PandroidWiz and Presets

What are Presets...

PandroidWiz uses Presets to control the pattern of movements of the robotic mount when shooting panoramas.

Presets are data files that specify the Yaw and Pitch and Roll co-ordinates of each shooting position relative to a reference point called the Home position which has yaw and pitch co-ordinates of 0/0 (zero/zero). It is conventional to set the Home position with the camera/lens axis horizontal.

PandroidWiz uses Preset data files which comply with the Papywizard XML format Preset file definition.

For more information about the Papywizard XML format Preset file definition see:

http://www.papywizard.org/wiki/UserGuideSvn#Presetmode

Different types of Preset...

PandroidWiz can handle two types of preset; **Spherical presets** and **Mosaic presets.**

Spherical presets are designed to shoot panoramas with a field of view of 368 x180 degrees; 360 degrees on the horizontal yaw axis and 180 degrees on the vertical pitch axis.
PandroidWiz is designed to work with Spherical presets with a range of 0 to +360 degrees on the Yaw axis, and a range of -90 to +90 degrees on the Pitch axis. Presets that define shooting positions outside those ranges of Yaw and Pitch values risk damaging your equipment.

Multirow spherical presets typically have fewer images per row approaching the zenith and nadir to avoid excessive overlapping. Mosaic presets are different and always have the same number of images in every row, in a regular matrix/grid pattern.

Mosaic presets define regular grid/matrix shooting patterns with the same number of images in every row. Mosaic presets are designed for shooting panoramas with a field of view of less than 360 degrees on the yaw axis and less than 180 degrees on the vertical pitch axis. The graphical display in the Shooting screen will be adjusted automatically to the ranges of the preset.

To make it easier to shoot partial panoramas using Mosaic presets they should be should be centered on the 0,0 origin and will then include negative yaw values. Point the camera at the position you wish to become the centre of your panorama and the set the Home position before shooting with a Mosaic preset of this type.

Use Papywizard in simulation mode along with the on-line XML data-to-preset file convertor program to create this type of Mosaic preset.

How do you create Presets?...

You can create Preset files for use with PandroidWiz in a number of ways:

- by hand using any text editor, but this is unnecessarily time consuming when there are other ways.

- using computer programs called preset generators which automate much of the process. This is the best way of creating spherical presets fro shooting Spherical panoramas, which have a field of view of 360 x180 degrees.

- using the Papywizard software in simulation mode to create an XML format data file that can be converted into a Preset using an on-line conversion program. This is the best way to create Mosaic presets for shooting partial panoramas, which have a field of view of less that 360 degrees horizontally and less than 180 degrees vertically.

Creating presets by hand...

You can use a text editor to create Spherical and Mosaic presets by hand; but it is much easier to use a preset generator to create Spherical presets and to use Papywizard to create Mosaic presets.

To create Papywizard compliant preset files that will work with PandroidWixz follow the XML format Preset file definition published here:

http://www.papywizard.org/wiki/UserGuideSvn#Presetmode

Preset files must be saved with UTF-8 encoding. Windows Notepad offers the option of setting UTF-8 encoding when saving files.

Creating presets with preset generators...

Preset generators are computer programs which automate much of the process of creating preset files for use with PandroidWiz. Some are designed for on-line use, others for off-line use.

Preset generators are best used to create Spherical presets.

Use Papywizard to create mosaic presets.

Preset generators that create presets designed to be used with unusual Home positions are best avoided.

Here is a list of preset generators:

The first set of preset generators create presets that expect a Home position with the camera/lens axis horizontal and are recommended for use by all PandroidWiz users.

Generate an optimized preset file for a spherical panorama using a standard (rectilinear) lens – The Papyspheric preset generator was originally created by Georges Lagarde, and later modified and made available on-line by

Kevin Schumacher. The presets it produces are intended for use with standard rectilinear lenses, not fisheye lenses :

http://exposedbykevin.com/PapySpheric/papyspheric.html

Generate an optimized preset file for a spherical panorama using a fisheye lens - This preset generator was created by Christian Stüben. It generates presets for use with fisheye lenses :

http://www.wackel3d.de/shootpatterngenerator.aspx

The second set of preset generators created by JH Subbiah generate presets that require an unusual Home position, and we don't recommend their use unless you are experienced with PandroidWiz.

Generate an optimised preset file for a spherical panorama :

http://www.kolor.com/forum/viewtopic.php?f=20&t=6747

http://jpl.mine.nu/papywizard/pw-preset-generator.html

Generates a preset file for a full-spherical pano – but expects an unusual Home position with your camera/lens axis pointing vertically upwards towards the zenith.

Generate a preset file for a target format partial panorama :

http://www.kolor.com/forum/viewtopic.php?f=20&t=6726&hilit=multi+format+preset+generator

http://jpl.mine.nu/papywizard/pw-multi-preset-generator.html

Generates a preset file for a target format – generates a grid/matrix preset and expects the Home position to be the upper left corner of the grid.

It is difficult to visualise the panorama filed of view with this preset, although it generates a second preview preset that will move the camera in sequence around the corners of the matrix so that you can view the limits of the grid via the camera viewfinder.

Generate a preset file optimised for shooting high-resolution mosaics :

http://www.kolor.com/forum/viewtopic.php?f=20&t=6661

Generates a preset file optimised for high-resolution mosaics shot with longer focal length lenses with small angles between neighbouring grid positions. It creates a non-standard shooting pathway to optimise the angles traversed between shots to speed up the shoot.

It is difficult to visualise the panorama filed of view with this preset, although it generates a second preview preset that will move the camera in sequence around the corners of the matrix so that you can view the limits of the grid via the camera viewfinder.

[Papywizard] TimeLapse Preset Generator

http://www.kolor.com/forum/viewtopic.php?f=42&t=6748

http://jpl.mine.nu/papywizard/pw-timelaps-preset.html

[Papywizard] Time Lapse (Bezier Curve) Preset Generator

http://www.kolor.com/forum/viewtopic.php?f=42&t=8684

Creating Mosaic presets with Papywizard...

Papywizard can be used to create Mosaic presets for use with PandroidWiz.

Papywizard is a cross-platform Open Source program developed, in Python, to control the low cost Merlin/Orion/Panogear astro-telescope mount so that it can be used as a robotic head for panoramic photography.

Papywizard is available for Windows, Mac OSX, Linux, and the Nokia N800 and N810 Internet Tablets. It is not available for Android platforms.

PandroidWiz was developed to deliver the core functionality of Papywizard on compact Android platforms, both smartphones and tablets.

Papywizard uses Preset files to shoot spherical panoramas. Papywizard can calculate Mosaic patterns internally and does not use presets for shooting Mosaic partial panoramas.

PandroidWiz uses Presets for both Spherical and Mosaic partial panoramas; this keeps the program small and simple and enables it to be used even with low end Android platforms.

Like Papywizard, PandroidWiz also records the co-ordinates of shooting positions in Papywizard compliant XML format data files. These data files can later be used by Autopano Pro, Autopano Gaga or PTGui Pro panorama stitching software to help position 'featureless' images which might otherwise be left out of the stitched panorama.

Papywizard can be used in simulation mode – without being connected to a Merlin/Orion/Panogear mount – to create Papywizard XML format data files that can then simply be converted into PandroidWiz compatible Mosaic Preset files using an on-line conversion program.

This is the best way to create Mosaic presets for PandroidWiz which center on the Home position making it easier to position the camera to acquire the desired panoramic field of view.

If you have not already got Papywizard installed on you computer you can download it from here; choose the appropriate latest development version for your operating system:

http://www.papywizard.org/wiki/Download#Developementversions

After installing the Papywizard oftware you need to configure it to match the camera and lens that you will be using to shoot panoramas using PandroidWiz.

These instructions are illustrated with screenshots from the Windows version of Papywizard, but other versions look very similar.

First use the Hardware/Plugins … menu reach the Yaw, Pitch and Shutter plugin settings. You need to set them all to Simulation the click on 'OK' to close the Plugins panel:
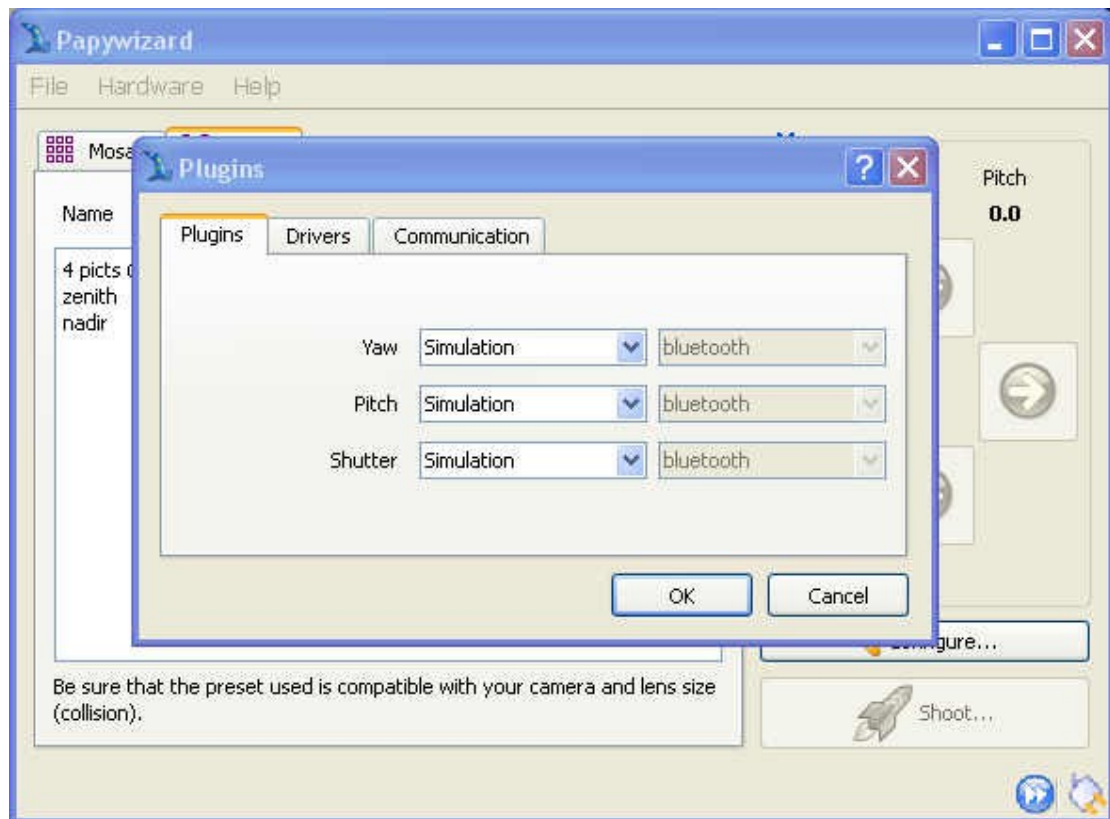

Next click on the 'Configure' button and select the camera/lens tab and enter the correct settings for your camera and lens- focal length, lens type, sensor resolution, crop factor and sensor aspect ratio. The optical multiplier field would be used if you had an adapter attached between your lens and camera body.:
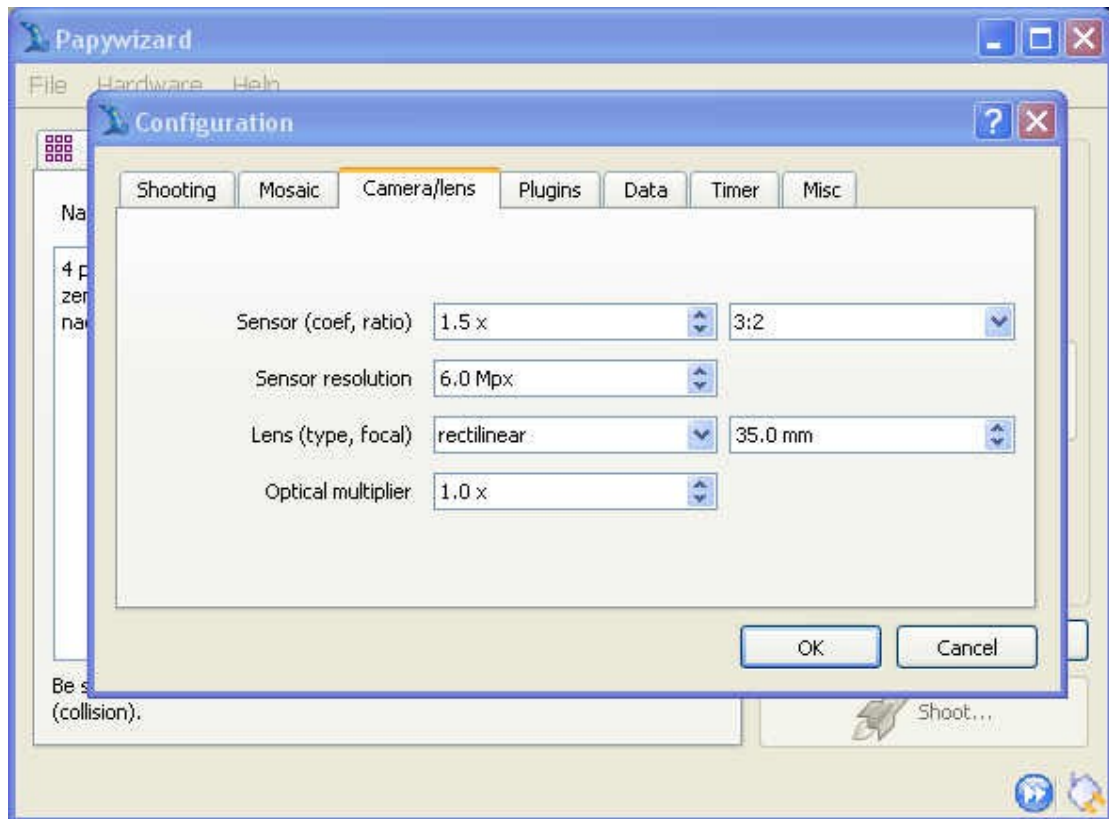
Now select the Mosaic tab, and check and set the values as you prefer, 30% is a good value for 'Overlap'.
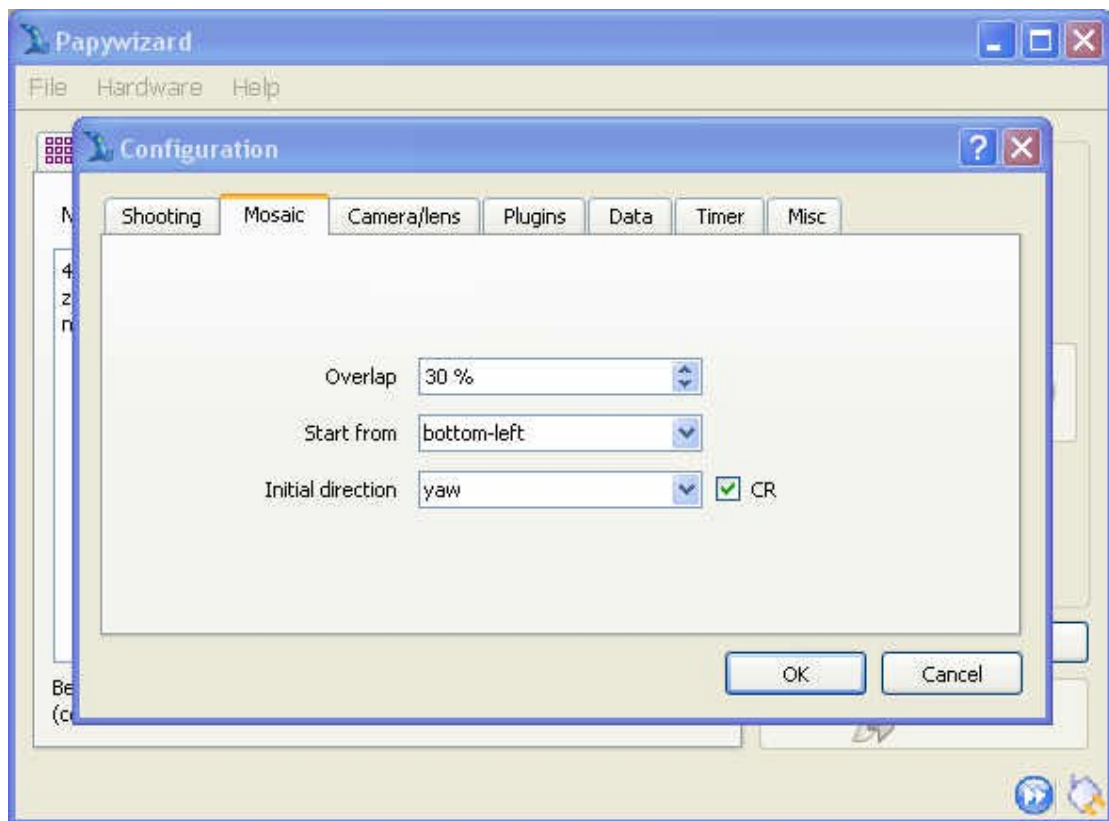
Now chose the Data tab and set the Data directory as you wish. This is the directory to which Papywizard will write the Papywizard XML format data file that you will later convert into a PandroidWiz compatible Mosaic Preset file:
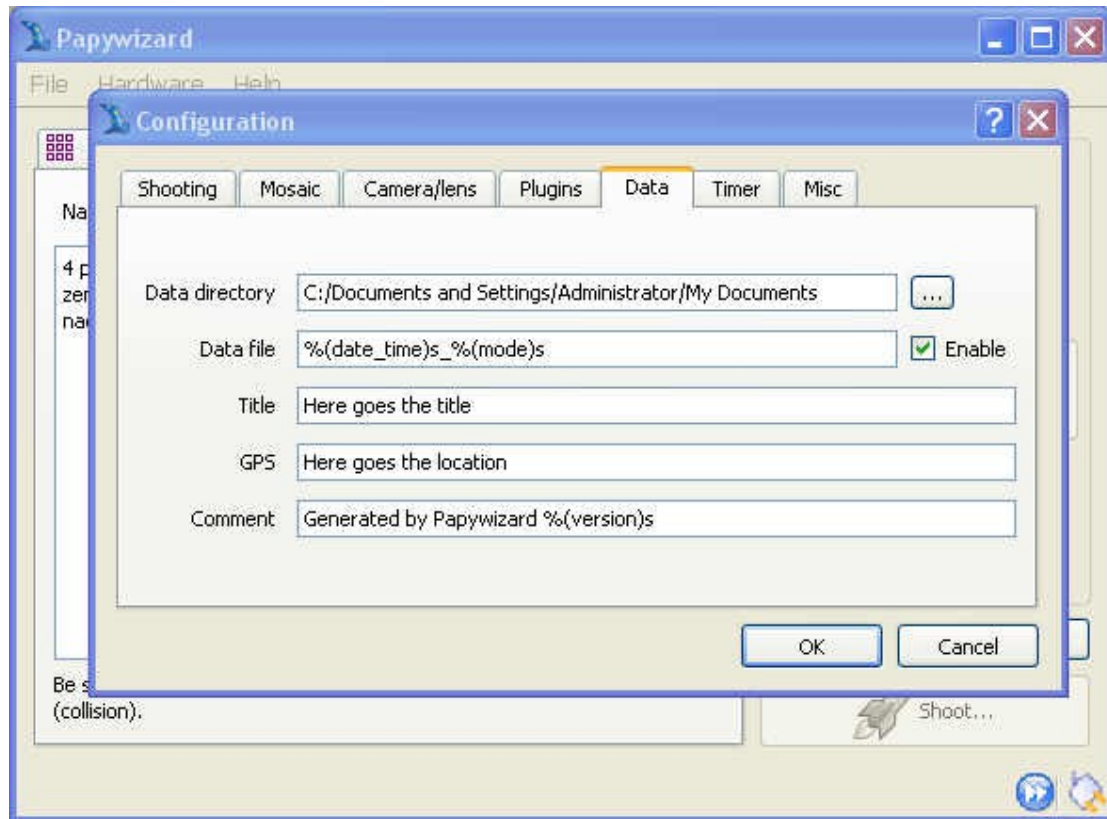
Now click on 'OK' and return to the initial screen:
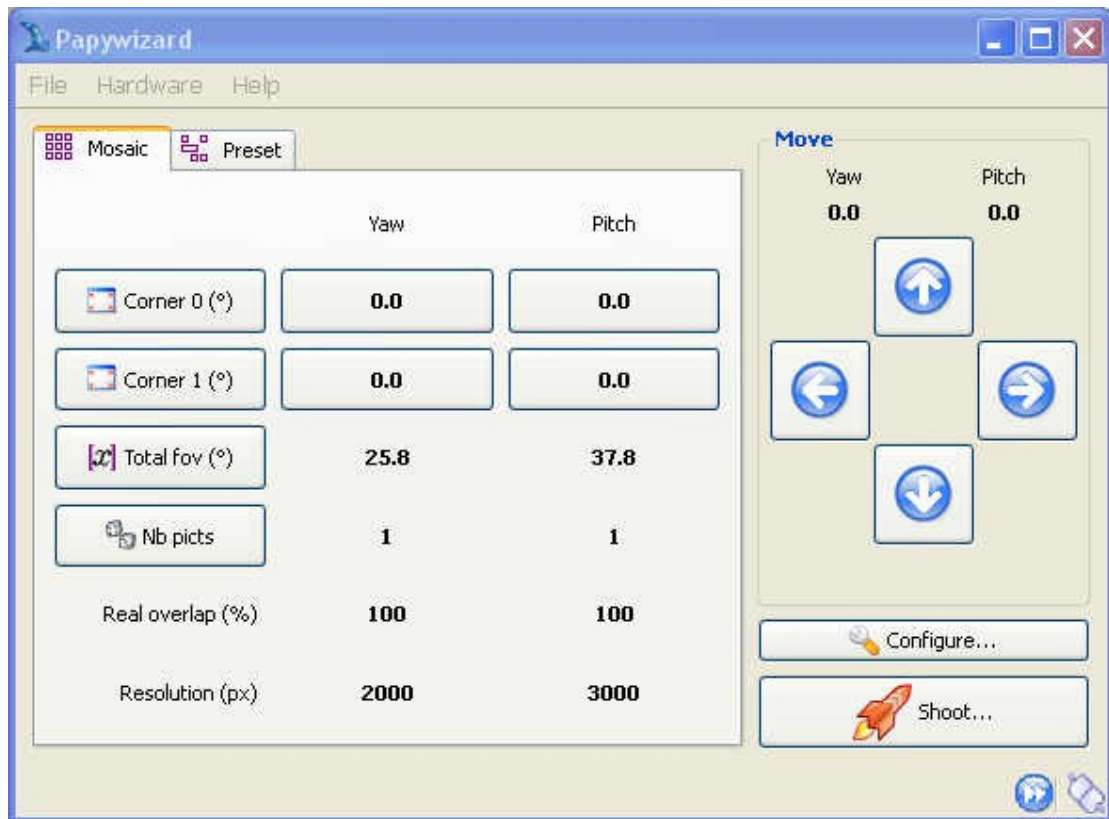
Select Hardware/Connect to enable shooting mode and choose the Mosaic tab:

Click on the' Total FOV' button and enter the field of view you wish your panorama to cover, you will notice that the values for 'Nb picts' change accordingly.

The' Nb picts' values are the number of columns and rows that will be required in your grid/matrix shooting pattern to cover the desired field of view with your current camera and lens settings. You could alternatively enter 'Nb picts' values and observe how the 'Total fov' data changes.

In this example the desired 'Total fov' has been set to 120 x 90 degrees, and that this will require a grid/matrix with 7 columns x 3 rows of images.

The' Resolution (px)' values provide an estimate of the pixel dimensions of the final stitched panorama.

Now click on the Shoot button to display the Shooting display which shows a graphical representation of the grid/matrix of shooting positions with the starting position highlighted.

Check that the Data Button is checked and then click on the Start button to start the shoot.
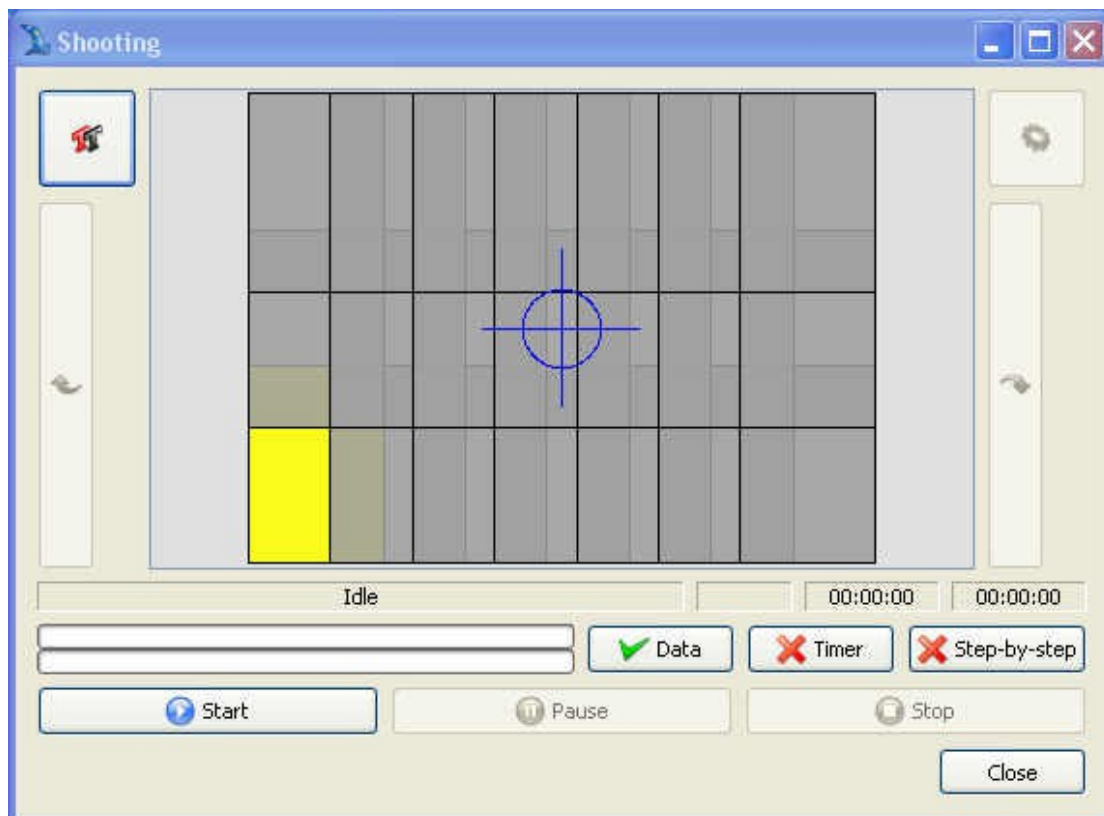
When the shoot has completed click on 'the finish button to reinitialize the Shooting display.

Now click on the Close button to return to the initial Papywizard screen.
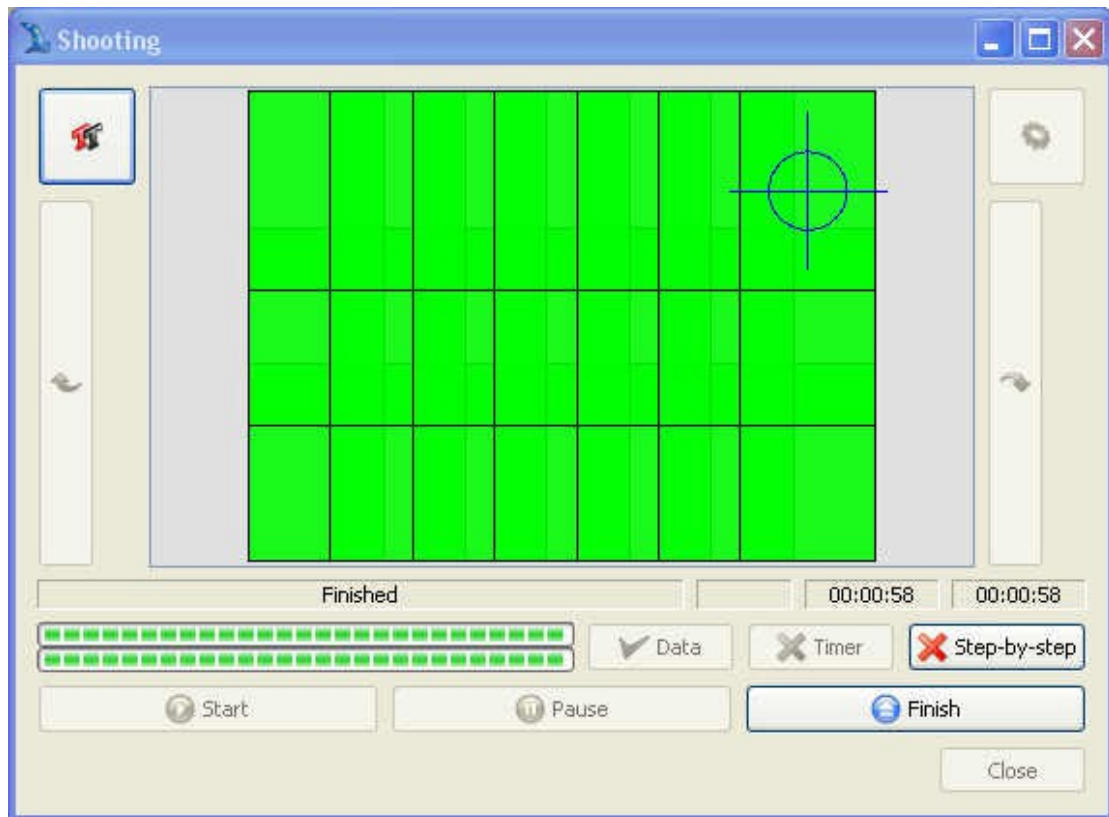
You have now created a Papywizard XML format data file which contains a recording of the yaw and pitch co-ordinates of the grid/matrix of shooting positions centred around a Home position with the co-ordinates zero/zero (0/0).

Now you need to convert that data file into a PandroidWiz compatible Mosaic Preset file.

You do this with an on-line Data-to-Preset file conversion program that you can access here:

http://www.papywizard.org/wiki/DataToPresetConverter
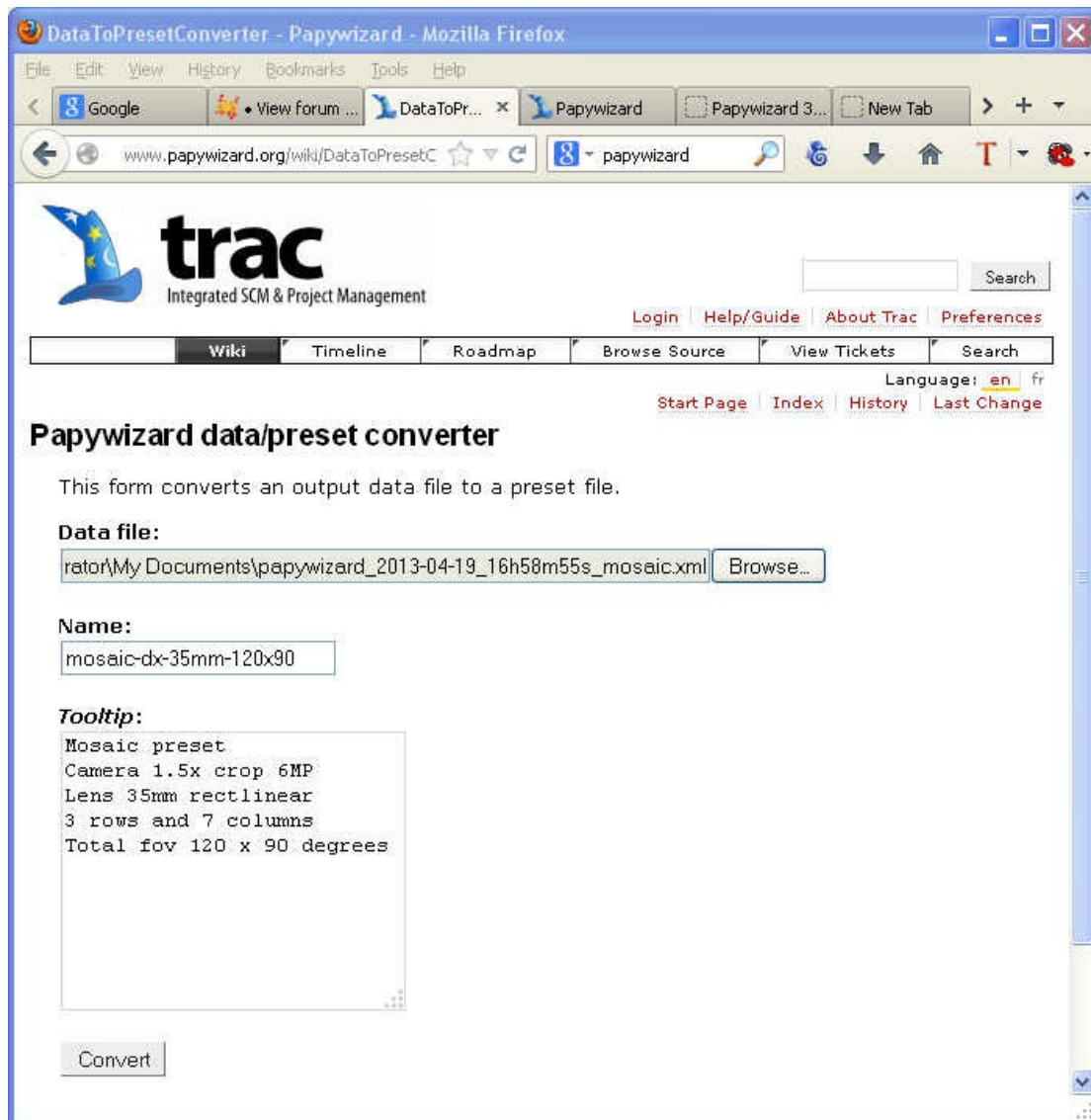
Browse to select the Papywizard data file that you created with your simulated shoot. Then provide a name for your preset and a description of the preset in the tooltip box.

Provide enough information for you to be able to identify the characteristics of the preset when you wish to select it for use later in PandroidWiz.

The click on the Convert button and save the Preset file wherever you wish on your computer. Name the file however you wish but retain the .xml file extension.
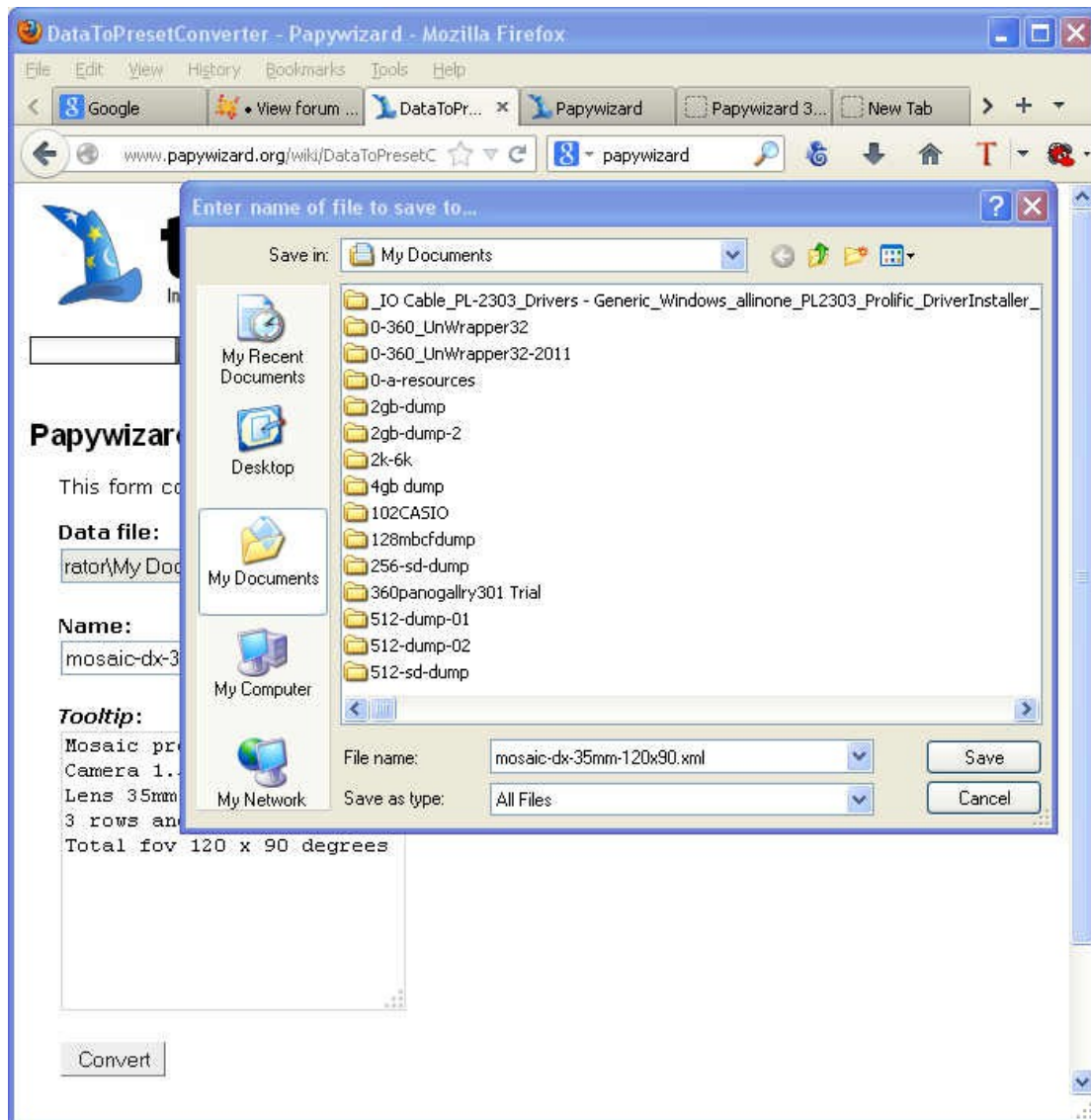
To make the new Mosaic Preset available to PandroidWiz copy the preset file from your PC to the PandroidWiz/Presets folder/directory on your Android device. It will now appear in your list of presets when you Refresh the list.
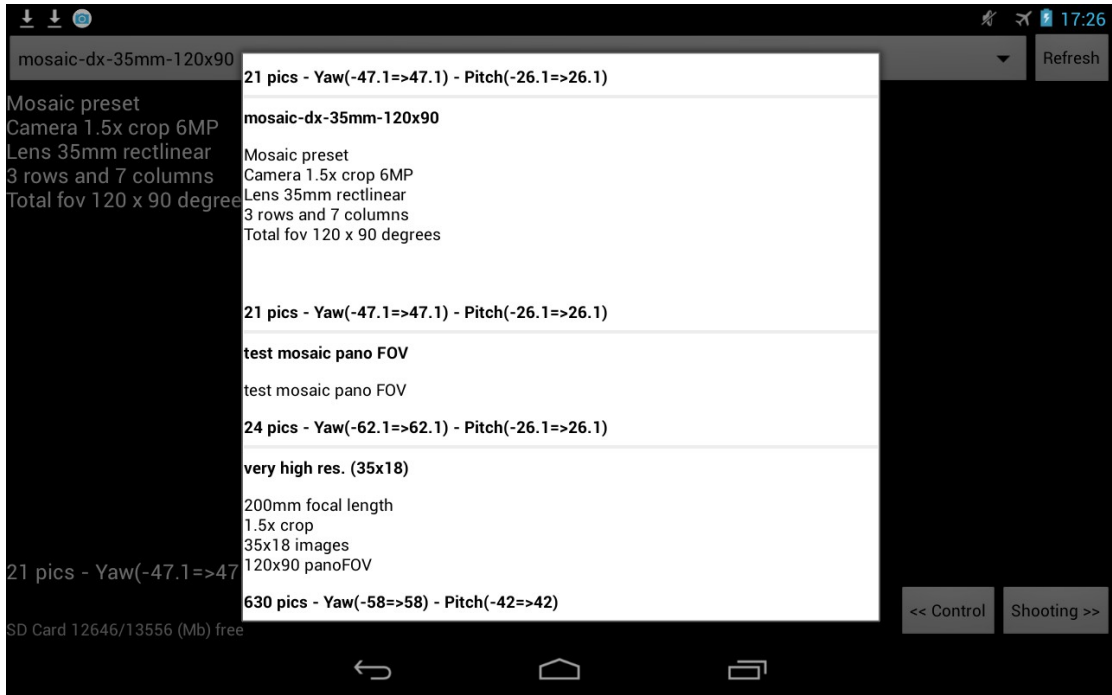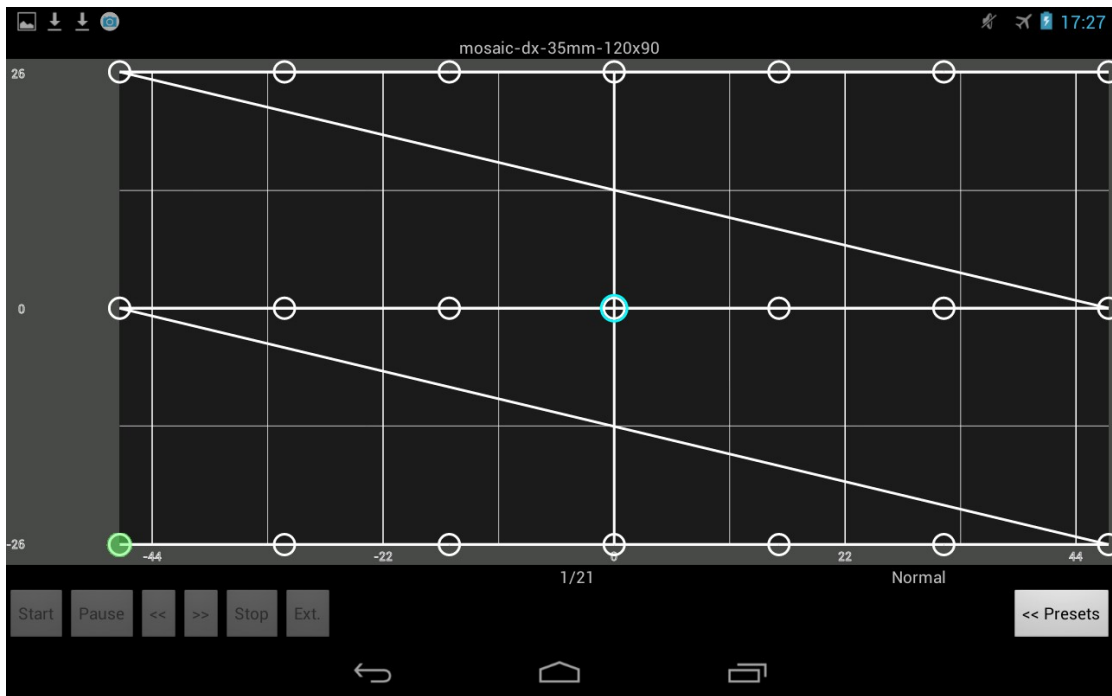
mosaic-dx-35mm-120x90   ▾   Refresh

Mosaic preset
Camera 1.5x crop 6MP
Lens 35mm rectlinear
3 rows and 7 columns
Total fov 120 x 90 degrees

21 pics - Yaw(-47.1=>47.1) - Pitch(-26.1=>26.1)

mosaic-dx-35mm-120x90

Mosaic preset
Camera 1.5x crop 6MP
Lens 35mm rectlinear
3 rows and 7 columns
Total fov 120 x 90 degrees

21 pics - Yaw(-47.1=>47.1) - Pitch(-26.1=>26.1)

test mosaic pano FOV

test mosaic pano FOV

24 pics - Yaw(-62.1=>62.1) - Pitch(-26.1=>26.1)

very high res. (35x18)

200mm focal length
1.5x crop
35x18 images
120x90 panoFOV

630 pics - Yaw(-58=>58) - Pitch(-42=>42)

21 pics - Yaw(-47.1=>47

SD Card 12646/13556 (Mb) free

<< Control   Shooting >>

Unusual Home positions…

PandroidWiz works best when the Home position set with the camera/lens axis positioned horizontally on the pitch axis.

Some of the preset generators we have listed create presets that expect unusual Home positions.

If you wish to use a non-standard Home position, with the camera/lens axis in a vertical position for example, then be aware that the only mechanism offered by PandroidWiz to avoid collisions between camera/lens and the mount application is a maximum pitch, so be aware of what you are doing.

Vertical Home position

Max pitch position (Left Arm)

Be very careful, when you press the up arrow on the first screen, the head is supposed to move to higher pitch. If it's not the case, come back to home and change the arm setting. The photos above show a vertical home position with a 144° Max Pitch setting. If you use such configuration be sure also to use according preset with a 0 to 180° pitch value range.