Appendix 2 – File Formats

Maps - KMZ

A KMZ file is a zipped set of files and folders that can contain XML files and image files. For example, a map KMZ and a course in KML can be included in a single KMZ file.

KMZ files can be unzipped with usual desktop (Windows/Mac) zip tools.

A map KMZ file is of the following format:

ie a folder of images being the tiled image of the map

and a kml file containing the geo-location details.

```
<?xml version="1.0" encoding="UTF-8"?>
<!-- Generator: OCAD Version 12.2.4 -->
<kml xmlns="http://earth.google.com/kml/2.2">
<Folder>
  <name></name>
  <GroundOverlay>
    <name>tile_0_0.jpg</name>
    <drawOrder>75</drawOrder>
    <Icon>
      <href>files/tile_0_0.jpg</href>
      <viewBoundScale>0.75</viewBoundScale>
    </Icon>
    <LatLonBox>
      <north>-27.494364040</north>
      <south>-27.502190370</south>
      <east>152.985348800</east>
      <west>152.976572200</west>
      <rotation>10.989606220</rotation>
    </LatLonBox>
  </GroundOverlay>
  <GroundOverlay>
    <name>tile_1_0.jpg</name>
    <drawOrder>75</drawOrder>
    <Icon>
      <href>files/tile_1_0.jpg</href>
      <viewBoundScale>0.75</viewBoundScale>
    </Icon>
    <LatLonBox>
      <north>-27.492874370</north>
      <south>-27.500700710</south>
      <east>152.993948300</east>
      <west>152.985171900</west>
      <rotation>10.993576980</rotation>
    </LatLonBox>
  </GroundOverlay>
  <GroundOverlay>
    <name>tile_2_0.jpg</name>
    <drawOrder>75</drawOrder>
    <Icon>
      <href>files/tile_2_0.jpg</href>
      <viewBoundScale>0.75</viewBoundScale>
    </Icon>
    <LatLonBox>
      <north>-27.491388480</north>
      <south>-27.499214810</south>
      <east>153.002497500</east>
      <west>152.993771700</west>
      <rotation>10.997547700</rotation>
    </LatLonBox>
  </GroundOverlay>
```

Course File - KML

A KML file used for a course, contains a single list of named locations in the order of the course. An example is:

```
<?xml version="1.0" encoding="UTF-8"?>
<kml xmlns="http://www.opengis.net/kml/2.2">
  <Document>
  ...
    <name>Taringa Controls</name>
    <Placemark>
      <name>S1</name>
      <styleUrl>#icon-1899-880E4F-nodesc</styleUrl>
      <Point>
        <coordinates>
          152.9920294,-27.491433,0
        </coordinates>
      </Point>
    </Placemark>
    <Placemark>
      <name>31</name>
      <styleUrl>#icon-1899-880E4F-nodesc</styleUrl>
      <Point>
        <coordinates>
          152.9943609,-27.4932882,0
        </coordinates>
      </Point>
    </Placemark>
    <Placemark>
      <name>32</name>
      <styleUrl>#icon-1899-880E4F-nodesc</styleUrl>
      <Point>
        <coordinates>
          152.992812,-27.4949496,0
        </coordinates>
      </Point>
    </Placemark>
    <Placemark>
      <name>33</name>
      <styleUrl>#icon-1899-880E4F-nodesc</styleUrl>
      <Point>
        <coordinates>
          152.9911061,-27.4904432,0
        </coordinates>
      </Point>
    </Placemark>
    <Placemark>
      <name>34</name>
      <styleUrl>#icon-1899-880E4F-nodesc</styleUrl>
      <Point>
        <coordinates>
          152.991419,-27.4934746,0
        </coordinates>
      </Point>
    </Placemark>
```

Course File - IOF XML

An IOFXML v2.0.3 course file has a list of control points and then a set of courses each listing the controls on that course.

If the IOFXML file has been produced from a geo-referenced source (eg OCAD course setting over a geo-referenced OCAD map), each control will have:
- Geo-coordinates, and
- x,y coordinates (being mm on the page from an origin point. The top left corner of the page is also given in mm relative to this origin point). This is given in the "<MapPosition>" tag. In the example below, the OCAD origin is 141.7 mm from the left edge of the page and 75.7 mm down the page. Relative to this origin the start control is 23.2mm further across the page and 10.8 mm above the origin. So the start control relative to the top left corner is 164.9mm across and 64.9mm down.

```xml
<?xml version="1.0" encoding="UTF-8" ?>
<!DOCTYPE CourseData SYSTEM "IOFdata_OCAD.dtd">
<!-- coordinate system: UTM / WGS 84  Zone 56 South-->
<CourseData>
  <IOFVersion version="2.0.3" />

<ModifyDate>
  <Date>2017-07-23</Date>
  <Clock>03:55:30 PM</Clock>
</ModifyDate>

  <Map>
    <Scale> 10000 </Scale>
    <MapPosition x="-141.7" y="75.7" />
  </Map>

  <StartPoint>
    <StartPointCode> S1 </StartPointCode>
    <ControlPosition x="499207.152" y="6959150.695"/>
    <MapPosition x="23.2" y="10.8"/>
  </StartPoint>
  <Control>
    <ControlCode> 31 </ControlCode>
    <ControlPosition x="498936.786" y="6959031.721"/>
    <MapPosition x="-5.6" y="4.3"/>
  </Control>
  <Control>
    <ControlCode> 32 </ControlCode>
    <ControlPosition x="498696.688" y="6959066.242"/>
    <MapPosition x="-28.5" y="12.3"/>
  </Control>
  <Control>
    <ControlCode> 33 </ControlCode>
    <ControlPosition x="499036.053" y="6958787.271"/>
    <MapPosition x="-0.5" y="-21.6"/>
  </Control>
  <Control>
    <ControlCode> 34 </ControlCode>
    <ControlPosition x="499048.226" y="6958445.311"/>
    <MapPosition x="-5.8" y="-55.4"/>
  </Control>
  <Control>
    <ControlCode> 35 </ControlCode>
    <ControlPosition x="499422.655" y="6959065.041"/>
    <MapPosition x="42.7" y="-1.7"/>
  </Control>
  <FinishPoint>
    <FinishPointCode> F1 </FinishPointCode>
    <ControlPosition x="499201.573" y="6958975.003"/>
    <MapPosition x="19.3" y="-6.3"/>
  </FinishPoint>

  <Course>
    <CourseName> Course1 </CourseName>
    <CourseId> 0 </CourseId>
    <CourseVariation>
      <CourseVariationId> 0 </CourseVariationId>
        <CourseLength> 2280 </CourseLength>
        <CourseClimb>   </CourseClimb>
        <StartPointCode> S1 </StartPointCode>
        <CourseControl>
          <Sequence> 1 </Sequence>
          <ControlCode> 31 </ControlCode>
          <LegLength> 295 </LegLength>
        </CourseControl>
        <CourseControl>
          <Sequence> 2 </Sequence>
          <ControlCode> 32 </ControlCode>
          <LegLength> 243 </LegLength>
        </CourseControl>
        <CourseControl>
          <Sequence> 3 </Sequence>
          <ControlCode> 33 </ControlCode>
          <LegLength> 439 </LegLength>
        </CourseControl>
        <CourseControl>
          <Sequence> 4 </Sequence>
          <ControlCode> 34 </ControlCode>
          <LegLength> 342 </LegLength>
        </CourseControl>
        <CourseControl>
          <Sequence> 5 </Sequence>
          <ControlCode> 35 </ControlCode>
          <LegLength> 724 </LegLength>
        </CourseControl>
        <FinishPointCode> F1 </FinishPointCode>
        <DistanceToFinish> 239 </DistanceToFinish>
    </CourseVariation>
  </Course>
</CourseData>
```
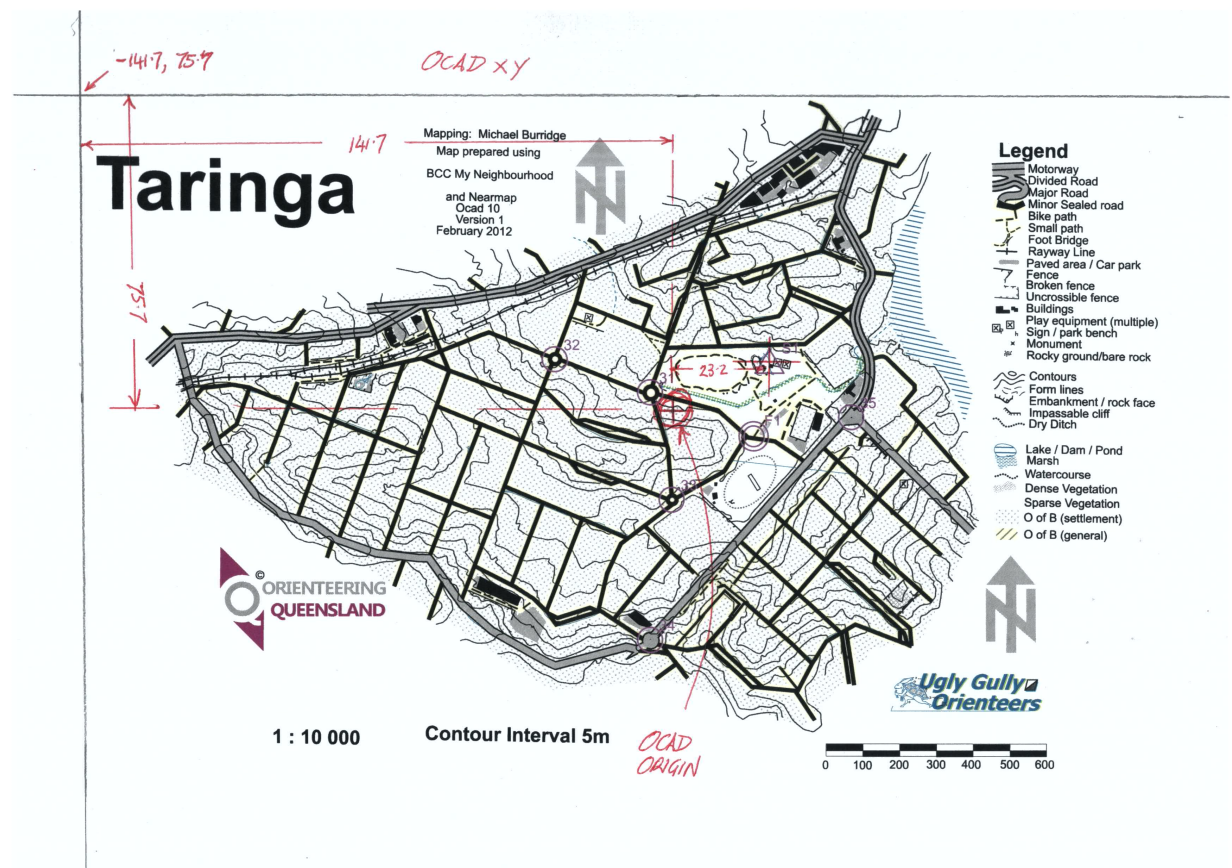
XML Files with no UTM Zone Specified

Note that some course setting systems (eg PurplePen) will produce an XML file that contains <ControlPosition> tags giving the geo-location of the controls in a UTM zone, but omit including details of which zone they relate to. This appears to arise from a deficiency in the IOFXML v2 specification. In IOFXML v3, locations are provided in Lat/Lon and so the issue does not arise.

OCAD overcomes this by including a comment lines in the XML file to provide this information.

MyOMaps adopts the OCAD approach and so it may be necessary to edit the XML file and insert lines of the following format:

```
<?xml version="1.0" encoding="utf-8"?>
<!DOCTYPE CourseData SYSTEM "IOFdata_OCAD.dtd">
<!-- coordinate system: UTM / WGS 84  Zone 56 South-->
```

Results Files

The App produces two files which are stored locally and uploaded to the server when the user taps "Upload Results".
- A CSV file in OE results format – a splits result file
- A GPX file containing the runners track

The files have specific naming that identifies the runner and the event.

The CSV file name format is:

"/results" + "_" +
surname + "_"+
firstName +"_"+
Filename +"_" +   where Filename is MapFile for Android and CourseFile for iOS
CourseFile +"_"+
CourseName + _
yyyyMMdd_HHmmss+   this is the Start Time
".csv"

The GPX file name format is:

surname + "_"+
firstName +"_"+
IMEI +"_"+
Filename +"_" +   where Filename is MapFile for Android and CourseFile for iOS
CourseFile +"_"+

                        For iOS: CourseName

yyyyMMdd_HHmmss+
".gpx

Care must be taken to NOT include "_" characters in map or course file names.

CSV Results File

The file uploaded from the App is a single line OE-format comma separated variable (CSV) file.

```
Stno,Chip,Database_Id,Surname,First name,YB,S,Block,nc,Start,Finish,Time,Classifier,Club no.,Cl.name,City,Nat,Cl. no.,Short,Long,Num1,Num2,Num3,Text1,Text2,Text3,Adr. nam
1,999999,,Jackel,Beth,92,Female,,0,1028:59,1069:48,0:40:49,0,,,,1,Course1,Course1,420,420,,nullAndroid35.0_AutoPunch_356774071262521,,,,,3550,,,,A@a.com,,0,0.00,X,1,Cou
```

If opened in Excel the contents are more effectively displayed. However, the file should NOT be edited in Excel.

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
Stno	Chip	Database_Id	Surname	First name	YB	S	Block	nc	Start	Finish	Time	Classifier	Club no.	Cl.name	City	Nat	Cl. no.	Short	Long	Num1	Num2	Num3	Text1
1	999999		Jackel	Beth	92	Female		0	1028:59:00	1069:48:00	0:40:49	0					1	Course1	Course1	420	420		nullAndroid35.0_AutoPunch_356774071262521

Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU	AV	AW	AX	AY	AZ	BA	BB	BC	BD	BE	BF	BG	BH
Text2	Text3	Adr. name	Street	Line2	Zip	City	Phone	Fax	EMail	Id/Club	Rented	Start fee	Paid	Course no.	Course	km	m	Course controls	Pl	Start punch	Finish punch	Control1	Punch1	Control2	Punch2	Control3	Punch3	Control4	Punch4	Control5	Punch5	Control6	Punch6	Control7	Punch7
					3550				A@a.com		0		0 X		1 Course1	6.425		23		1028:59:00	1069:48:00	19	1:32	23	2:10	13	2:57	22	3:19	20	5:16	11	9:20	14	13:12

These single line CSV files are combined into a "CombinedResults" file of the same format.

In the case of a Score Event, the Server also creates a scores result file in the following format:

No	FirstName	Surname	Controls	Time	GrossPoints	NetPoints	Km	OverallPosition	AgeCatPosition
1	Tim	McIntyre	33;55;53;100;51;52;58;120;36;38;35;37;110;90;56;57;32;34	0:38:48	980	980	7.669	SM:1	M50-54:1
2	Daniel	Gray	33;55;53;100;51;36;52;58;120;54;38;35;37;110;57;56;32;34;31	0:39:54	970	970	7.956	JM:1	M15-19:1
3	Brenton	Gray	33;55;53;100;51;52;58;120;54;36;38;35;37;110;57;90;56;32;34	0:41:08	1030	970	7.245	SM:2	M45-49:1
4	Meredith	Gray	33;55;53;100;51;58;120;54;36;38;35;37;110;57;90;56;32;34	40:48:00	980	950	7.222	SW:1	W40-44:1
5	Su Yan	Tay	33;55;53;100;51;58;120;54;110;57;56;32;31;34	0:38:17	800	800	6.269	SW:2	W50-54:1
6	Bill	Cruickshank	33;55;53;100;51;36;52;58;120;54;110;57;90;56;31	0:47:56	910	670	7.077	SM:3	M60-64:1
7	Reece	Eberhard	34;51;35;37;110;38;36;54;120;58;100;33	0:39:38	660	660	6.113	SM:4	M35-39:1
8	Nick	Allan	34;35;37;110;38;36;54;120;58;52;51;33	35:27:00	610	610	5.477	SM:5	M30-34:1
9	Danielle	Szczepina	33;55;53;100;51;35;37;110;34	0:36:51	480	480	4.496	SW:3	W30-34:1
10	Gordon	Szczepina	33;55;53;100;51;35;37;110;34	0:37:56	480	480	4.623	SM:6	M30-34:2

Items of note are:
- The name, YOB and email address are populated from user input in the App
- The Text1 column contains the App Version Id, the punching mode (Auto/User) and the IEMI of the phone

- The Num1 and Num2 columns are used for Gross and Net scores in the case of Score Events.

GPX File

The GPX file may also contain PIN locations for waypoint locations recorded in MyTracks mode.

The GPX file is in "standard" GPX file format:

```xml
<?xml version="1.0" encoding="UTF-8"?>
<gpx
version="1.1"
creator="Created by Google MyOMaps on Android."
xmlns="http://www.topografix.com/GPX/1/1"
xmlns:topografix="http://www.topografix.com/GPX/Private/TopoGrafix/0/1"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.topografix.com/GPX/1/1 http://www.topografix.com/GPX/1/1/gpx.xsd http://
    www.topografix.com/GPX/Private/TopoGrafix/0/1 http://www.topografix.com/GPX/Private/TopoGrafix/0/1/
    topografix.xsd">
<metadata>
<name><![CDATA[TaringaPZ1921022017 PXAS ScoreQ40_Taringa 2012 OCAD12 150]]></name>
<desc><![CDATA[Su Yan_Tay_20170221_183724]]></desc>
</metadata>
<trk>
<name><![CDATA[TaringaPZ1921022017 PXAS ScoreQ40_Taringa 2012 OCAD12 150]]></name>
<desc><![CDATA[Su Yan_Tay_20170221_183724]]></desc>
<extensions><topografix:color>c0c0c0</topografix:color></extensions>
<trkseg>
<trkpt lat="-27.491168" lon="152.991932">
<ele>-24.2</ele>
<time>2017-02-21T08:37:11.000Z</time>
</trkpt>
<trkpt lat="-27.491219" lon="152.992038">
<ele>54.4</ele>
<time>2017-02-21T08:37:13.000Z</time>
</trkpt>
<trkpt lat="-27.491231" lon="152.991915">
<ele>45.6</ele>
<time>2017-02-21T08:37:15.000Z</time>
</trkpt>
<trkpt lat="-27.491231" lon="152.991915">
<ele>45.6</ele>
<time>2017-02-21T08:39:13.000Z</time>
</trkpt>
<trkpt lat="-27.491284" lon="152.992065">
<ele>46.2</ele>
```

Coordinate Systems:
- All files use Lat/Lng (decimal degrees) except IOFXML v2.0.3 which uses UTM WGS 84 (xy cartesian coordinates in metres in a square grid, rather than degrees, in 60 zones of 3 degrees longitude (up to 668km)).