

MapRun

Map run consists of two apps: MapRun6 which runs on a phone (Android or Apple) and MapRunG which runs only on the better Garmin watches.

The watch app is better for orienteering as the GPS is unfiltered and therefore quicker.

A MapRun course is consists of two files. The map and the controls. The map file is a georeferenced JPG file and the controls file is a list of real-world co-ordinates.

Planning

Planning should be done in the normal way using PPen.

MapRun uses absolute geographical positions with the application registering a control when the user is within 15m of the target. This has implications for course setting.

- Think about orienteers running to the circle – not to the specific control site (ie due to the tolerance factor and the inaccuracy of the GPS location, the runner can register a hit somewhere in the circle –exact spot unknown) (not all runners will be using the paper map and be disciplined enough to visit each described site)
- Avoid controls that you couldn't see from a satellite – ie down between tall buildings or thickly wooded areas.
- Avoid controls where the challenge relies upon fine detail – eg inside/outside an uncrossable fence; top level vs lower level in a multilevel site; inside a wall vs outside
- Avoid "out and back" controls – because some runners will get an early GPS hit and others will not.
- You can't 'hide' controls on one side of an uncrossable barrier.
- It is fine to position the Finish at the same location (or near) the Start. The Finish will not punch until at least one other control has been punched. However, the layout of the course should be that runners are not likely to run past the Finish on the way to another control (except on the way to their first control), as visiting the Finish will end the event for the runner. If possible, put the Finish near the edge of the map, or in a location that is not a run-through location.

Prepare the map file

OOM or Ocad maps

Note other methods are described in the support documentation but the method described below seems to work well, particularly as not all our maps are fully geographically accurate.

Prepare JPG file

The map file needs to be about 2Mbytes. It is best to use those 2Mbytes to show map detail not decoration.

Open the map in Open Orienteering Mapper (this works for both Ocad or OOM maps). Open Orienteering Mapper (OOM) is an open source (free) mapping software. It is the preferred mapping tool used by LEI. It can be downloaded from <https://www.openorienteering.org/apps/mapper/>. Training on this tool is separate. The online manuals are pretty good.

Draw a line round the area you wish to use (use a purple course line)

With the line selected hit the Cutout button and press return to activate.

Now select File/Export as/image – Export at 300dpi to a JPG file

When you close OOM change the name of the file to prevent the original being overwritten (or don't save)

Convert JPG file to KMZ

Go to <https://console.maprun.net/#/>

Open the menu by clicking the menu icon  in the top left and select 'Create KMZ Map'

Click on 'Choose File' and select your JPG

You will then see your map on the left, Google Maps on the right.

Navigate Google maps to be in the right area.

You need to setup two reference points. Ideally these should be clearly visible points at opposite corners of the map.

For each point move the red circles in the middle of each map to the same point. Then click the 'Save point' button.

Once the second point is stored the map will be converted.

You will then see your map overlaying an aerial photo. Zoom in and use the opacity control so you can see the aerial phot through the map. Check that the overlay is aligned to the photo across the map. It may be that map is not accurate enough and you have to think again, it may be that your points did not work. You can go back and repeat your reference points.

If you are happy click the 'Create KMZ' button and the file will be downloaded to your PC. Save the file in your MapRun folder.

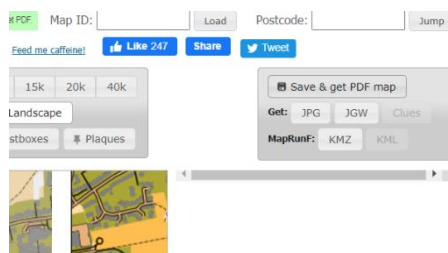
As a final check open the file in Google Earth. Again, you can use the 'Opacity' control to validate the conversion.

Go to the 'Add a Course File' section below.

Open Orienteering Map

If you are creating a training course you can use Open Orienteering Map <https://oomap.co.uk/>

Remember to use these maps with caution as the mapping may not show all the features on the ground. There are training presentations on the BOF site to get you going with this tool.



Once you have created the map click the 'Save and Get PDF map'. This map can be taken straight into Purple Pen to do your course planning. Then click on the 'KMZ' button to download a MapRun compatible file. (See appendix 1 about techniques if you wish to add route restrictions).

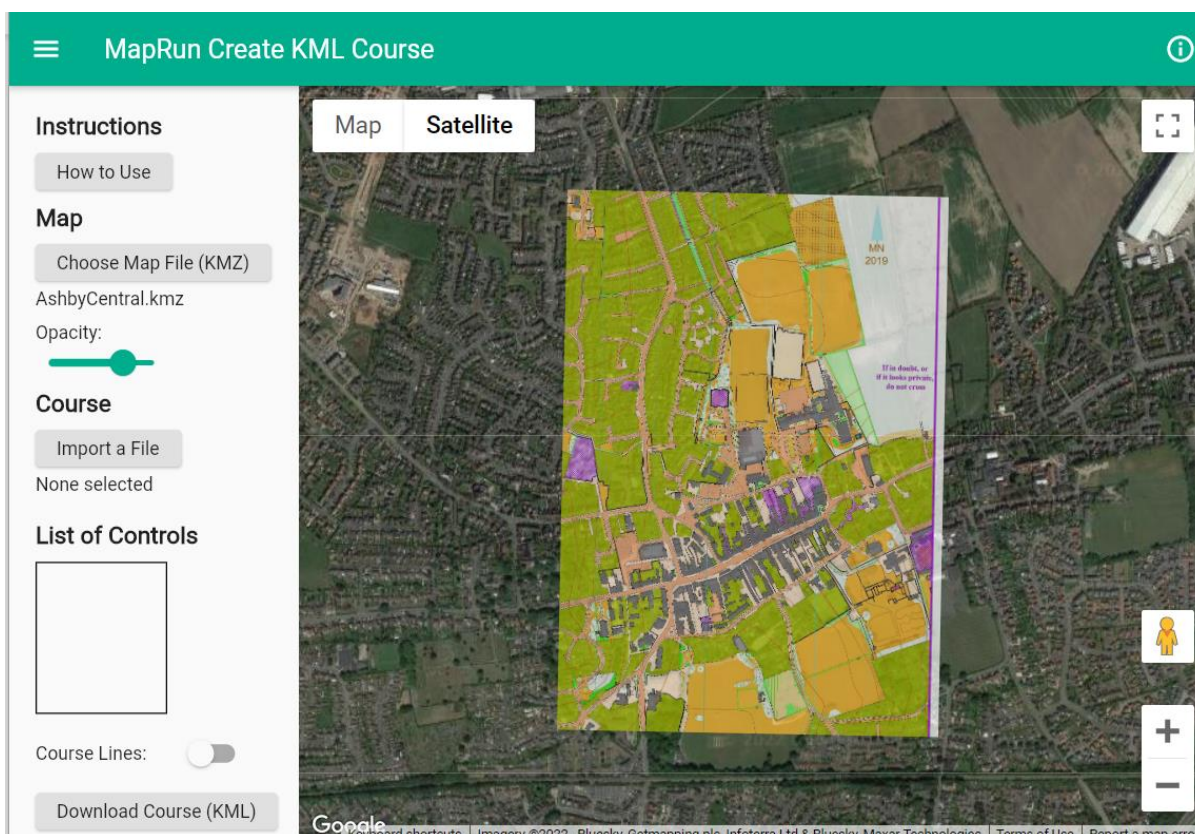
Add a course file

You need to setup your computer so you can see the PPen and your internet browser side by side.

In your browser go to <https://console.maprun.net/#/>

Open the menu by clicking the menu icon  in the top left and select 'Create KML Course'

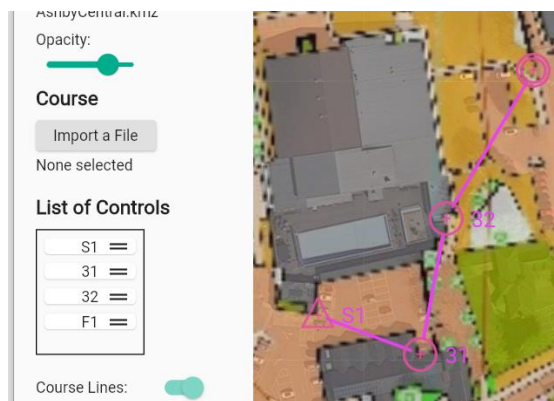
Select 'Choose Map File (KMZ)' and open the map file you created above. The map will be shown above a satellite photo of the area.



Use the 'Opacity' slider to fade the map in and out to verify the map aligns with the satellite image.

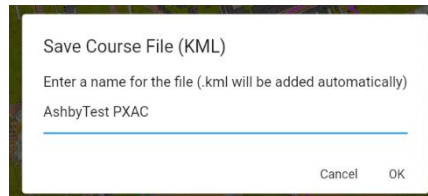
You now need to insert the controls. The first (start) control should be 'S1', the last should be 'F1', in between use the control number. To add a control, move your cursor to the desired position, right click and enter the control code. To adjust a control's position, double-click on the control and drag. To remove a control right click on the control and select 'delete'. If you are setting an urban course, it is worth using the 'Opacity' slider to fade out the map to see the exact position of the control in the real world.

Move the 'Course Lines' slider right so the control lines are shown.



Once the controls appear in the 'List of Controls' box they may be sorted. Position the mouse cursor over the control in the list to be moved, click and drag the control number to its new position.

Once the controls match those of your Purple Pen course save the course by clicking on 'Download Course (KML)' and entering the course name in the box. The code 'PXAC' is used by the program to designate a standard orienteering course with lines between controls.



The file will be downloaded to your browser's download folder.

Upload the course file for checking

Go to <https://console.maprun.net/#/>

In the left hand navigation menu go to 'Setup Check Sites'.

Fill in the web form. Ensure you have the correct code at the end of the event name.

Select your KMZ file and then your KML file and click 'Submit'. It can take up to a minute to process. Do not press the button twice or the course will load twice and the second loading will obscure the code.

Record the 6 digit code displayed once the course is loaded.

Test the courses

Use the 6-digit code to load the course to your phone using the Check Sites option.

Run each course and check the app beeps at the right place.

If the control does not beep. Run the course on your phone with live location enabled. When at the control take a screen shot map on the phone showing the current position and the control position. This will show the error in the control location in real terms (and probably an associated map error). It will show where the control needs to be moved to cause it to trigger at the correct position.

Publish the course file

Send the KMZ and KML files to Simon (simon.starkey@gmail.com) together with details how the course is to be run.

- 1) Allow live location (yes/no) – typically yes for white/yellow courses
- 2) Allow track display (yes/no) – typically yes for white/yellow courses
- 3) Auto upload (yes/no) – Normally Yes.
- 4) HITMO course rework (yes/no) – No for events and training.

Appendix 1 – Course restrictions

If you add course restrictions (for example restricted route or OOB area) you need to ensure those restrictions are on the map stored in the KMZ file.

There are the 2 recommended ways of achieving this:

- If you have the original map file (Ocad or OOM) open that file in Open Orienteering Mapper (Ocad files open well in OOM). Add the restrictions to the map and save the map as a new file. Use that file to create the KMZ file as described above.
 - This method is best when you are using a cutout of the map without decorations.
- Open the map in Purple Pen and add the restrictions as you plan your courses. Add an extra course with no controls. This course will show the restrictions. In Purple Pen from the File menu select 'Create Image Files', just tick the extra course you have created, select JPEG as the file type and 300dpi as the resolution. Generate the file. This JPEG file can be used as described above to create the KMZ file.
 - If you only have a PDF map file (as is typically the case with the Ollie O'Brien OpenOrienteeringMap tool) then this method is the best route.