# UK AirSpace Select Manual (ASSelect.exe)

(For use by mainland UK glider pilots.)

## *Background*

The ASSelect program, and this manual, were initially created by Geoff Brown who did an excellent job in making airspace files available to us over some years, having taken the task on when Peter Desmond and Rory O'Connor finished their stints. Geoff retired from gliding, and maintaining ASSelect, in 2017 but has left us an excellent legacy.

The CAA are obliged to publish full details of UK airspace in the 'UK Integrated Aeronautical Information Package' (IAIP), a task that they have contracted out to NATS. Updated versions of the IAIP are published every four weeks with typically 28 days prior notice of changes. Unfortunately the data are not published in a format that is suitable for loading into gliding instruments, consequently a manual process takes place to convert the data to a more suitable format – the base file created is in the Tim Newport-Peace format. As part of this process the changes to the IAIP are reviewed each four-weekly cycle and relevant ones incorporated into the master TNP file. Data from other sources, such as LOAs are also incorporated.

In an ideal world the master file would be suitable for loading directly into all instruments. In practice this is not achievable and it needs to be edited to meet individual user's requirements. This is where the ASSelect program comes in. Via its graphical end user interface it provides multiple options to enable users to generate a customised file for their own use in TNP format or otherwise as explained later in this document. The early versions had the data incorporated inside the ASSelect executable program, now the program changes infrequently and only the data file is updated each cycle.

Each four-weekly cycle, at the end of the update process, a decision is made as to whether to publish a new data file. If changes are not deemed significantly they are held over to a future cycle.

Geoff developed ASSelect using Delphi Pascal. The current version was created using 'Embarcadero® Delphi 10.1 Berlin Version 24.0.24468.8770'

## Notes

## Obstacles

The list of obstacles published by NATS, which is created for cartographic purposes, contains well over 7,000 obstacles, some projecting only 102 feet above the surface. Many are offshore, in conurbations such as central London, or other places where gliders are not usually flown. To reduce the list to a manageable size filtering is applied.

Obstacles are excluded if they are:

- Projecting less than 600' above the surface.
- Offshore.
- In Greater London, central Manchester or Northern Ireland.
- Wind turbines.
- Not the highest obstacle in a cluster on the same site.

- Clearly visible in VFR – e.g. Firth of Forth and Severn bridges.

## Radio Mandatory Zones (RMZ) – Added February 2017

The first permanent RMZ in the UK is at Hawarden, effective 2<sup>nd</sup> March 2017.  Previously (with the exception of the temporary Southend MRZ) they have been advisory and ASSelect provided options to include specific radio advisory areas on an individual basis.  With Hawarden it is obligatory and must therefore be included in the airspace files.  The problem is that being a new airspace category it is not supported in the TNP and OpenAir airspace standards or by most devices.  For those reasons they are defined in the ASSelect output file as TMZs, but with the names distinguishing TMZs from RMZs.

## Optionally Included Airspace – Added June 2017

The descriptions under the various tabs in the program are a bit cryptic, please see Annex 2 for a summary of all such airspace with a little more information.

- Radio Advisory Airspace
- Letters of Agreement Airspace
- Wave boxes
- NSGAs

## RATs – Added July 2017

At the request of the BGA, and to help reducing the incidence of infringements, the published RATs for the remainder of the year have been added to the airspace file. As a stop-gap measure these have been added as LoAs. By default the RATs are not added to the output airspace file, if required they must selected from the LoA tab.

## Program Operation

These notes are divided into 2 stages. The first is to generate a personalised airspace file. The second is to load it into your navigation aid. At the moment the 2nd stage is very sparse as it's limited to those devices I have any knowledge about. In stage 1 there is an itemised list of concise points, followed by a similarly itemised list of explanatory detail.

The output from ASSelect is a text file with airspace defined in one of two formats - OpenAir or TNP (Tim Newport-Peace) - see the annex at the end for more detail. The OpenAir version is given the extension of .txt, the TNP version is given the extension of .sua (though the Glide Navigator II output option gives it the extension of .air).

## Stage 1

1 - Create a folder on your PC for the airspace files. Download the program zip file from John Leibacher's web site (http://soaringweb.org/Airspace/UK/ASSelect.html) into that folder and extract the program from the zip file and this document, also into that folder - you can then get rid of the zip file.

2 - Run the program and select your personalisation preferences. If you've used the program (or an earlier version) in that folder before, then all your earlier preferences will be preloaded.

3 - Click OK and save your personalised airspace file.

Detail

1 - The reason for having a dedicated folder is that the program will create one or more configuration files (so it can be rerun without you having to remember what you selected last time) as well as the output file. When the program gets updated with airspace changes, the new program can be placed in the same folder and will pick up the existing configuration file(s).

2 - The options for the program are covered by 6 tabs, select each in turn and personalise it.

Fixed Sectors - There is an assorted collection of items here you can personalise - HIRTAS (High Intensity Radio Transmission Arrays), Radio Transmission Masts, Gas Venting Stations and MATZs: each can be included or removed. Microlight Strips and Unlicensed Airfields: each can be given Class D, or Class G or removed. Class G ATZs - in order to aid neighbourliness the recommendation is that these should be 'lifted' to Class D, however you have the option of leaving them as Class G should you wish. Similarly it is recommended that the ILS feathers should be included and given the same classification as the ATZ to which they are attached.

The Output Format you select will depend on what your own equipment needs. The TNP format is more detailed (and therefore more rigorous) than the OpenAir format. The source data in the program is in TNP format.

> TNP (All) - In this output, all the elements and comments are included in the file. Their incorporation in the final airspace (depending on the filtering options selected) is controlled by INCLUDE=YES and INCLUDE=NO statements.

> TNP (GNII) - In this output the file is reduced to the minimum size possible. All the comments are removed, and all the elements not required based on the selected filtering options are removed. There is a single INCLUDE=YES statement at the start. If you

don't choose to omit all the possible elements you may still end up with a file that is too large (800 elements max). A future version of the program will enable other elements to be deselected to give you more options about which elements you need to deselect to get the element count down.

TNP (SeeYou) - This output is similar to the TNP (All) output, however all statements for elements of TYPE=OTHER where CLASS=G are converted to CLASS=.  This is because SeeYou would otherwise not plot those particular elements.

OpenAir - In order to generate the OpenAir format a mapping file is used to convert from TNP to OpenAir.  See the Annex at the end for the differences and the problems incurred.  The program will look for the mapping file in the run-time folder.  The first time you run the program this file will not exist, so the program will create one using a set of default entries.  If you know what you're doing you can edit that mapping file - it'll be used the next time you run the program.

OpenAir with Colour - The same as OpenAir, but a short section of colour plotting definitions is added near the beginning of the output file.  The first time this option is selected the program creates an OAColours.ini file with values taken from a 2012 UK file produced by Croft Brown.  Thereafter the OAColours.ini file is read by the program and inserted into the output file, and you can customise it however you like.

Wave Boxes - if you don't know what these are, you don't need them.  There are dispensations to fly above FL195 in certain locations in wave boxes, with the access being requested on a day by day basis by specific clubs.  There are horizontal and vertical limits to these boxes and you have to have been briefed on their use.  The program, for each wave box, has a set of boundaries also encoded.  If you select a wave box you automatically get the boundaries as well, but you can then deselect the boundaries should you wish.  The reason for the boundaries is because flight navigation computers don't tell you if you stray outside a given chunk of airspace (i.e. the main wave box).  However you will get a warning when you approach the boundaries (provided you include them).

Letters of Agreement (LoAs) - if you don't know what these are, you don't need them.  A few clubs have local agreements with nearby airfields and / or airways owners, and by selecting the appropriate agreement the generated airspace file will be extended to include the details of that agreement.  If you're not flying from the relevant club then you're not entitled to make use of the agreement, and if you are then you have to be briefed on the details of the agreement.  When an LoA is selected, rather than just overlaying the LoA airspace with the controlled airspace, the program selects a set of elements where the controlled airspace is subdivided into elements within and elements outside the LoA region.  As with wave boxes, flight navigation computers wouldn't tell you if you stray outside a given chunk of airspace (i.e. from the LoA region into an encompassing larger controlled airspace).  With the sub-division of the controlled airspace you now get that warning.

Radio Advisory - These are areas/zones where there may be commercial traffic.  You are advised to select ALL of them.  The frequency to call is embedded in the Title/Name when it appears on your flight computer.  Note that this section differs with regard to the INI file where your selections are saved insofar as the de-selected fields are saved.  Therefore a new entry in the list will be automatically selected.

Spatial Options - some equipment has a limited amount of memory and hence a limited number of airspace elements they can accommodate.  The Spatial Options tab allows you to downsize

the file by reducing the area covered. The height limit has been chosen as the height above which you probably wouldn't usually fly - unless you regularly fly with oxygen, and the latitude limits have been set at 1 degree intervals between the southern edge of the most northerly element and the northern edge of the most southerly element. The pre-set buttons preload the latitude boxes, which you can then change anyway should you wish. Those limits have been based on empirical analysis of the distribution of elements within the file. Note that wave boxes are not disabled by these options.

Gliding Clubs

Home Airfield - selecting this means that your airfield is given the TNP type of 'OTHER' (all other gliding clubs are given the TNP type of GSEC). This is so that your on-board equipment doesn't keep warning you when you are trying to scrape away near home. Note that the default mapping file for OpenAir vs TNP will cancel out any selection made here, and the effect in SeeYou output mode has not been determined.

Exclude Gliding Clubs - Some devices, i.e. Glide Navigator II have a limit of 800 elements. If all the options were selected then the file would run to over 1100 elements. By excluding Gliding Clubs sufficient space is left to include some other optional elements (e.g. ILS feathers). This overrides the Home Airfield selection.

## Stage 2

LX7007 Pro IGC with SD card - In stage 1 output your file in TNP format. Using the Lxnavigation program Lxasbrowser, 1) Link to your personalised airspace file by selecting File/Open.
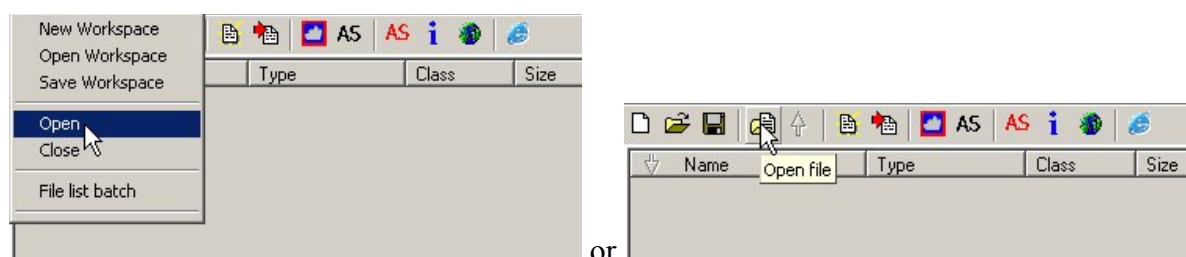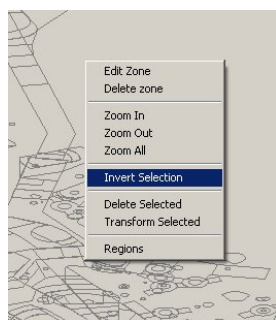


You then need to change the input file type from 'Open Air' to 'Tim Newport-Peace', then browse to your file and select it. 2) Input the file into Lxasbrowser by clicking 'Data/Add'.
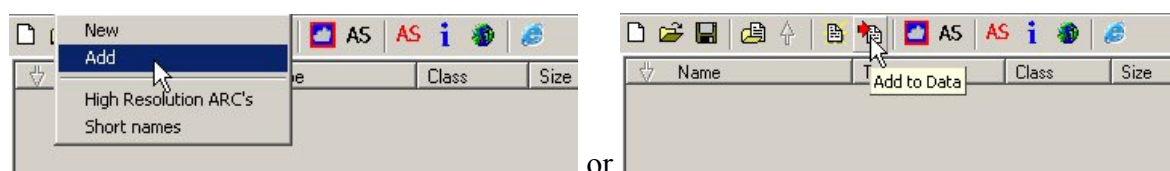


3) View the Airspace in map mode by clicking 'View/Airspace',

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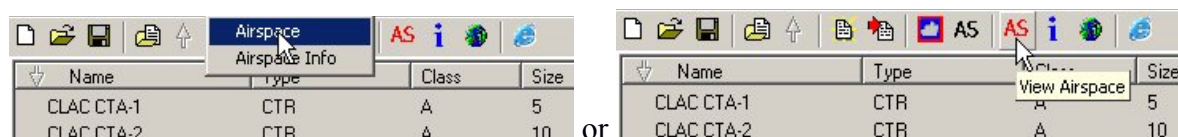
then BEFORE left clicking in the map, right click away from any airspace in the map and click 'invert selection'. Right click again and select 'Transform selection'.

In the dialogue box that opens give the Airspace a name (usually the year with a letter for the month, e.g. 2015D). Then give the file a name when you save it. Note that the file will be given a type of CUB and claims to be 'SeeYou Binary' - however I have heard that this is a variation on the SeeYou CUB format (see Annex - binary files). Finally put the CUB file you've generated on an SD card and follow the device instructions for loading the airspace.
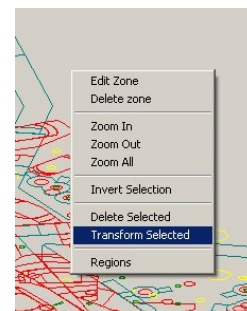
LX7007 without SD card - Follow the 'with SD card' process above to create a CUB file. Run the LX program 'Lxe' on a PC and connect via the PC port of the LX7007. Use the 'Transfer / Write CUB' menu option, click BROWSE and select your CUB file. Note - as far as I can see you cannot put the airspace into Lxe itself - that requires some processing by Lxnavigation.

Glide Navigator II - taken from Tim Newport Peace's web site - There seems to be problems when using the SUA (TNP) airspace file at http://soaringweb.org/Airspace/UK/ with Glide Navigator II and perhaps other software. **File too Large**. Self-explanatory really. The solution is to remove Comments, along with Unlicensed Airfields, Microlight Fields, HIRTAs, Gas Venting Stations, Lasers & RTMs, all the stuff you don't really need. The GNII output option of ASSelect will remove the comments and deselected elements, though you need to deselect the elements yourself. There is also a limit in GNII of 800 elements. At present the minimum UK file from ASSelect is about 715 elements. Including just the ILS feathers still keeps the complete file below 750 elements. Using the spatial limits enables the user to further reduce the file, and therefore start including other elements.

SeeYou Mobile - Select the TNP (SeeYou) output format connect the Oudie to your PC and copy the file across into the appropriate folder.

LK8000 - OpenAir Output

XCSoar - OpenAir Output. Ostensible XCSoar will read a TNP file, however it fails to make use of the dual nature of TYPE and CLASS that TNP applies to airspace, and when both are defined for a block it takes only the second of the two (parser analysed early June 2015).

TaskNav PC program - create an airspace file in TNP format. Open TaskNav and click on Graphics editor. Click on Options/Change Map and Turnpoints. Click on Map Settings and make a note of the file name and sub-directory for Airspace. Exit from TaskNav. Browse to the folder C:\Program Files\TNWIN-V2, then to the sub-directory you noted above. Remove or rename the old airspace file and copy the new airspace file you've created into that folder and rename it so it replaces the old one. Rerun TaskNav and you should see your new airspace file. Bear in mind that TaskNav might filter airspace above a certain height from view (depending on what the options are set to).

# Annex 1

## *File Types*

### Text Files

There are two formats for representing airspace in text format. They have different statement structures, but essentially convey the same information with one exception - detailed below.

OpenAir (OA) - This has a single definition for the classification of the airspace. It is set by an 'AC=' statement.

Tim Newport-Peace (TNP) - This has two definitions for the classification of the airspace. There is a 'CLASS=' statement and a 'TYPE=' statement.

There is obviously more information in the TNP formatted data, and information has to be lost when reducing airspace defined in that format to OA formatted data.

### Binary Files

The following is taken from Tim Newport-Peace's web site:

Initially CUB was a proprietary SeeYou format. It was binary for Copyright Reasons. CUB was recognised as a valid airspace format even though it is nothing more than a binary representation of text data.

At some point LX Navigation decided they wanted to support CUB format in their products because many competitions were publishing CUB formatted airspace files and other file types that were not supported by LX. Due to some problems with the Memory Management, LX could not use the CUB files directly and decided to change the alignment of the data in the CUB format. In addition to that LX added a feature to export to CUB format from the LX Browser. Even though the format was not the same as the original, they published their files as CUB - and this is the problem. **There are in essence two different formats sharing the same file extension**.

The problem has not been caught immediately because SeeYou on the PC had no problems reading both file types regardless of the data alignment. This was unfortunately not true for SeeYou Mobile/Windows CE. Different alignment causes completely unpredictable results in old versions of SeeYou Mobile. Due to this unpredictability (and totally useless airspace warnings as a result) Naviter added an error message in SeeYou Mobile (Error loading file C:\filename) if the file has bad alignment.

- A CUB file compiled with the Lxasbrowser file may run correctly in *early* LX instruments but will crash in any PDA, PNA or Oudie running See You Mobile, *and also in any LX8000, LX9000 and LX7007C.*

- A CUB airspace file compiled by Naviter or by SeeYou for PC, may operate correctly in See You Mobile, but crash when run in a LX instrument.

Unfortunately there is no easy way of finding out which version of the CUB file you have, and it would seem that there is no way that the two formats can be brought into line with each other,

however loading an unknown CUB file into SeeYou for PC and then exporting it using the SeeYou Mobile Wizard (Ctrl+F9) will produce a CUB file usable by SeeYou Mobile.

The whole issue is further confused by there being two companies with similar names.

- **LX Navigation** who are responsible for LX20 series, Colibri (All Models) , LX5000IGC, LX7000 Series, Mini Box Flarm-IGC and Red Box Flarm-IGC.

- **LX LXNAV d.o.o**. who are responsible for Nano, LX8000 Series and LX9000 Series.

In general, LX Navigation use LX format files whereas LXNAV use Naviter Format Files.

# Annex 2

## *Radio Advisory Airspace*

| ASSelect Name | Description | Club |
|---|---|---|
| Cambridge 123.6 RAZ | Voluntary Radio Advisory Zone in class G airspace around Cambridge airport as shown on chart in LOA. | Cambridge. All glider pilots entering area at any altitude are requested to call Cambridge Approach. Competition directors are requested to liaise with Cambridge if setting tasks through the area. |
| Glasgow/Storn 127.275 RAA | Route between Glasgow and Stornoway. Voluntary Radio Advisory Area by BGA request. | All glider pilots between FL80 and FL195 crossing route. |

## *Letters of Agreement Airspace*

| ASSelect Name | Description | |
|---|---|---|
| Riles Raglan | Part of several airways between Hereford and Abergavenny from FL105 to FL145 or FL195 as agreed. To south of Riles Madley box. | Bristol and Gloucestershire Gliding Club, South Wales Gliding Club (Usk), Cotswold Gliding Club (Aston Down), Midland Gliding Club, Herefordshire Gliding Club and Black Mountains Gliding Club |
| Daventry | Part of TMA near Daventry where exemption to fly up to 5500' instead of 4500' in some competitions. | The Gliding Centre. Strictly Husbands Bosworth competitions only. |

| ASSelect Name | Description | |
|---|---|---|
| Booker | Two areas of LTMA near Booker where exemption raises base from 3500' 4500' and one where it raises base from 2500' to 4500'. | Booker. Selected competitions only. |
| Lasham Compton | Exemption for selected competitions to fly up to 5500' instead of 4500' in part of LTMA west of Reading and south of Benson. | Lasham |
| P600 Scottish TMA | Multiple blocks in airway P600 between Edinburgh / Glasgow and Aberdeen | Scottish Gliding Union, Portmoak. |
| Brize Competitions | Sectors in the east and west of the Brize CTR. | Any National or Regional competition by prior agreement on the day (weekends and bank holidays only). |
| AMPIT | Triangle of airspace up to FL185 over NE Wales. | Denbigh, North Wales Gliding Club, Shropshire Soaring Group and Midland Gliding Club. |
| Riles Madley | Part of several airways between Hereford and Abergavenny from FL145 to FL195. To north of Riles Raglan box. | Bristol and Gloucestershire Gliding Club, South Wales Gliding Club (Usk), Cotswold Gliding Club (Aston Down), Midland Gliding Club, Herefordshire Gliding Club and Black Mountains Gliding Club |
| P18 Castle Derwent | | |
| Prestwick Camphill | | |
| N615(L612) Chipping | Bowland Forest, Lancashire. Up to FL100 or FL140 as approved. | Bowland Forest |
| P600 N864 Portmoak | | |

| ASSelect Name | Description | |
|---|---|---|
| GUSSI | Part of route N560 and Y906 west of Feshiebridge below FL190. Weekends only. Only available to pilots flying from Feshiebridge. | Activation by Cairngorm club. |
| Bath Gap | | Bannerdown Gliding Club (Keevil), Bath, Wiltshire and North Dorset Gliding Club (The Park), Bristol and Gloucestershire Gliding Club (Nympsfield), Cotswold Gliding Club (Aston Down) and Mendip Gliding Club (Halesland). Also National and Regional competitions. |
| Doncaster Darlton Goole Upton | | |
| Edinburgh | Complex narrow corridor through Class D airspace between Glasgow and Edinburgh. Transponder required above 6000', desirable below. | SGU, Portmoak |
| Southend | Procedures for use of two corridors through Southend's Class D airspace. Available to all BGA gliders. | Essex & Suffolk and Kent. |
| Nuclear Exemptions | Relaxation of parts of restricted areas Aldermaston R101 and R104 Burghfield. | Lasham - strictly competition use only. |

## *Wave Boxes*

Please note that from Aril 2017 NGSA-1 and NSGA-1A are subject to a NOTAM being published.  See AIC Yellow 005/2017 for details.

| ASSelect Name | Description | |
|---|---|---|
| NSGA-1 Scotland | Non-Secondary Surveillance | Scotland |

| ASSelect Name | Description | |
|---|---|---|
| | Radar Glider Area. FL100 to FL195 excluding controlled airspace. | |
| NSGA-1A Borders | Ditto. | Borders |
| NSGA-2 Greater Yorkshire | Ditto. | Wakefield to Carlisle including Lake District. |
| NSGA-3 Derbyshire | Ditto. | Complex area from around Sheffield to Langar including part of Peak District |
| NSGA-4 Wales | Ditto. | Most of Wales |
| NSGA-5 Dartmoor | Ditto.<br><br>Around Dartmoor GC. | Dartmoor GC. |
| TRA(G)-A Scottish | West of Aboyne from Comrie to Lossimouth. | Aboyne |
| TRA(G)-B Portmoak | NW of Portmoak | Portmoak |
| TRA(G)-C Aboyne | Around Aboyne. | Aboyne. |
| TRA(G)-E Northumbria | Northumbria and Scottish Borders up to East Lothian. | Milfield. |
| TRA(G)-F Spadeadam | Between Newcastle and Carlisle | West of Currock Hill. |
| TRA(G)-G Yorkshire | Yorkshire east of Pennines. | ? |
| TRA(G)-H Welsh | West Wales | ? |

Caveat Emptor!