ISOM201X 215 Trench: Useful for representing war-time trenches (request from Finland and experiences from WOC 2014 Italy, middle distance terrain).
- ISOM201X 302 Shallow water body: Alignment with ISSOM
- ISOM201X 314 Prominent water feature square:
- ISOM201X 411 Vegetation, impassable: Alignment with ISSOM
- ISOM201X 421 Prominent vegetation feature triangle: Compensate for the change in semantics for ISOM201X 418.
- ISOM201X 522 Canopy: Useful for passages through buildings. ISSOM symbol
- ISOM201X 532 Prominent man-made feature – asterix: Compensate for the removal of ISOM2000 532.
- ISOM201X 702 Map issue point: It is useful to be able to show the position of the map issue point when that point is not at the start triangle (or the start of the marked route to the start triangle).

Changes - dimensions

Change of dimensions for point symbols:

Dimensions are mostly the same, but descriptions are now more clear (some difficult to interpret centre-to-centre measures in ISOM2000 have been changed to outside measures in ISOM201X). The way these symbols have been implemented in drawing software may vary due to the interpretation possibilities of ISOM2000.

Symbols that have been changed/adjusted in size (outside measures):

- ISOM 115 and 313: smaller (0.98x0.49 -> 0.8x0.4)
- ISOM 116, 303: smaller (0.9x1.02->0.7x0.8)
- ISOM 118, 314, 418: smaller (0.93x0.93->0.9x0.9)
- ISOM 204/205: smaller (0.87x1.0->0.7x0.8)
- ISOM 312, 419: smaller (0.98x0.98->0.9x0.9)
- ISOM 530 minimum: smaller (0.96x0.96->0.8x0.8)
- ISOM 536: lower (1.0x1.08->1.0x1.0)
- ISOM 537: smaller (0.96x0.96->0.8x0.8)
- ISOM 538: smaller (1.08x1.09->1.0x1.0)
- ISOM 539: smaller (0.96x0.96->0.8x0.8)
- ISOM 540: smaller (0.91x0.91->0.8x0.8)

Change of width for line symbols

- ISOM2000 103 ISOM201X 103: Thinner line (0.14->0.10)
- ISOM2000 107 ISOM201X 105: Thicker line (0.14->0.18)
- ISOM2000 108 ISOM201X 106: Thicker line (0.14->0.18)
- ISOM2000 203 ISOM201X 202: Removed the thin option (0.18)
- ISOM2000 305 ISOM201X 304: Thicker line (0.25->0.30)
- ISOM2000 306 ISOM201X 305: Thicker line (0.14->0.18)
- ISOM2000 307 ISOM201X 306: Thicker line (0.14->0.18)
- ISOM2000 521 ISOM201X 515: Thicker line (0.18->0.30) - impassable
- ISOM2000 524 ISOM201X 518: Thicker line (0.18->0.35) - impassable
- ISOM2000 534 ISOM201X 529: Thicker line (0.18->0.35) – impassable

Change of styling of line symbols

- ISOM2000 103 ISOM201X 103: Shorter gaps (0.25->0.20)
- ISOM2000 107 ISOM201X 105: Dots closer (2.5->1.25)
- ISOM2000 108 ISOM201X 106: Dots closer (2.5->1.85), dashes shorter (2.25->1.5), gaps longer (0.25->0.35)
- ISOM2000 110 ISOM201X 108: Dots closer (0.5->0.45)
- ISOM2000 308 ISOM201X 309: Dots closer (0.5->0.45)
- ISOM2000 416 ISOM201X 417: Dots closer (0.5->0.45)
- ISOM2000 509 ISOM201X 508: Dashes shorter (3.0->2.0) and gaps shorter (0.5->0.25)
- ISOM2000 519 ISOM201X 513: Dots closer (2.5->1.25)
- ISOM2000 520 ISOM201X 514: Dots closer (2.5->1.85) and gaps longer (0.25->0.35)
- ISOM2000 521 ISOM201X 515: Dots much larger (0.5->0.7) and spacing increased (0.7-

>0.9) and decreased (2.5->2.1)

- ISOM2000 523 ISOM201X 517: Gap increased (0.25->0.35)
- ISOM2000 530 ISOM201X 523: Dash lengths specified (0.5)
- ISOM2000 533 ISOM201X 528: Spacing decreased (2.5->1.5)
- ISOM2000 534 ISOM201X 529: Spacing decreased (2.5->1.2)
- ISOM2000 711 ISOM201X 711: Gap specified (between 4.0 and 6.0 - centre to centre)

Changes to vegetation

Yellow

Yellow percentages have been adjusted, so that there is a decrease in yellow percentage from 401 to 404, according to runnability and openness.

402 has been inverted to align it with 404 (that has the same kind of semantics).

For 402 and 404, it is now allowed to use green instead of white in the holes.

Green

A new green has been added for impassable vegetation, aligning the ISOM with the ISSOM.

It has been recognised that the green impression (% green) for 407 and 409 needs to be consistent with 406, 408 and 410. That meant that 407 and 409 had to be made significantly denser.

During the work with the ISOM revision, alternative graphical implementations of 407 and 409 were investigated. Using dots instead of stripes would be consistent with the use of dots for black (stony ground) and brown (broken ground). The suggestion was not that well received.

Other vegetation changes

An alternative graphical implementation (thin green line) for distinct vegetation boundary is introduced. The green line is a better alternative for areas of much rock, as the dotted black line is very difficult to understand when there is a lot of black on the map.

Orchard and vineyard symbols can now be implemented using also 50 % yellow (rough open). Less runnable orchard can now be represented using an undergrowth symbol.

Overprinting symbol changes

Overprinting symbols are now to be scaled as all the map symbols. That means that for the map scale 1:10000, the overprinting symbols shall be scaled to 150%. Because of this, some of the overprinting symbols have been adjusted in size:

ISOM2000 701 Side lengths changed from 7.0 to 6.0 (outside measure)

ISOM2000 702 Diameter changed from 6.0 to 5.5 (centre of line)

706 Outer circle changed from 7.0 to 6.0 (centre of line); Inner circle changed from 5.0 to 4.5 (centre of line).

Other changes to overprinting symbols:

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- ISOM 2000 711: Specified minimum and maximum spacing (centre-to-centre)
- ISOM 2000 712: Made bigger to increase visibility
- ISOM 2000 713: Made bigger to increase visibility

Symbols that have not changed graphically:

- ISOM2000 101 ISOM201X 101 Contour
- ISOM2000 102 ISOM201X 102 Index contour
- ISOM2000 106 ISOM201X 104 Earth bank
- ISOM2000 109 ISOM201X 107 Erosion gully (except for the specification of minimum dimensions)
- ISOM2000 112 ISOM201X 109 Small knoll
- ISOM2000 113 ISOM201X 110 Small elongated knoll

- ISOM2000 206 ISOM201X 204 Boulder
- ISOM2000 207 ISOM201X 205 Large boulder
- ISOM2000 208 ISOM201X 208-209 Boulder field triangle
- ISOM2000 209 ISOM201X 207 Boulder cluster
- ISOM2000 210 ISOM201X 214 Bare rock

- ISOM2000 309 ISOM201X 307 Uncrossable marsh
- ISOM2000 310 ISOM201X 308 Marsh
- ISOM2000 311 ISOM201X 310 Indistinct marsh

- ISOM2000 401 ISOM201X 401 Open land
- ISOM2000 403 ISOM201X 403 Rough open landform
- ISOM2000 405 ISOM201X 405 Forest
- ISOM2000 406 ISOM201X 406 Vegetation slow running (but suggestion for 20% green)
- ISOM2000 408 ISOM201X 408 Vegetation difficult to run (but suggestion for 50% green)
- ISOM2000 410 ISOM201X 410 Vegetation very difficult to run
- ISOM2000 412 ISOM201X 414 Orchard (except for allowing light yellow and green stripes)
- ISOM2000 413 ISOM201X 415 Vineyard (except for allowing light yellow)
- ISOM2000 415 ISOM201X 413 Cultivated land
- ISOM2000 414 ISOM201X 416 Distinct cultivation boundary
- ISOM2000 420? ISOM201X 419 Small bush or tree

- ISOM2000 504 ISOM201X 503 Road
- ISOM2000 505 ISOM201X 504 Vehicle track
- ISOM2000 506 ISOM201X 505 Footpath
- ISOM2000 507 ISOM201X 506 Small footpath
- ISOM2000 508 ISOM201X 507 Less distinct footpath
- ISOM2000 516 ISOM201X 510 Power line, cableway
- ISOM2000 518 ISOM201X 512 Tunnel (wide variant)
- ISOM2000 522 ISOM201X 516 Fence

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- ISOM2000 525 ISOM201X 519 Crossing point
- ISOM2000 526 ISOM201X 521 Building (normal size)
- ISOM2000 529 ISOM201X 501 Paved area
- ISOM2000 530 ISOM201X 523 Ruin (normal sizes)
- ISOM2000 535 ISOM201X 524 High tower

- ISOM2000 601 ISOM201X 601 Magnetic north line (spacing has changed)
- ISOM2000 602 ISOM201X 602 Registration marks
- ISOM2000 603 ISOM201X 603 Spot height

- ISOM2000 704 ISOM201X 705 Course line
- ISOM2000 705 ISOM201X 707 Marked route
- ISOM2000 707 ISOM201X 708 Uncrossable boundary
- ISOM2000 708 ISOM201X 710 Crossing point