

Using Purple Pen for Course Planning

Collated by Ken Thompson based in part on programme help screens.

Ver 2.5 5th Aug 2019

Please email comments & suggestions to me at cartography@ihug.com.au Note: Generally speaking it is easiest to work through the programme referring to the help screens as necessary. These notes **are based on version 3.2.3** Updates to the software can be obtained from <http://purple-pen.org> If you do an update remember to also update the symbol.xml file (see p2)

Comparison with OCAD

Features that make it better than OCAD (keep in mind that features in both programmes are changing all the time!)



1. The **price** is good!(no cost although donations are encouraged)
2. Looking at update history the writers are **responsive to suggestions** for improvements
3. **Intuitive style**. Does not require a complex manual to use.
4. The programme and associated files is totally **self-contained in one directory**. It will run successfully from a USB stick or portable hard drive
5. With the clue list a **combined symbols & text option** is available which OCAD lacks. Great for people learning
6. Is easy to set up a **score event** that does not use all the controls. This feature is not available in OCAD. An event can even have a mixture of score courses & normal courses.
7. **Classes autofit** the space in the clue list.
8. A bit of a Pro & Con: **Punch codes** can be recorded unlike OCAD although it would be nice if a club's list could be saved as a separate file that could be accessed by any event. Otherwise codes would need to be entered each time.
9. **Control descriptions on map can be set in position** and remembered for each course. This feature is not available in OCAD
10. Able to **create route gadget files**. This feature not available in OCAD
11. **Able to create punch cards** with punch pattern on for comparison. No need for master punch list. Feature not available in OCAD
12. **Text descriptions are automatic** unlike OCAD. This make for more consistency in control descriptions (text) They can be edited for items named differently in Australia such as re-entrant (gully) stream (watercourse), Special Object X (made object). You will need to do this for each event however unless you edit the **symbols.xml** file as explained on p2
13. Can save files as any version of OCAD
14. Can read any OCAD map file from version 6 and above.
15. Like OCAD Purple Pen can save courses as vector pdf files (version 2.1.0 & above). Can save as single file for all courses or separate file for each course. As with OCAD the pdf file is quite large if

they are combined so it is better to make a separate file for each course. One advantage of a pdf is that it contains the map so there is no need to send the map file to the printer.

16. To read pdf files it is no longer necessary to install ghostscript (ie ver 3 & above)
17. **The latest versions (3.0.0 and above) does handle relays.** OCAD also does this really well although it is quite complex

Cons:

1. A course planner would always **need to have a basic understanding of international symbols** to plan courses. In OCAD novice course planners can get away with just entering text descriptions. It could of course be argued that this is a good thing as even some seasoned course planners seem to make errors in this respect. We would need to make people very aware of the standards for this.
2. Unable to open an encrypted (**protected**) version of an OCAD map file.

Installing & updating the Programme

Installing

Note: The programme will only run on a PC system.

If you have an Apple computer you will need to run Parellels or similar and install Windows. **Update note** for Apple/Linux users: Peter Golde, the author of Purple Pen has written an article on how to set up an Apple or Linux computer using Virtual Box at no cost: <http://purple-pen.org/virtualbox.htm>

PC Installation:

1. The programme can be obtained from: <http://purple-pen.org>
2. The installer will put the programme in the standard programme directory: c:\Program Files(x86)\Purple Pen. If the installer allows you to choose place it in c:\Purple Pen (step 3 & 4 not needed if you can do this)
3. If you wish to use the Australian version of the symbol file symbol.xml you need to first make a folder in c:\Purple Pen, d:\Purple Pen or other location to suit yourself. If you are on a network make a subdirectory of your personal directory called Purple Pen and copy all the files to there. Because the programme is self contained it should be able to run from there. It will even run from a directory on a USB memory stick or portable hard drive

Table of differences between standard and modified symbol.xml file (Updated 1st June 2018 due mainly to changes in Australian version of IOF Control Descriptions

Standard	Modified
Special item	Made object
Root stock	Tree stump/root stock
Ditch	Minor watercourse
Re-entrant	Gully
Stream	Watercourse/river
Ant hill	Termite mound
Hedge	Linear thicket

4. Then copy all the files from c:\Program Files(x86)\Purple Pen to your new directory
5. Get the modified symbol.xml file from the Orienteering SA website:
https://sa.orienteeing.asn.au/images/gfolder/about/guidelines_policy/EventManagement/symbols.zip Save this file in to your new purple pen directory. When you unzip to here it it will replace the existing symbols.xml file. Windows 8 and above has 7-Zip built in which will do the job. Earlier version will require you to install a Zip programme such as Winzip. I suggest you leave the symbols.zip file there as you will need to perform an unzip each time you do a Purple Pen update.

Updating

1. From time to time when you load Purple Pen you will say an update is available.
2. If you click Yes to install. As above the new version will install in c:\Program Files(x86)\Purple Pen
3. Copy all the files except symbols.xml from c:\Program Files(x86)\Purple Pen to your own Purple Pen directory
4. If you copy the symbol.xml by mistake you can unzip symbol.zip to replace the European version.

Creating a new event

When you first start Purple Pen, you have the choice of opening an existing event or creating a new one. If you want to just see how the program works, you can open an existing event and open the sample event that comes with Purple Pen.

However, once you have finished playing with the sample event, it is time to create your own event. Select "Create a New Event..." from the initial dialog and you will be asked a series of questions to gather the information for creating a new event.

Event Title

First, enter the event title. This should be a short, one line description of the event. It will appear as the first line on each control description sheet. It is also used as the file name for the event file. Once the event title is entered, click "Next".

Map File

Your event must use an OCAD map file, or a bitmap map file. All versions of OCAD are supported; for a bitmap, you can use TIFF, JPEG, GIF, PNG, or BMP formats. If you use a PDF file as your map, Purple Pen needs to know the map scale. This indicates how distances on the map related the real world, and it needed to calculate the lengths of courses. Generally this is shown on the map..

When possible, using an OCAD map usually produces the best results. Click the "Choose map file..." button and select the map file you will use. Purple Pen will immediately try to read the map file to make sure it is usable (if it isn't, an error message will appear). After you have chosen the map file successfully, click "Next".

The map file is used every time Purple Pen loads the event. If you send the Purple Pen file to someone else, they must have a copy of the map file also to successfully load the event and view the map.

Map Resolution and Scale

If you use an OCAD map, Purple Pen automatically reads the scale from the map, and this step is skipped.

If you use a bitmap (JPEG, TIFF, etc.) or pdf file as your map, Purple Pen needs to know the resolution and the map scale in order to correctly calculate the lengths of courses, the sizes of controls circles, and so forth. Purple Pen attempts to read the bitmap resolution from the bitmap file, so this may already be set correctly, but you should check the value to be sure. The resolution is expressed in dots per inch -- the number of pixels in each inch of the printed map. The map scale indicates how the map relates in size to the real world. After typing in the bitmap resolution and scale, click "Next".

Print Scale

Next, chose the scale at which you wish to print your competition maps. Most of the time, this will be the same as the scale of the map, so unless you know want to print at a different scale, just click Next. (Note: when creating a new course, you will have the option to change the print scale, so you can have different scales for different courses.)

Paper Size

Next, chose the size of paper and orientation that you will use to print the map. Purple Pen will attempt to automatically chose a paper size that fits your map, but you should review this choice and change it if necessary. (Note: you can change this setting later, or even use different paper sizes for different courses, by using the [File/Set Print Area](#) command.)

Event File Location

Next, choose the folder where the file that stores your event will be stored. Purple Pen events are stored in a file with the file extension ".ppen". The name of the file will be the event title you chose previously.

You can chose to place the Purple Pen file in the same folder as the map file. Alternatively, you can explicitly select any folder on your computer.

Control Numbering

Purple Pen automatically numbers all newly created controls. Choose the starting control code you would like to use. It is very easy to change control codes afterward, so don't worry about this setting if you don't know what the codes will be for your event.

Create Event

You've answered all the questions needed to create a new event. If you are happy with what you selected, click "Finish" and you can begin designing courses. If you want to change any responses, click "Back" to go back to any previous questions.

Manipulating the View

This is basically intuitive:

- Right click allows you to move the map on the screen
- Scroll zooms in & out.
- Go to View on menu & a number of factors can be altered including map intensity & map quality.

Adding courses

After the event is created, the Purple Pen main window appears, with the map displayed. At this point, it's usually best to begin by creating the set of courses that your event will use. You can always add or remove courses later, if you need to, but it helps to have the initial set of courses created.

Please note Orienteering SA users: To ensure courses can be easily imported into Sport Software number as Course1, Course 2, Course 3 etc. so that they match the Sport Software templates.

Use the Course/Add Course command once for each course that you need, and enter the name of the course. You don't need to worry about the other fields in the Add Course dialog now. Once you've added all the courses, they will appear in tabs across the top of the window in the course tabs. Click on a tab to display and work on that course.

Initial course design

After creating the courses, it is often a good idea to try out some rough plans for each of the courses. Pick a course to design first, and click on the tab for that course to view it. Since you haven't designed anything yet, you will just see the map. First, place the start triangle by clicking the Add Start button on the toolbar, then clicking on the map where you want the start. Similarly, click the Add Finish button and click to place the finish.

Next, use the Add Control button on the toolbar (or press Ctrl+A) to place each control. When placing a control, note that it will go immediately after the currently selected control, or in between the currently selected leg. As you place controls, Purple Pen will automatically assign control codes and they will show up in the description sheet pane on the left side. As you initially design courses, it is easiest to not worry about control descriptions or control codes until later. If you need to, zoom in and out or move around the map to see the map and control placements more carefully. Note that Purple Pen automatically calculates the length of the course as you add controls; keep an eye on this to get your course around the right length.

Once you are more or less happy with the first course, move on the next by selecting a new tab. As you design the second course, you will note a few small differences. Firstly, the start and finish are automatically placed for you. You can add additional starts and finishes if you want, but in most cases you will want to use a single start and finish for all courses. Secondly, when you add a course, all the existing controls in the event show up in light purple. If you want to use an existing control, you can just click on it. In this way it is easy to share controls between courses.

Refining the course designs

After you finish the initial design of the courses, you will want to spend time refining the design until the courses are exactly the way you want them. Usually there will be an initial refinement, following by field

work checking the control locations, followed by additional refinement after the field work. Several features of Purple Pen can make this process efficient.

- As you **move or delete controls**, all courses that share that control are immediately updated. You can easily see the effect of any change, or undo it if it is not to your liking.
- You can quickly see the set of **all controls** in the event by clicking on the All Controls tab. This allows you to see if you have too many controls, and easily identify places where controls could be shared between courses. You can also print an all controls map for field work.
- While designing a course, you can view all the other controls in the event by using **View/All Controls**. This allows you to easily identify places where controls could be shared between courses.
- The **Control and Leg Load report** allows you to check if some controls or legs have too many competitors.
- Once you have finalized control locations, you can see the entire **description for each control** by simply clicking in the appropriate box in the control description pane.
- With the **Text descriptions** it is generally recommended that you stick to the standard ones. If you have installed the Australian version of symbol.xml this should meet your needs. If you do want to change anything for the current event go to Event -> **Customize Description Text**. Any changes you make will only apply to this event

Final polish

Once you are happy with all of the course designs, and all the control locations have been field checked, you can use Purple Pen to polish off the final details before printing. Here are some things you may wish to do:

- To choose the type of finish (eg taped route to finish) right click on last control on control list on left of screen and select the type of finish.
- To make a marked route (referred to as flagging in PP) first select leg then under Item -> Leg Flagging can be selected. With partial flagging the point can be dragged to correct position. This option will only appear if you have selected a leg.
- Using the All Controls view, make sure that every control has a good description. Remove any controls that are not used by any course. Do a final check for controls that are too close together.
- Update the control codes to match your control inventory, using the Change Codes or Automatic Numbering commands.
- Calculate the climb for each course and enter it by clicking in the climb box in the control description pane (or use the Course/Properties command).
- If some courses are printed at a different scale, set that with the Course/Properties command.
- Add gaps to control circles and legs to avoid obscuring important map features. Select object and use Add Gap Button ---- or click CTRL G. Click once on part of circle or click and drag on segment of line you wish to delete. To undo cut line select and drag one of the end points. If you wish to adjust the size of the gap select the circle or line and drag (left mouse -> hold and drag) one or both of the blue handles
- Move the control numbers to places that don't obscure important map features.
- If you are using pin punching, double check that each control has the correct punch pattern using the Punch Patterns command.
- Place any necessary special items, such as forbidden areas, water locations, or forbidden routes.
- Place the control descriptions onto each course in a place where it doesn't overlay important information.
- Set the print area if you don't want to print the entire map.
- Run the Event Audit report to discover any potential problems or missing items in the event. Reports-> Event Audit There are other reports in this section you will find useful.
- Add any special text you want to place on map using Add Special Item -> Text There are a number of options in this section.

- A new feature (Ver 2.2.4 onwards) is to be able to add a white border around the control numbers. This helps to improve clarity particularly where there are large dark areas such as buildings. To do this go to event - > customize course appearance and you will see there is an option to have a white outline around the numbers. The size can be altered. I suggest you try 0.20mm as a starting point.

All of the above commands are described in the help screens.

Printing

Before printing courses make sure colours for purple on original map have been set correctly. Currently to get best results set to C35, M85, Y0, K0. This is now the current (2019) IOF standard

Beware of maps that have multiple colours on table. Purple Pen will pick the lowest one on the table and defaults to whatever colour is recorded in the background map. A safer option is to set the colour purple before generating the OCAD files or printing by going to Event > Course appearance

Once your courses are completely done, you will want to prepare files to send or take to the printer. There are two recommended ways you can do this

- Produce a pdf file for each course:** Go to File -> Create Pdfs. If it is an A3 map make sure you change to A3. Then tick the courses you want. I suggest you leave it at one per course as you will want different numbers printed for each course and the combined file may be too big to email.
- Produce an OCAD file for each course:** First, export the courses to OCAD using the Create OCAD Files command. (under file). Choose whatever version of OCAD you are using This creates one OCAD file for each course. Then, load each file into OCAD and print it. Remember that if you choose this option you must also send the map file to the printer.

You can print out the control descriptions for each course using the Print Descriptions command.

If you are using pin punching, print out master punch cards for use in control card checking using the Print Punch Cards command.

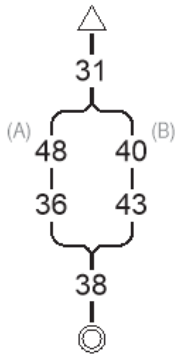
Finally, you may wish to print out a Course Summary and Control Cross-reference report for reference during the event

Overview of Variations

Starting with version 3.0, Purple Pen supports courses with **Variations**.

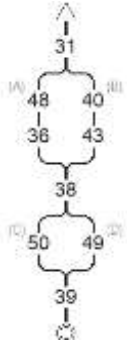
Variations are often used in relay courses, so that teams can race head-to-head with a mass start, but reduces the ability of competitors to follow each other. Different team members run different variations, but as a whole each team runs the exactly same set of legs. Variations (especially loop variations) can also be used in single-person races.

The simplest form of variation is a **fork**. The following diagram shows the simplest possible fork, with two variations:



There are two possible ways through the course: A and B. Variation A visits controls 31, 48, 36, 38. Variation B visits controls 31, 40, 43, 38. In a two-person relay, one team can run variation A, then B, while another team runs variation B, then A.

A more complex course can sequence two or more forks. This provides more possible ways through the course. For example, consider the following course, with two forks:



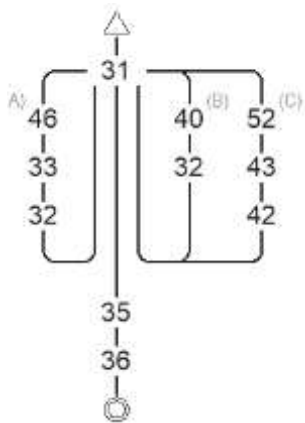
There are four possible ways through the course, which are designated by letter pairs of which branches to take. Variation AC visits 31, 48, 36, 38, 50, 39. Variation AD visits 31, 48, 36, 38, 49, 39. Variation BC visits 31, 40, 43, 38, 50, 39. Variation BC visits 31, 40, 43, 38, 49, 39.

In a two person relay, the first leg can run any of the four variations, and the second leg runs the opposite branches (e.g., the first leg runs BC, and the second leg runs AD). Each team runs branches A, B, C, and D exactly once.

More complex courses can be set up, included 3-way, 4-way, 5-way, etc. forks. It is even possible to put a fork within a branch of another fork.

The other basic kind of variation is a **loop**.

In a loop, the competitor returns back to one of the controls multiple times, making several loops. A competitor can run the loops in any order. Here is an example of a 3-way loop:



There are 6 possible orders to run this course in: ABC, ACB, BAC, BCA, CAB, CBA. For example, Variation CAB runs the controls in the order: 31, 52, 43, 42, 31, 46, 33, 32, 31, 40, 32, 31, 35, 36. No matter which order the loops are run, the course is completely fair.

Creating and Editing Variations in Purple Pen

To create a course with variations, first insert the start and finish, and any fixed controls that should be on all variations. Then click on the control where the fork or loop should start, and click "Add Variation" from the toolbar.

Once you create a fork or loop, the left hand pane will switch to displaying the [Course Ordering](#). You can use this to select different branches and insert controls on them.

When working with a course that uses variations, you can switch between variations using the gray bar directly above the map:

Using this, you can display any variation of the course, or "All Variations", which displays all variations together.

When printing (or exporting the courses to PDFs or OCAD files), you can select which variations that you wish to print. Select the course, with variations, then click the "Variations" button to select which variations to print.

Assigning Variations to Relay Teams

If you are holding a relay, you will wish to assign variations to team members so that every team runs the exact same legs, and to vary the assignments to minimize the possibility of following. Purple Pen can help by assigning course variations to teams in a fair, randomized manner. Simply choose the [Course/Relay Team Variations](#) command, and choose the number of teams and the number of legs on each team. Click "Assign Variations", and Purple Pen will pick a fair distribution of variations.

Exporting Courses to Sport Software

- Go to File > Create E Punch Interchange file
- This will generate an XML file

Open Sport Software and go to Courses > Import Courses and use the following options:

- Courses: Update Existing Only
- Controls: Clear and create again
- File format: XML

Special Note: If for some reason you have set up two or more separate Purple Pen files for an event one of these needs to include all the courses and controls so that all courses & controls are in the one xml file.