Inkscape - Part 150

The last change in Inkscape version 1.3 that I'm going to cover in these articles is described as follows in the release notes: "The Filter Editor has been overhauled and is now easier to use!" Well, it's definitely been overhauled. As to whether or not it's easier to use… I'll just describe the functionality and let you decide that for yourself.

I first covered the Filter Editor dialog back in part 48 of this series (FCM #108). I then spent a further 9 issues detailing each of the individual filter primitives. Despite the overhaul in the Filter Editor's UI, those details still mostly apply – so if you want to revise your filter knowledge, I suggest reading those articles as well. That first article described how to create a simple filter chain for a drop shadow effect so, at the risk of repeating myself over 100 issues later, I'm going to do the same with the new editor.

In practice, I recommend using the Filters > Shadows and Glows > Drop Shadow… dialog for creating drop shadows on a day-to-day basis. The end result is a slightly different filter chain to the one we'll be creating here, but it's a quicker, easier, and more flexible option for most purposes. However, with the knowledge gained from creating your own filter chain from scratch, it will be easier to tweak Inkscape's built-in offerings via the Filter Editor dialog, should you need to.

A filter is applied to one or more objects, either individually or contained within a group. It's important to understand the difference: when a filter is applied to a group, it's as though the entire contents of the group is flattened down to a single object before the filter is applied. This image shows the same shapes with the same drop shadow applied, but the pair on the left are separate elements,

whereas the pair on the right are grouped together, with the filter being applied to the group.

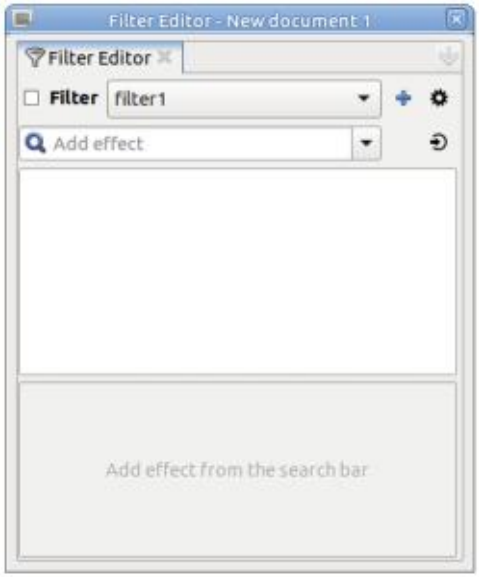
Of course you're free to mix things up further, applying filters to objects before grouping them and adding another filter to the group itself, for example. Sometimes there are good reasons for creating such complex arrangements, but do bear in mind that filters come at a cost. They are calculated 'live', which gives you the advantage of being able to tweak their parameters later, but which can chew up computing power very easily once too many, or too complex, filters are applied to the drawing. For our simple drop shadow example, however, speed isn't likely to be too much of a concern.

Since a filter is applied to an object or group, we'll first need to create something. Following the example in my old article, I'm going to work on a bold and colorful text object. First a reminder of how the Filter Editor dialog was arranged in earlier versions of Inkscape.

And now the new layout, in version 1.3. There's also an alternative layout which is automatically used if your dialog is wide enough, but, in my opinion, it puts the panels in the wrong order (the parameters for the selected primitive on the left, and the filter chain containing the list of primitives on the right – breaking the usual left-to-right flow of a parent-child relationship in the UI). Therefore, I'll stick to the vertical layout in this article.

Neither of these is particularly intuitive, but the old dialog at least had the benefit of a fairly large button labelled 'New' to hint at your starting point. The equivalent in the new design is the much smaller '+' button towards the right of the top row of controls. Good luck if you're using the symbolic icons, where this looks even less obviously like a button!

Clicking that '+' button creates a new filter with an automatically generated name ('filter1' in this image), and activates a little more of the UI. The text on the bottom panel becomes slightly more helpful, telling us to add an effect from the search bar. The search bar in question is the drop-down with the magnifying glass icon and the 'Add effect' placeholder text.



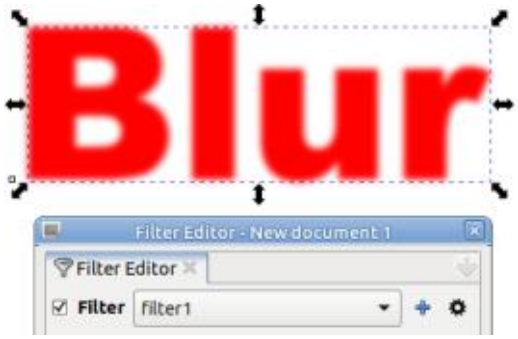
This search bar actually works in two different ways, which can be a little confusing at first. For most users, I recommend opening the pop-up by clicking the down-arrow at the right. The result is a categorised array of the filter primitives, each with a small icon that sort-of represents what it does. The icons aren't always of much use in determining which primitive is which: the ones that I mix up the most (Blend, Merge and Composite) all share the same icon! But I find it's useful to see all the primitives at once to help reassure myself that I'm picking the right one amongst all the options.

The second mode kicks in if you type into the field. This presents a vertical list of primitives, filtered by the text you type. If you absolutely know you want the Gaussian Blur primitive, for example, typing 'blur' or even just 'ga' will be enough to restrict the list to the one you want.

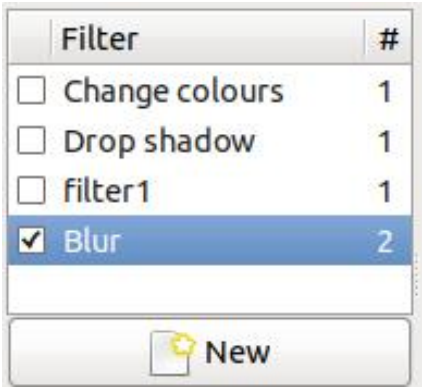
Whichever approach you take, select the Gaussian Blur primitive to add it to your filter chain. The main panel will now be updated to show the primitives in your chain (just the one, so far), while the bottom panel shows the parameters for that primitive.

Although the controls in this section will vary depending on the primitive, they all share the three icon buttons that are shown next to the name. Clicking the first opens a small pop-up, which contains some additional information about the primitive. The other two will duplicate or delete the primitive, respectively. In the older editor, these existed only on the context menu in the editor pane (where they can also still be found). It's good that these have been more obviously surfaced in the UI, though my build does not show tooltips for either of them: although the icons make their function fairly obvious, it's still reassuring to be able to see a textual representation of their purpose.

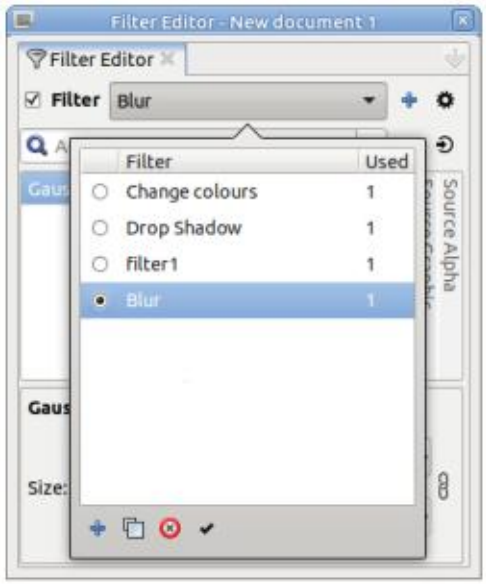
At this point, we have a valid filter chain, but our text still looks as un-blurred as ever. This was a shortcoming of the old editor as well, but it would have been nice if the new redesign had gone so far as to automatically associate the filter with the object we had selected when we created it. To make this association, we have to manually click the checkbox next to the word 'Filter' on the top line – and voila, we have blurred text.



The old dialog showed a list of all the filters in the document on the left, with a checkbox to indicate which one applied to the selected object, and a count of the number of objects in the document which use that filter. Changing the name of a filter was done by double-clicking on it to edit it in-place, and there was a context menu for duplicating and deleting filters.



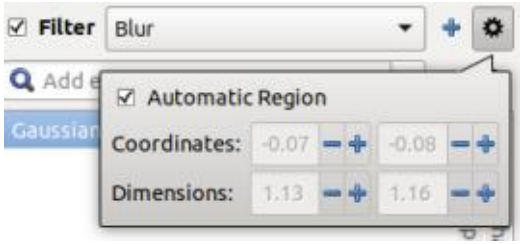
The 'Filter' pop-up in the new dialog offers the same options, now with more obvious buttons (still with no tooltips though). Renaming just requires a single click on the filter name to enter editing mode, and the currently active filter is shown more correctly using radio buttons rather than checkboxes.



The 'check' or 'tick' button is worth drawing attention to specifically. The lack of a tooltip had me puzzling over its purpose, since it didn't seem to assign the selected filter to the current objects as you might imagine from its visual association with the checkbox in the main dialog. What it actually does is the exact opposite: given a selected filter in the pop-up, it selects all the objects on the canvas that use the filter. This is a great addition that I've wanted for years, to aid with de-duplication of filters in complex drawings – it's just a shame that it's got an ambiguous and nondescript icon with no tooltip.

At this point, you can rename your filter to something more descriptive ("Blur", or "Drop shadow" as that's where we're going with it), and you can play around with the sliders in the bottom panel to adjust the amount of blur applied to the text.

Inkscape veterans may be wondering where the old 'Filter General Settings' tab has gone to. This is used to set the maximum size of the filter area, and sometimes has to be adjusted to stop filters being clipped. It now lives behind the cog icon at the right of the top row of controls, but can probably be left set to 'Automatic Region' unless you have a specific clipping issue.



Also missing for old-timers are the various sources listed to the right of the main editing panel, with only 'Source Graphic' and 'Source Alpha' being visible by default. The other options are still available, and can be toggled with the button next to the Search Bar. But to be honest, they're either tricky to use or downright broken in Inkscape – and always have been. Much as I would love to see the underlying issues addressed to make these more useful, hiding them by default is definitely the best option for most users. In fact I would have gone a step further, and had the toggle button inside the 'cog' pop-up, where it would be less likely to tempt unsuspecting users.

The actual details of creating a filter chain haven't really changed, unfortunately. We're still stuck with a list-based view of the filter primitives which feels restrictive and archaic compared with the 'node editor' approach that is common for similar tools in other

products. There's no technical limitation with SVG that prevents Inkscape having such a UI but it would be a huge undertaking – so unless some intrepid developer with lots of free time wants to give it a go, I think we'll be looking at minor variations on this list for a long time to come.

Given that this part of the UI remains mostly the same, I'm going to rattle through the remaining steps of our drop-shadow filter quite quickly. See those older articles if you need a slower introduction.

For the basic sort of drop-shadow we want, the shadow needs to be a blurred version of the object with a black fill, not the bright color we're currently seeing. The classic answer to this, in filter terms, is to drag the handle from the triangle next to the Gaussian Blur filter, over to the right, dropping it on the Source Alpha column. That causes the input to our blur to be taken from the transparency of the object which, in practice, means that filled pixels in the source end up as black pixels in the alpha. It's a quick way to turn our red blur into a black blur.

Since this blurred version will be the shadow, we need to move it from its original position. This is done by adding an Offset filter primitive to the chain by selecting it via the effect search bar. My brain always wants to click the '+' button, but that adds a whole new filter, not just another primitive. Remember that in the new UI, the act of selecting the primitive also adds it – there's no confirmatory step required. Compared with the old UI, this makes it impossible to read the info text about a primitive until after you've added it (furthering my confusion between Blend, Merge and Composite). At least there's now a more obvious button to delete it when you realise you've picked the wrong one.

If the new primitive isn't automatically linked to the one above, drag from the triangle on the Offset primitive up to the Gaussian Blur, then release the mouse button to create a visible connection. You can adjust the sliders for the Offset primitive to your taste. Remember that filters are 'live' and you can always re-adjust them later, so don't get hung up on guessing the right values now. On the canvas you should see your blurred, black text move around as you change these values.

The final step with a drop-shadow is to put a copy of the original object back on top. This is most easily done with the Merge primitive, which literally just layers things on top of each other in the order in which they're linked. Again, add it using the effect search bar. If it's not automatically connected, drag from the triangle up to the Offset primitive. A second triangle will be created below the first, which you should drag to the Source Graphic column to the right. Basically we've just told it to merge together two images – the output from the Offset primitive on the bottom, overlaid by the original object on top. Our filter is complete.

In this image (top right) I've edited and resized the text, and edited the name of the filter itself, to give the final result – and a picture of what your filter chain should hopefully look like.

Mark uses Inkscape to create comics for the web (www.peppertop.com/) as well as for print. You can follow him on Twitter for more comic and Inkscape content: **@PeppertopComics**

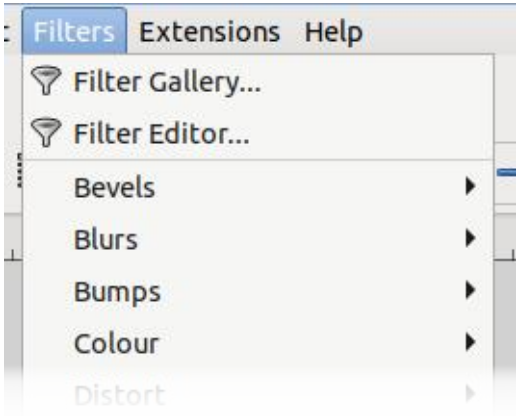
Inkscape - Part 151

Last month saw the end of my articles describing the updates in Inkscape 1.3.x, so, after 150 months of bringing you all the gnarly details about every feature and corner of the application, I was looking forward to a few weeks off. No such luck. No sooner had I submitted the previous article about improvements to the Filters dialog, than version 1.4 was released. It doesn't have as long a list of user-facing changes as some releases, though there has been a lot of work done under-the-hood to prepare for future development. Nevertheless, I plan to cover the new features in-depth, as usual – and perhaps this time I'll get ahead of the developers enough to earn some time off!

As usual, the new release can be downloaded from the Inkscape website. It'll probably take a little while to get into the repositories of most distros, but the website offers Linux users an AppImage version, and a PPA. I'll be using the former simply because it's easier for me, given that I have to keep a few older versions around as well for comparison purposes. If you're using Ubuntu or another Debian-based system, and want only a single Inkscape version installed, the PPA might be your best option. Installers are also available for Windows and MacOS.

https://inkscape.org/release/inkscape-1.4/

In terms of describing the new features, I guess we may as well pick up where we left off: filters. Nothing has changed in terms of the filter editor dialog itself, though. The main Filter menu has been slightly rearranged to move the Filter Editor… entry towards the top of the layout, just below the new Filter Gallery… entry.



The Filter Gallery is one of the headlines of the 1.4 release, and is arguably long overdue. Back in the distant past, when this column first began, Inkscape didn't come with any predefined filters. Whether you wanted a simple drop shadow or a more complex 3D lighting effect, you had no choice but to either create one from scratch using the filter editor, or to copy and paste an object which already had a suitable filter applied, from another document.

This copy-pasting approach was so useful that a number of users on websites and forums made SVG files available that contained nothing but copies of the same object with different filters applied to each. In this way you could see the filter as it appeared on a real object in order to get a preview of how it looked, before copying the object into your own document and then applying the freshly imported filter chain to your own elements.

Version 0.47 introduced the hierarchical menu of predefined filters that we have now, and I'm sure most readers head there first when they need to add a filter to an object (I certainly do!). It's much easier to pick a filter from a categorised list that's built into the software than it is to: hunt for a third party filter file; open it; select the filtered object; copy it into your own document; apply the filter to your target element; finally, delete the copied object.

But as convenient as a curated list of named filters may be, one thing that was sorely lacking compared to the old approach was the ability to see what effect the filter has on real content before you apply it. That's what the new Filter Gallery brings to Inkscape. Select that option, and you'll be presented with this dialog (next page, top middle).

To the left is a list of the filter categories, corresponding mostly to the sub-menus in the Filters menu. One difference is the addition of an 'All filters' category at the top. As you've probably guessed, selecting an option in this list will filter the previews shown at

the right to only include those from the corresponding category. The 'All filters' option does as its name suggests, and shows previews for all the available filters, regardless of category. Unfortunately the previews are still grouped by category in this mode, rather than appearing alphabetically by name, which doesn't really make sense to me, especially as the groupings aren't made clear with different background colours or badges on the previews.

The category list can be made wider or narrower by dragging the separator bar that sits between the list and the previews, though category names get truncated with an ellipsis in the middle rather than wrapping to multiple lines. The list panel can also be collapsed completely using the toggle button at the top-left of the dialog. There is a small bug, however, which makes this feature less useful than you might expect. Collapsing the list automatically switches to showing all the filter previews (as though you had the 'All Filters' category selected), which does make some sense. But if you click the toggle to expand the list again, it continues to show all previews, even if you have a specific category

selected. Clicking the same, already selected, category does nothing. To kick it back into life you have to select a different category – after which you may re-select the original one, if you wish. It's a small but annoying bug that reduces the utility of the collapse button significantly.

As well as selecting a category, the other way to reduce the number of previews that are shown is to use the filter field at the top-right. This filters dynamically as you type, also taking the selected category into account. Therefore entering some text in here can only ever reduce the number of visible previews, it won't increase the number by displaying entries from other categories that match the search. This is a shame, as it would be more useful for it to show matches from within the category first, but also show other matches below a dividing line. That would allow you to use it to quickly select a specific filter without having to change categories.

At the right of the dialog is the preview pane, showing each individual filter chain as a preview image with the filter name below it. The size of the thumbnails can be adjusted using the slider hidden behind the 'gear' button at the top of the dialog. Moving this slider causes the previews to update dynamically, which can take a short while if there are a lot of them visible. That, in turn, leads to a jerky and frustrating UI. A better approach is to first select a category with few entries – perhaps 'Image Effects' or 'Scatter' – before adjusting the slider. This allows the UI to update far more smoothly, making it much easier to pick the preview size that best suits you.

Once you've found the filter you wish to use, click on its preview and then click the Apply button at the bottom of the dialog to apply it to your selected object(s). For some filters the button will actually say Apply… (i.e. with a trailing ellipsis). This indicates that a dialog will open allowing you to customise some parameters of the filter before actually applying it for real (using the Apply button in the second dialog). Unfortunately there's no indication from the thumbnails which filters are customisable in this way. Of course they can all be customised using the Filter Editor dialog once they've been applied, but those with an ellipsis on the Apply button expose a curated subset of the most useful parameters, so I'd like to see them more obviously flagged.

If you do use a filter with a secondary dialog, there are a couple of things to note: the first is that this dialog will have a 'Live preview' checkbox towards the bottom. Enabling this box allows you to see what the final filter will look like on your objects before clicking the Apply button, making it easy to bail out by clicking the Close button instead. It's a shame this feature isn't present on all filters, whether they expose specific parameters or not. The second thing to note is that clicking Apply in the second dialog won't close it, so you'll have to manually do this if you want it removed from your screen while you continue your work.

Be aware that each time you click the Apply button for a given object the filter chain is appended to any existing chain. This can be useful if, for example, you want to use a visual effect from the Materials category, then add a drop shadow to the result. But it also means that if you just want to go through the list previewing how each filter looks on your object, you'll need to remember to press Ctrl-Z between each one to avoid them stacking up. If you do want to apply multiple filters, I recommend grouping your object(s), multiple times if needed, to apply one filter per grouping level. By applying a separate filter to each group, rather than appending multiple filter chains to a single object, it makes it much easier to remove or modify a single filter at a time later.

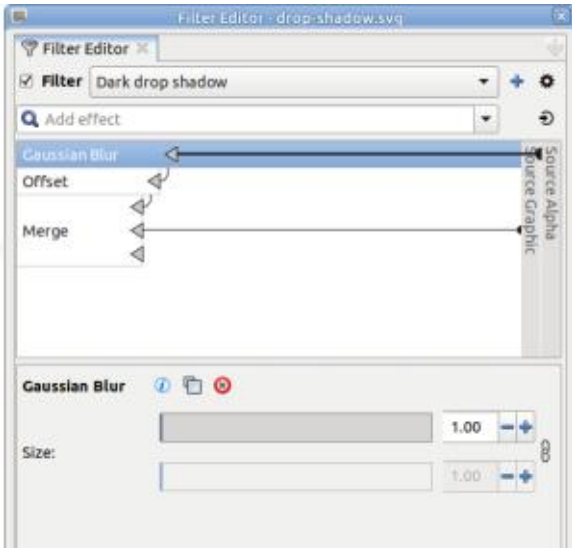
One limitation of the Filter Gallery is that there's only a single preview image available. While the flowery shape that has been chosen does a good job of representing most filters, the thick lobes may not be representative of the object you wish to apply the filter to in your specific image. Text, for example, can vary wildly between thick slab-serif fonts and wispy cursive styles – and the effect of a given filter can be markedly different between the two. It would be great for a future version of this dialog to offer a few different preview shapes, perhaps including an option to preview against some user-defined text in a font of your choice.

Although the selection of predefined filters supplied with Inkscape is quite comprehensive, there may be times when you need something different. Perhaps you have a house-style for a particular filter that you need to apply again and again across different documents – that's certainly the case with the drop shadows I use on the speech bubbles in some of my comic strips, for example. While you can certainly just copy and paste a filtered object between files as a way to copy the filter chain itself, an alternative is to create a custom filter that is registered with Inkscape. Don't worry, it's easier than it sounds.

The first step is simply to create a filter chain that suits your needs. One way to do this is just to start with one of the predefined filters by applying it to an object in a file then tweaking the parameters via the Filter Editor dialog. Alternatively you can create an entire filter chain from scratch, as I described last month.

In fact, let's use last month's filter as an example: it's a simple drop shadow which uses the object's alpha to define the shadow, resulting in a dark shadow that can only ever be black (this is why Inkscape's own Drop Shadow filter, with its various parameters and colour picker, is usually a better option). The filter chain we created last time looks like the image shown below.

Most importantly I've opened the 'Filter' popup at the top of the dialog and used it to rename the filter from the default 'filter1' to the more descriptive 'Dark drop shadow'. This isn't essential, but giving your filters sensible names

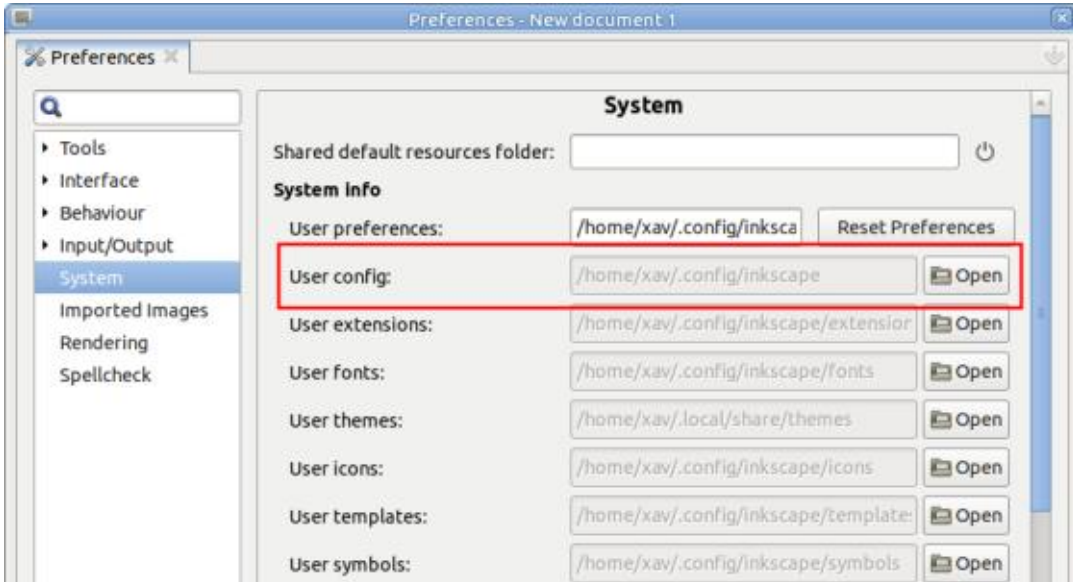


will make them a lot easier to identify when you come to use them. Save the file somewhere you can easily find later.

The next step is to open Inkscape's 'User config' directory in your file manager. You may not know where this is kept, but you can find the path listed in the Inkscape Preferences dialog (Edit > Preferences) in the 'System' pane (shown below).

Rather usefully, Inkscape provides a button to open this directory via your file manager. Within that directory you should create a 'filters' folder, if there's not one there already. Navigate into that directory, then copy the SVG file you saved earlier into it. Quit and restart Inkscape for it to pick up the new addition.

If all has gone according to plan you'll now have a new 'Personal' entry in the Filters menu – and a corresponding new category in the Filter Gallery.



You can now easily select your filter and apply it to objects across all your Inkscape projects.

This feature can be extremely useful – but there's also a bug that makes it rather annoying. If you're the sort of person who uses this capability, it's likely that you'll also want to create multiple custom filters. That's fine, just add them all to one file in that config directory and they'll appear in the UI. Or add multiple files, with one filter in each, and they'll equally appear in the UI. But if you add multiple files, each of which contains multiple filters, only the first one in each file will appear in the UI. This is a rather frustrating limitation which makes it harder to collect and share files filled with filters between different users. Remember: one file with multiple filters, or multiple files each with one filter. But not multiple files with multiple filters.

In a similar vein, there's one final annoyance in the Filter Gallery I'd like to bring up: why doesn't it have a category for the filters that are being used in the current document? I often need to use the same filters multiple times in a single document, and it would be useful to be able to preview and select them from the gallery UI in the same way as custom filters I've saved into the config directory.

But those small issues aside, this dialog is a great addition to Inkscape, and one that's long overdue. Hopefully we'll get the option for different preview images in future, and some of the small UI bugs and issues will be ironed out, but even as it stands it's still very useful for those of us who like to add a little bitmap magic to those otherwise too-clean vector images.

Mark uses Inkscape to create comics for the web (www.peppertop.com/) as well as for print. You can follow him on Twitter for more comic and Inkscape content: **@PeppertopComics**

Inkscape - Part 152

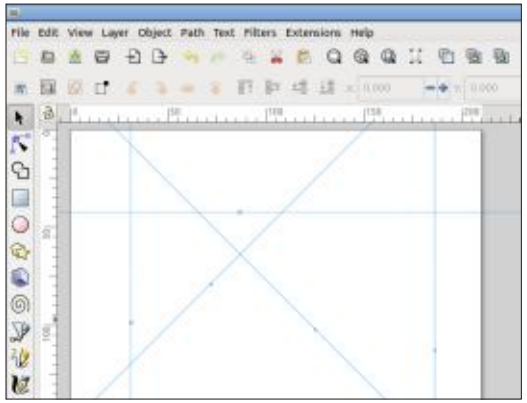
If you've already downloaded Inkscape 1.4 (you have, haven't you?), then you may have had a glance through the release announcement and concluded that not a huge amount has been added or changed in this release. While it's true that a lot of the development work in 1.4 has focused on the internals of the program, in preparation for a future migration to the GTK4 toolkit, there have also been a lot of smaller changes that didn't necessarily make it into the release announcement – and which will keep this column populated for a while. Of course, I'll be covering the big headline changes, but this month I'm going to cover a few of these smaller changes that are likely to be overlooked by other sources of Inkscape info.

New Guide Lock State

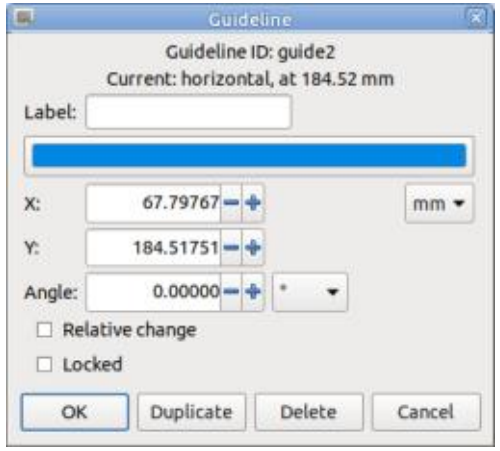
The first change is an attempt to address a genuine user experience issue with guides, but personally I think it has potentially introduced more problems than it solves. I'll begin by explaining the scenarios in which this problem occurs, then describe the old and new behaviours.

Guides are a very handy tool in Inkscape. For those unfamiliar with them, they're lines that are drawn above all other content in Inkscape, but which do not appear in an exported bitmap, or if the SVG file is loaded into another program. They're purely an aid to help you align and position items in your document, and are often used as snap targets. Creating a guide is as simple as clicking and dragging from the ruler at the top or side of the canvas – a guide line will follow the mouse as you move it into the window, and then be placed where you release the mouse. If you drag down from the top ruler, you'll generally get a horizontal guide. If you drag across from the left ruler you'll generally get a vertical guide. I say "generally" because if you drag from the extreme ends of either ruler, you'll get a guide at a 45° angle.

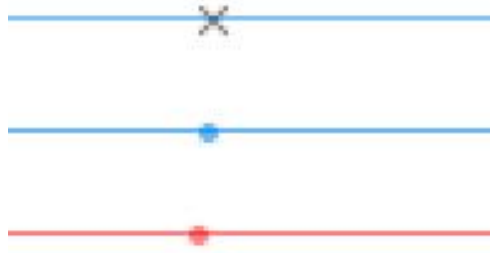
There are other ways to create guides – such as creating them from a shape you've drawn using Object > Object to Guides – but the usual drag-from-ruler approach is all we need to concern ourselves with right now.



Double-clicking on any guide opens a dialog that allows you to position them precisely, or move them a relative amount, as well as change their color, angle, and label.



Using this dialog, you can also lock a guide to prevent it being accidentally moved… but it's here that the UX problems begin. A guide can be in one of three states: locked, normal and hovered (when the mouse hovers over an unlocked guide). The scaled-up image below shows these three states – note that the locked state has a small cross as its handle, while a hovered guide changes color.



The problem is that, once locked, a guide can't be modified at all. Moving the mouse over it doesn't change the color to indicate the hovered state, you can't drag it to a different location, and you can't double-click on it to re-open the guide's properties dialog. In

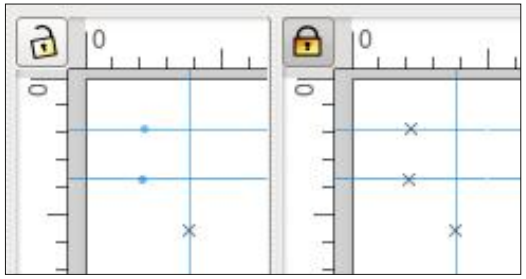
case you were wondering, the handle is equally immune to interaction.

To my mind, this is overkill. In almost every scenario I can think of, a user would want a locked guide to ignore any accidental attempts to move it to a different location. But they absolutely would want a way to open the properties dialog to change its color, delete it, or reposition it using the numeric input fields. Most notably, without access to this dialog there's not really a way to unlock an individual guide once you've locked it. Preventing dragging of the guide, but still allowing access to the dialog by double-clicking on the line itself, or at least on the handle, would have been a sensible solution, but no version of Inkscape allows this.

There are ways to unlock or delete locked guides, but they are broad and excessive for most use cases. In the Edit menu, you'll find a "Delete All Guides" option. This does exactly what it says, and immediately deletes all guides, whether locked or not. It's obviously not very useful if you want to remove only a single guide.

Just above it in the menu, however, is an entry with a checkbox next to it, labelled as "Lock All Guides". If any guides exist that are not locked, the checkbox will be clear and selecting this entry will lock all of the guides in the document. If every guide is already locked, the checkbox will have a tick in it, and selecting this will unlock all of them. Yes, every single one – even the ones you wanted to keep locked.

There is also an easily overlooked button at the top left of the canvas which not only reflects the state of that checkbox, but which can be clicked to lock or unlock all the guides without having to select the menu entry. Here you can see that the padlock icon is shown as open on the left, when not all of the guides are locked; clicking on the button locks all of them and changes the icon, as shown on the right. Note, however, that manually locking all the guides using their corresponding



properties dialog does not change this icon to its locked state.

This button, or the menu entry, are the only ways (other than the XML Editor) to unlock a guide. But much like the delete option, it's a broad brush that will unlock every guide, even if you need to adjust only one of them.

This is where the second UX faux pas kicks in – the one that has been "fixed" in version 1.4. Let us suppose that you've set up some useful guides, perhaps for page margins or columns. You don't want to accidentally move them around, so you click the button to lock them all. Later you decide to add a guide to help you with the design of your image. It's just a temporary thing to aid with alignment, so you drag it roughly into place, planning to open the properties dialog and adjust it to a specific position. In older versions of Inkscape, dragging out a new guide while the global lock is enabled would create a guide that was already in the locked state. If you didn't drop it in exactly the right location, or if you wanted to make any other changes to it, you would need to unlock all the guides in order to be able to access its properties dialog. That means unlocking all the page layout guides as well, even though you really want them to remain locked.

But Inkscape 1.4 fixes this problem! Hurrah! Right?

Wrong. The "fix" that has been implemented is simply that dragging out a new guide will automatically unlock all the guides for you. Sure, it saves a click or two, but it also means that those page layout guides get automatically unlocked – except this time it may not be so obvious to a novice user until they accidentally move them. To aid in the discovery of this new feature, the lock button flashes briefly when you drag out a new guide. But at that point, your focus is likely to be on your new guide, not some small button at the corner of the canvas that you've probably never really noticed before.

This change was created by a new contributor to Inkscape, and I don't want to be too harsh on them for attempting to do something about the problem of guides being created in a locked state. On the contrary, I absolutely applaud them for getting involved with Inkscape development, and I hope they

continue with their contributions. In reducing the number of clicks that a user might need to make, this does actually improve the situation for many users – it's just that I feel it's a band-aid instead of the much larger change that is actually required.

In my opinion, Inkscape needs a separate Guides dialog. Not the existing properties dialog that shows the details of only one guide at a time, but rather a dialog that lists all the guides in the document, and allows their properties to be changed individually. With such a dialog, it would be trivial to unlock a single guide at a time. But it would also make it possible to change the color, position or other properties of an individual guide without unlocking it first. The Lock All and Delete All options could be subsumed into the dialog, reducing the number of entries in the Edit menu as well. And when a new guide is dragged onto the canvas, it could simply be created in an unlocked state, without affecting the status of all the other guides. It sounds straightforward, but it would require a significant amount of work. Personally, I think the user experience benefits would make it worth the effort, but then I'm not an Inkscape developer.

Pen Segments to Guides

The next small addition is also related to guide creation. A new command has been added to the Pen tool (aka Bézier tool) which will convert the currently drawn shape to guides. There's no UI for this command, but it has been added to the list of keyboard shortcuts, albeit without any binding by default. To enable this, you therefore have to set the shortcut you wish to use: open the Inkscape preferences dialog (Edit > Preferences), select the Interface > Keyboard pane, then expand the Tool section in the shortcuts list, or just search for "Pen Segments to Guides". Click in the "Shortcut" column (the content should change to "New Accelerator…"), then press your desired shortcut combination. I chose Alt-Shift-G, which was the only "G" combination that didn't elicit a complaint that it was already assigned.

Once you've set a shortcut, use the Pen tool to draw a shape, then press your key combination to convert it to guides. The cynic in me would like to point out, however, that in my testing, the behavior was exactly the same as when a path is selected and Object > Objects to Guides is used. That menu entry also comes with a default shortcut of Shift-G already set. Unless I'm missing something, I can't really see any benefit in having (and remembering) a special Pen tool specific shortcut rather than just using the more generic option.

Creating Perfect Squares

Having complained about the UX of one feature, and questioned the entire point of another, I feel the need to redeem this column with a genuinely useful addition. When using the Rectangle or Ellipse tool, it's always been possible to force the resultant shape to an integer ratio (and also the "golden ratio" of 1:1.618) by holding the Ctrl-key as you drag out your shape. The status bar even tells you what ratio it's constrained to as you do so – a nice touch that many users have probably never even noticed. By moving close to a 45° angle from your starting point you can keep the ratio at 1:1 in order to create perfect squares or circles.

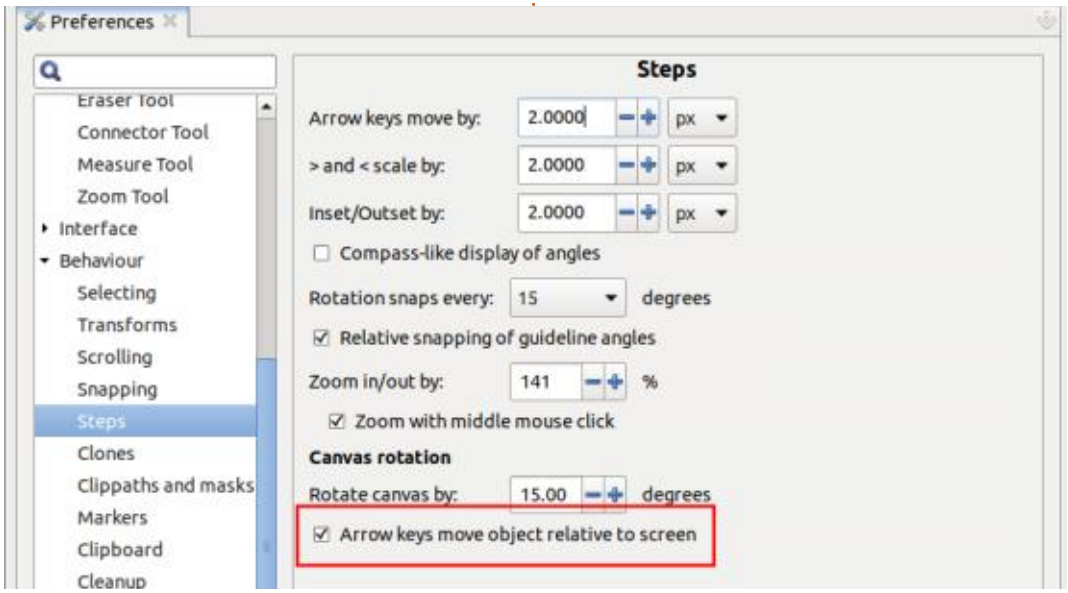
With the Ellipse tool, there was an additional option. Hold Ctrl-Alt and you would always create a circle – albeit one whose circumference passes through your original starting point. This is useful for creating circumscribing circles, whereas the behavior without the Alt key is more suited to inscribed circles. Nevertheless, a side-effect of this is that the Ellipse tool had a means of always creating a perfect circle, without the requirement to drag the mouse close to 45°.

With 1.4, this same Ctrl-Alt shortcut does something similar for squares. The drawn object doesn't rotate around the starting point in the same way as when drawing a circle, but it does flip to one of the four quadrants depending on the mouse position. Too many novice users have struggled with the seemingly basic task of drawing a perfect square, and while there are several different ways to achieve this with Inkscape, this keyboard shortcut is perhaps the easiest to explain.

Arrow Keys on a Rotated Canvas

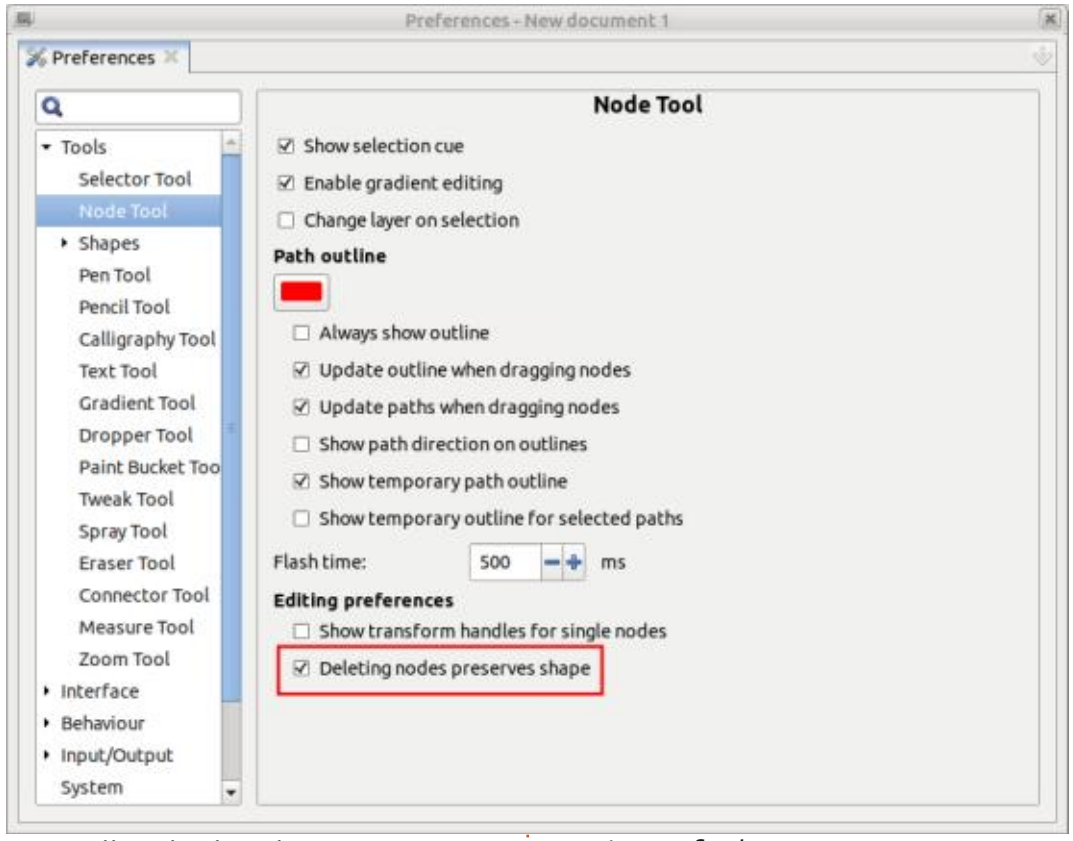
Do you sometimes rotate the canvas while working? Do you also

move objects or nodes using the arrow keys? If your expectation is that the arrow keys should move things horizontally and vertically, regardless of the rotation of the canvas, then you're in luck, as this is now the default behavior for Inkscape 1.4. If, however, you prefer the movement to remain relative to the canvas rotation, you can switch back to this behavior by unchecking the "Arrow keys move object relative to screen" option in the Behaviour > Steps pane of the Inkscape preferences dialog (Edit > Preferences). It's a shame there's not a keyboard shortcut to toggle this option, as I can see that both approaches could have their merits, even when working with a single document.



Behavior When Deleting Nodes

The final small change I'll mention this month will be good news for anyone who didn't like the change in 1.3 to the behaviour of the Node tool (F2) when deleting nodes. Prior to that version, when deleting a node using the Del key, Inkscape would try to preserve the general shape of the path, even if that meant moving the handles of adjacent nodes around. With version 1.3, a degree of autodetection was added which would sometimes move handles and sometimes not, depending on the sharpness of the corner.



Generally I think it does a reasonable job, but if you prefer the old behavior, you can now switch back to it by unchecking the "Deleting node preserves shape" option in the Tools > Node Tool pane of the Edit > Preferences dialog.

It's also worth noting that the Ctrl-Del shortcut will delete the node and force the segment to be a straight line, regardless of the state of this checkbox – as has always been the case throughout all versions of Inkscape.

Mark uses Inkscape to create comics for the web (www.peppertop.com/) as well as for print. You can follow him on Twitter for more comic and Inkscape content: **@PeppertopComics**

Inkscape - Part 153

Last month, I covered some of the smaller, less well publicized, changes and additions in Inkscape 1.4. Let's have more of the same this month…

Spray tool

To be honest, the Spray Tool (Shift-F3 or 'A') is one that I very rarely use. I covered it in depth more than a decade ago, back in part 26 of this series (FCM #86), and the base functionality has changed little since then. It has acquired a few extra controls over the years, and the developers have even sneaked in some extra toolbar buttons with version 1.4 which aren't mentioned in any of the release documentation I've seen. Some further experimentation will be required so that I can dedicate a future article to all the capabilities this tool now has.

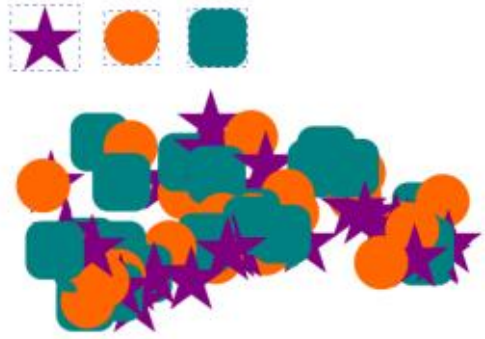
For the time being, however, I'm only going to look at a couple of seemingly small changes in 1.4 which, in my opinion, greatly extend the utility of this tool. With these tweaks, the spray tool not only serves its main purpose of… well… spraying, but it also becomes a useful multi-stamping tool.

"Stamping" in Inkscape refers to a way of pasting multiple copies of an object, one-by-one. You simply drag the object in question around the canvas, and each time you press the spacebar, a copy is pasted at that location. If you need to quickly create a few copies of an object, it's more efficient than repeatedly reaching for Ctrl-V then having to place the item in the required location. With snapping enabled, it makes for an extremely fast way to precisely place copies on your drawing. Version 1.3 introduced a variation on this theme whereby pressing the 'C' key, rather than the spacebar, will 'stamp' a clone rather than a copy.

The Spray Tool now offers a similar feature: select an object, but rather than 'spraying' it by clicking and holding the mouse button as you move the mouse around, a single click-and-release of the button will paste one copy of the object (or a clone, depending on the tool's settings). Creating just a single copy or clone with a click isn't new in itself, but there have been two changes in 1.4 that make this feature more useful: items created in this way are now placed at the center of the spray area, and the cursor shows a preview outline of the object before it's created. These changes mean that you know exactly where your new object will be created, and the use of an outline may make this even better than the spacebar method in situations where the object might otherwise obscure the thing you're trying to align it with.

This image shows a small purple star selected at the top-right. Next to it are two copies that have been created with single clicks, plus the cursor – complete with outline version of the star – positioned ready to create a third. Below, on the other hand, is the result of click-dragging on the canvas, without changing any parameters. Stamping and spraying with the same tool, depending on when you release the mouse button.

But I said it had become a multi-spray tool, so where's the "multi" part? That kicks in when you have more than one item selected. This time I have three different objects selected, and you can see the cacophonous result of spraying those items below.

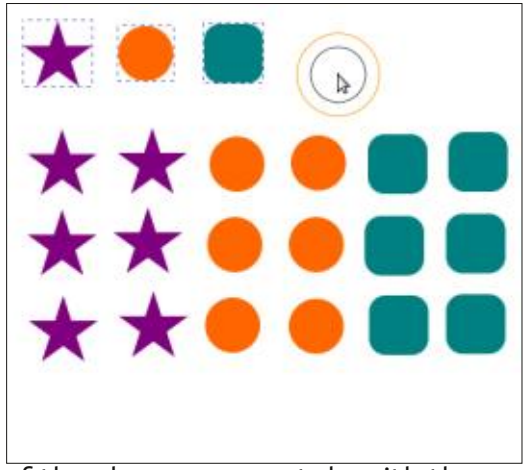


Stamping with single clicks brings more order to the chaos, but

the choice of which objects gets stamped is still somewhat random for each click.

There is now, however, a way to cheat the system and stamp only the specific object you want at each location. By holding the right mouse button down while moving the mouse just a little bit, the spray tool will switch between your selected objects – indicated by the outline preview changing. It does sometimes take a couple of tries before it switches to the object you want, but with a little patience you can tame the randomness of the selection in order to create just the objects you want at each location, as you can see in this image, created in this way.

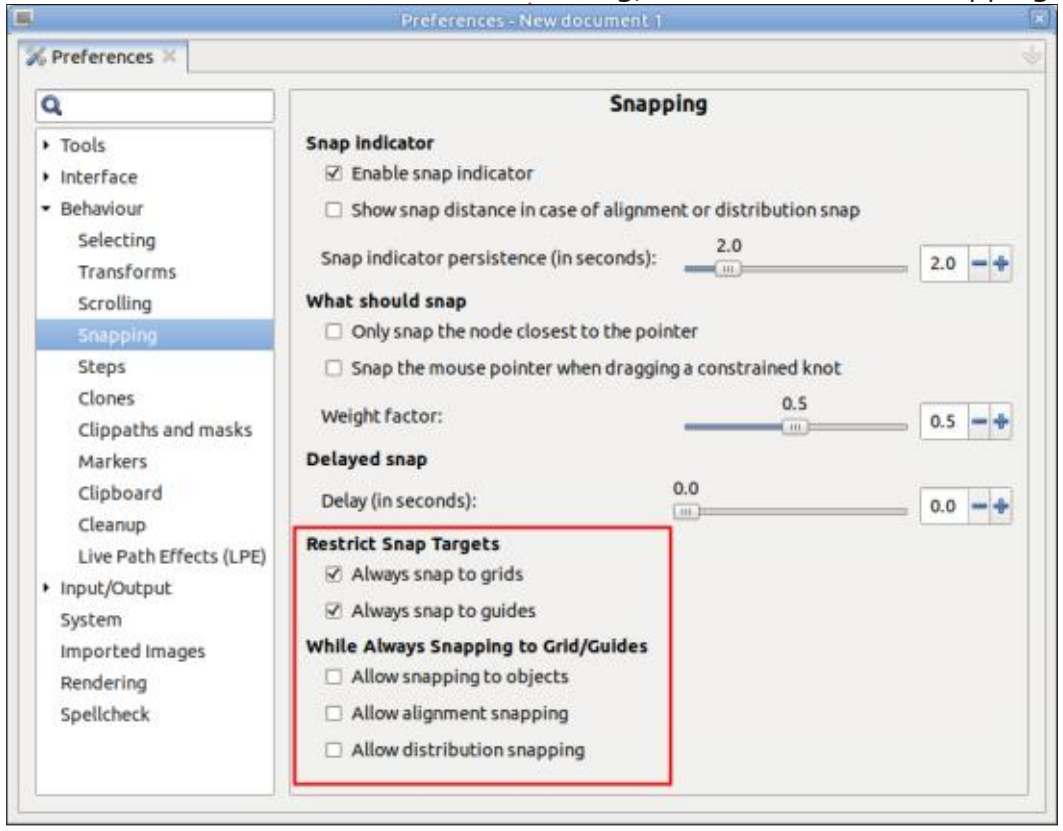
Whether this is actually any more efficient than stamping each



of the shapes separately with the spacebar will depend on your specific drawing and requirements, but it's always good to have more options available.

Snapping Preferences

While you're busy stamping new copies or clones with the Spray Tool, it's likely that you'll want to enable snapping to make sure they land where you want. In that case (or in any other where you use snapping), you might be interested in the new options that have been added to the Edit > Preferences dialog, in the Behaviour > Snapping pane.



Have you ever been trying to snap to a grid or guide, only to find the cursor wants to snap to a nearby object instead? If so, these new controls are just what you need. If that's something that's never bothered you, however, you can leave them all unchecked to stick with the normal behaviour of snapping to any valid nearby target.

Enabling the first two options causes Inkscape to snap only to grids or guides (or both), if they are visible. The last part of that sentence makes these options much more powerful than they first appear. If you've toggled the grid off (with the '#' key), then "Always snap to grids" has no effect. Similarly, toggling off the guides (using Shift-| – that's the "pipe" key) will render the "Always snap to guides" option inert.

Let's have a more practical example using just a grid (though the same principle applies to guides). With a grid enabled in older versions of Inkscape, the cursor would snap to the grid intersections and to the object nodes, bounding boxes, and so-on – depending on what snapping options you have

contents ^

enabled. With "Always snap to grids" enabled, Inkscape will snap only to the grid intersections, regardless of whether any other snap targets are nearby. Hide the grid ('#') and the other snap targets kick in again, making it easy to constrain most of your work to the grid, but flip back to object snapping when needed.

The second set of checkboxes act as an override to the previous description. Suppose you want to always allow object snapping, even when you've otherwise constrained everything to snap to the grid? Enable the "Allow snapping to objects" checkbox in the preferences and object snap points will be considered as well as the grid.

(In case you're wondering, "alignment snapping" and "distribution snapping" refers to the lines that appear to help you automatically align objects to existing things in your drawing, or space them evenly apart)

This whole snapping hierarchy is a little tricky to explain, so I'll give you some rough rules-of-thumb to work by:

1/ If you're happy with the way snapping works currently, don't change anything. This should probably be the case for most users.

2/ If you get frustrated when Inkscape snaps to objects rather than your grid or guides, enable the relevant checkbox(es) in the first section and see if it improves matters. Toggle the visibility of the grid or guides when you need to snap to something else.

3/ If you generally like the behaviour with the first checkbox(es) enabled, but still want to snap to objects, or to have the align or distribute lines show up, enable the relevant checkbox(es) in the second section and see if it improves things for you. Once again, toggling the visibility of the grid or guides will switch back to using the "normal" snapping targets.

I don't really think this is the best way to handle the hierarchy of which snap targets should take precedence, as it's very difficult to conceptualise (and explain!) exactly how this works. But as someone who has occasionally tried to wrestle with a grid-based design while swearing at misplaced snapping points, I appreciate the attempt to try to do something to improve the situation.

Name	Default shortcut
Quick Pan Canvas	Space
Quick Preview	F
Quick Zoom	Q
Pen Segment to Line	Shift-L
Pen Segment to Curve	Shift-U
Pen Segments to Guides	No default – see last month's column for more details

Keyboard shortcuts

A few more keyboard shortcuts are now customizable via Edit > Preferences, in the Interface > Keyboard pane. If you wish to change any of these, the easiest thing to do is to search for part of their name. To that end, here's a table of the newly available shortcuts, together with their default values (see table above)

In addition to these, a few existing features that previously did not have a keyboard shortcut by default now do. Note that this applies only to new installations of Inkscape, and you'll need to set them yourself on an existing installation. For these purposes, running the AppImage version acts as a new installation. The same may also apply to other "containerized" package formats that come from third-party sources (such as your

Name	Default shortcut
Object Clip Set	Ctrl-M
Object Clip Release	Alt-M
Object Clip Set Inverse	Ctrl-Alt-M (see note below)
Swap fill and stroke	Shift-X

distribution's repositories).

Note that in my AppImage copy of 1.4, all of these were set except the Inverse Clip shortcut. I'm not sure if the release notes are wrong or the AppImage config is incorrect, but if you use this feature a lot, it might be worth checking – and setting this shortcut if necessary.

Align & Distribute dialog

There's been an attempt at a small, but welcome, quality-of-life improvement to the Align & Distribute dialog – except that it doesn't work terribly well for me. This dialog can be used to align objects to each other, but also to align objects to the page or the drawing – the latter being the bounding box of all the objects on the canvas, whether they're inside the page or not. When only a single object is selected, only the Page and Drawing options make sense… so Inkscape now limits the "Relative to" popup menu to show only those items (defaulting to Page). Select multiple items and the full list becomes available again.

This will work well for users who keep the dialog open all the time in a sidebar. For people like me, who prefer to open and close floating dialog windows as necessary, it doesn't work so well. When the dialog is open, selecting a single object changes the popup as expected. But if a single object is selected first, and then the dialog is opened afterwards, it still shows the full list. It probably requires only a small fix to check the selected count when opening the dialog, but it's a shame that it slipped through the cracks. I guess it confirms my suspicion that I'm in the minority as an old-school user who prefers dialogs in windows rather than permanently docked to the side of the window.

Next time I'll cover a final selection of smaller changes that may have passed you by, before digging into some of the larger changes to 1.4 over the coming months. And if I manage to get through all those before the next major release, I guess I've now got the Spray Tool to revisit in more depth!

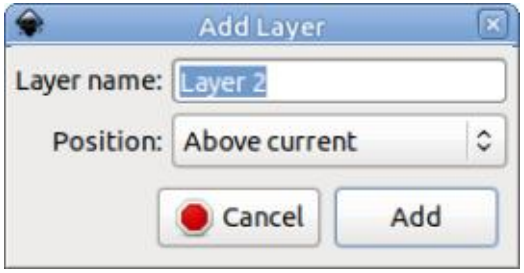
Mark uses Inkscape to create comics for the web (www.peppertop.com/) as well as for print. You can follow him on Twitter for more comic and Inkscape content:
@PeppertopComics

Inkscape - Part 154

This month, I'll be covering some more of the smaller additions and alterations in Inkscape version 1.4, starting with a change that will affect your use of the program with all but the simplest of drawings.

Creating Layers

The Layers and Objects dialog is a result of merging two formerly separate dialogs into one, and makes a lot of sense from the perspective of a user. But still hanging around from the days of a separate Layers dialog is the interstitial dialog that appears when creating a new layer – the one that lets you name the new layer, and select where in the hierarchy it will appear relative to the current layer. Here's how it appeared in every version up to 1.3.2.



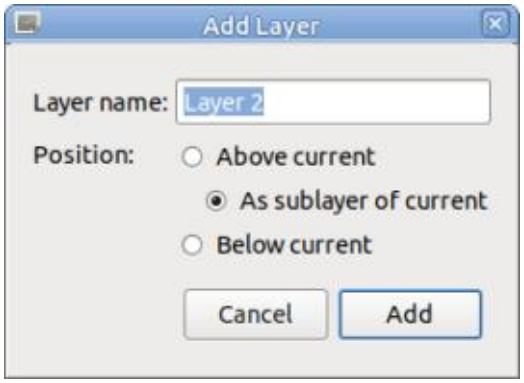
The big change for most users is that this dialog has both disappeared and been re-designed. Before you get too confused, what I mean is that it still exists, in a re-designed form, but it's been removed from the way it was most commonly accessed.

I'll wager that most users manage their layers via the Layers and Objects dialog, using the buttons at the top to add and delete layers, and perhaps to shift them up and down in the hierarchy. In older versions of Inkscape, the "+" button would open this interstitial dialog, but no more. Now, clicking on that button (which doesn't even have a tooltip on my copy of the program) will immediately create a new layer above the currently selected one.

Obviously this results in a loss of control over the name and position of the new layer, but it's easy to rename the newly created layer by double-clicking on it, and it can be moved in the hierarchy by a drag-and-drop operation. If all you want to do is to move it up and down the list, you can use the arrow buttons at the top, but Inkscape strangely lacks left and right buttons for turning into a sub-layer, or promoting it back to a higher level layer. For those latter operations you have to use drag-and-drop.

If you still prefer to use the old dialog, then there are two ways to access it: from the Layer > Add Layer… menu, or using the Ctrl-Shift-N keyboard shortcut. Unfortunately, there's no setting or other way to make the "+" button in the Layers and Objects dialog open this dialog as it used to, which is something of a shame for those that prefer to use this approach.

As mentioned above, the dialog has been slightly re-designed. Nothing major – just replacing the previous pop-up menu with separate radio buttons. I can see what the developers are trying to achieve with this layout, with the second option indented to suggest a sublayer – but it does look a bit untidy. I'd have perhaps left the radio buttons aligned, but indented the text or prefixed it with a line or arrow. Still, it's one less click to change from the default placement than with the older version, which is an improvement.



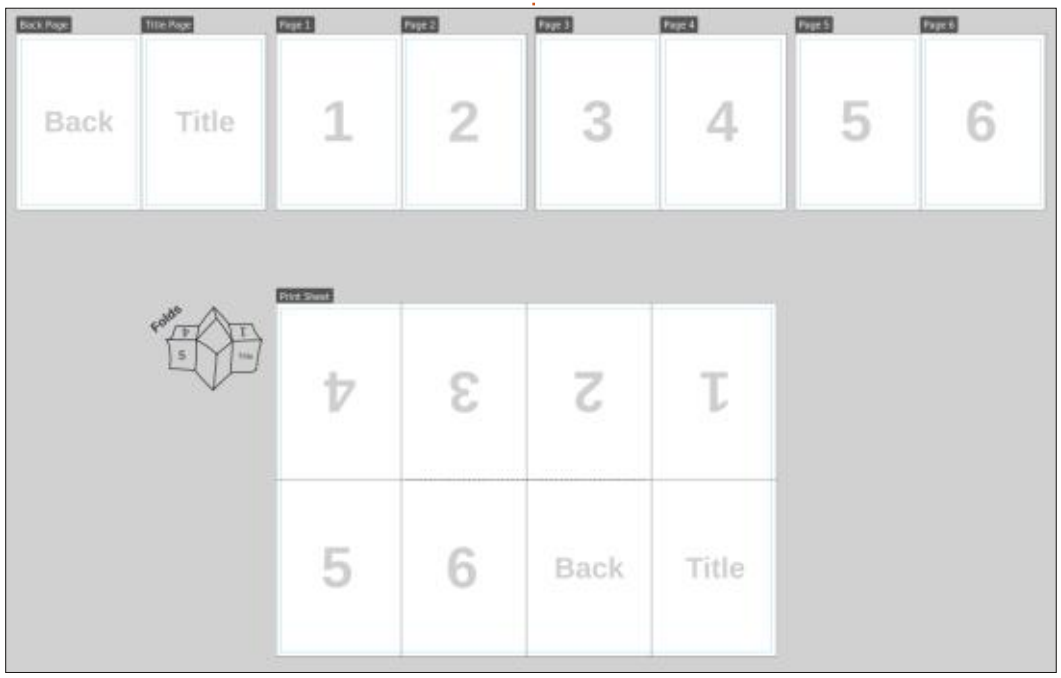
I have mixed feelings about the change to the "+" button. In cases where layers are temporary, or not important enough to be explicitly named, it can make for a faster workflow. In other cases, splitting the creation, naming and placement into three steps will make things slower. Given that the Layers dialog already has an 'options' section, would it have been so hard to add a setting to let the user choose their preferred mode of operation? Or at least allow a Shift-click on the button to open the old dialog still.

Templates

A couple of new templates have been added to the File > New from Template… dialog. They're named "Zine Booklet (US)" and "Zine Booklet (A4)", and they're the result of developer Martin Owen's daughter's interest in creating "zines" with her friends.

To some (older) people – such as myself – the word "Zine" conjures up thoughts of small run, counter-culture publications, often centred around specific bands or hobbies. Zine is short for "magazine", which makes a lot of sense given that these tended to be both physically smaller and with a lower page count than the usual news-stand fare.

Perhaps taking their inspiration from those earlier zines, the templates in Inkscape are a quick-and-easy way to create a small 8-page booklet from a single sheet of paper, with just a single cut and a little folding. The two variants are to accommodate a starting sheet of either US Letter size (11" × 8.5") or DIN A4 size (297mm × 210mm). In either case, the resultant zine is 1/8th the size of the starting page – so A6 in the DIN system, and… well… I guess you'd need to do the math for the American version as I don't believe it's an officially named size.



On selecting either of these templates, you'll be presented with a layout something like this (you may need to zoom out in Inkscape to see it all at once):

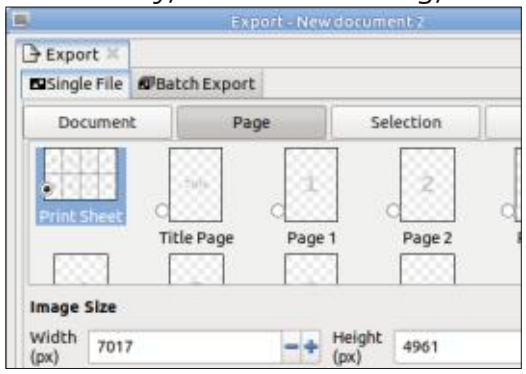
There seems to be a lot going on there, but it's actually pretty straightforward. The pages in a row at the top are the ones you work on. Put your content there, making sure to remain within the page boundaries, or clip content which overspills the left and right sides. If you don't, nothing will break, but you may end up with parts of one page appearing on another unintentionally.

The first pair of pages are used for the back and front covers of the zine in that order. Bear that in mind, because it's easy to start with the design of your front cover and automatically think it needs to be put on the first available page. The subsequent pairs of pages are the insides of the zine, in the expected order.

As you add things to the pages you'll see it automatically reflected in the 8-page layout at the bottom – with the content of pages 1-4 flipped vertically. And yes, you can remove the preset labels in the middle of each page – they're just there as guides to make the final layout a little more obvious when you first open this template.

With your content complete, here comes the very important part (which could really do with some explanation on the template itself): you want to print only the single composite page from the bottom of the template – the one labelled as "Print Sheet". The easiest way to do this, if you're printing from within Inkscape, is to switch to the Pages tool and click inside the Print Sheet section so that it's selected. Then you can set the print range to "Current Page" in the print dialog.

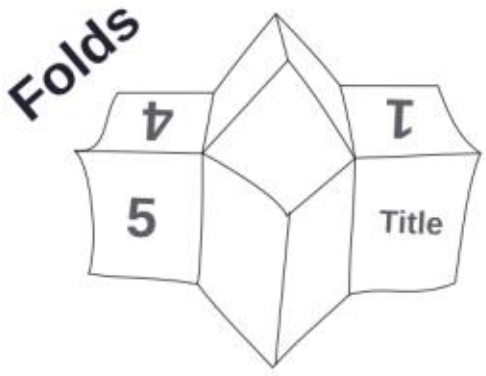
Alternatively, you may wish to export the zine for printing from another program or on another computer. Select the File > Export menu entry, then in the dialog,



ensure that the Page button is active. That should show a list of all the pages in the template – select only the "Print Sheet" option before exporting to your preferred format.

Once the page is printed you need to fold it into eight. First, make a long mountain fold along the length of the page, folding it in half to form a long thin shape with pages 1-4 on one side and the remaining pages on the other. Open it back out before continuing. Now fold it in half along the width with a mountain fold, so that you have pages 3-6 on one side, and the rest on the other. With it still in half, fold each side back on itself with another "valley" fold so that you end up with a small concertina of paper with the printed content on the insides. Open it out a little so that you can get some scissors into the doubled-up section in the middle.

Now comes the cut. This is shown as a dotted line on the template, and is easily done with a single scissor cut from the folded edge down to the valley folds. You should now be able to easily fold the zine as shown on the image in the template to produce an 8-page booklet. Trust me, it's easier than it sounds.



I really like this addition to the program. It's a simple thing that can make for such a fun way to introduce kids to the idea of graphic design, publishing, and Inkscape itself.

Import/Export

There has been a small but useful change to the File > Export… dialog: if you enter a path for the export that does not exist on your filesystem, Inkscape will try to create the missing folder hierarchy, rather than showing a warning. I suspect that most people choose a path using the file selector, in which case this probably won't ever kick in (since the file selector shows you only paths that already exist). But consider the use case of picking a base path with the file selector, then manually adding the name of a subdirectory for your export into the field in the dialog. This will now do the right thing, and use the subdirectory if it already exists, or create it for you if it doesn't. Just watch out for typos (and case-sensitive filesystems), or you might end up 'losing' files to locations you didn't intend!

A new import filter has been added for Affinity Designer files (*.afdesign). Affinity's programs are a common alternative to Adobe's Creative Suite, for those people who want a commercially supported product, but prefer a more traditional software licence rather than the subscription model that Adobe enforces now. Therefore it's great to see support added to Inkscape but, as is so often the case, the format is not officially documented, so there are likely to be gaps and bugs in the importer. If you have access to *.afdesign files and find there are problems with importing any of them, please do file issues via https://inkscape.org/report so that the filter can be improved further.

An old import filter sees a return with version 1.4. The CGM (Computer Graphics Metafile) importer was removed in version 1.0, but has been reinstated now. This is an old format, but it's an ISO standard so might be useful for interoperability with some other software or when dealing with archival material.

Finally, the PDF exporter now supports internal links between sections within the same file. See the Full Circle Magazine contents page as an example, whereby clicking on an entry jumps to the relevant page in the PDF. This is a really great addition that will greatly enhance Inkscape's capabilities as a PDF authoring tool.

That's all for the smaller, little publicized additions and fixes that I'll be covering. Next month, I'll start to look at some of the bigger headline changes that arrived with Inkscape 1.4.

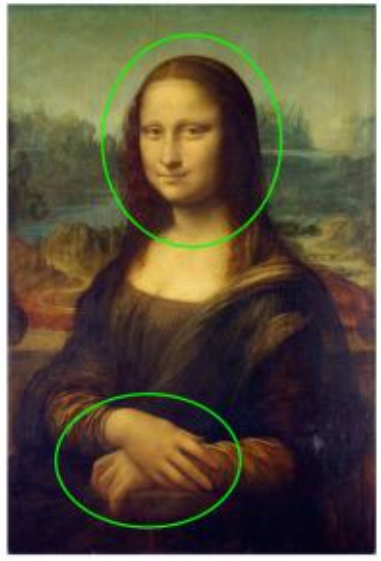
Mark uses Inkscape to create comics for the web (www.peppertop.com/) as well as for print. You can follow him on Twitter for more comic and Inkscape content: **@PeppertopComics**

Inkscape - Part 155

Over a decade ago, way back in 2014, one of these articles covered the use of clipping paths to efficiently use several parts of a single bitmap image in a design, without the overhead of including multiple copies of the file data (part 32, FCM #92). More recently the same idea was revisited (part 148, FCM #208) with the introduction of the "Crop Image to Clip" option in the context menu for bitmap images. In this case, it's not so much that the image isn't included more than once, but rather that most of the unused parts are thrown away, resulting in separate embedded images that may require less storage space in the SVG file. This feature was added in Inkscape 1.3, but it was far from being the headline addition for that version.

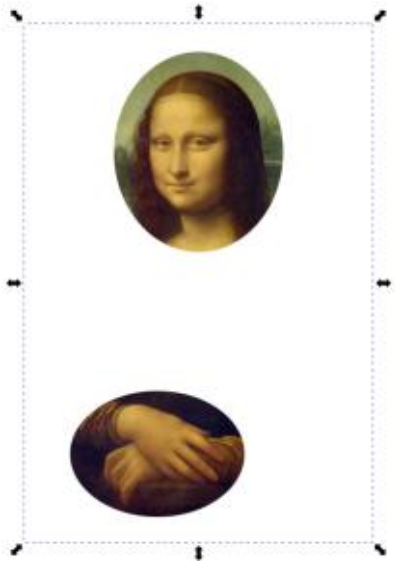
The most lauded change in Inkscape 1.3 was probably the addition of the Shape Builder tool, which I covered in part 137 of this series (FCM #197). If you're not familiar with this tool, then I recommend reading that article before continuing with this one. As I described it there, "the Shape Builder can be thought of as a convenient way to perform certain Boolean operations between objects," which hints at its biggest limitation: it only works with vector objects. Until now.

As of version 1.4, it works with bitmap images too. Which gives us yet another way to chop up La Giaconda into smaller parts that can be freely rearranged. As before, I plan to isolate her head and hands, so the first step is to drop my bitmap image into Inkscape and draw some shapes marking the areas of the picture that I want to keep.



In the 2014 version of this technique I'd now be faced with grouping the image, then entering the group to clone it, copy the clone to the clipboard, exit the group, paste the clone, and use the two ellipses as clipping paths. It does the job well, but requires several steps and too much understanding about the structure you're ultimately making in the SVG file.

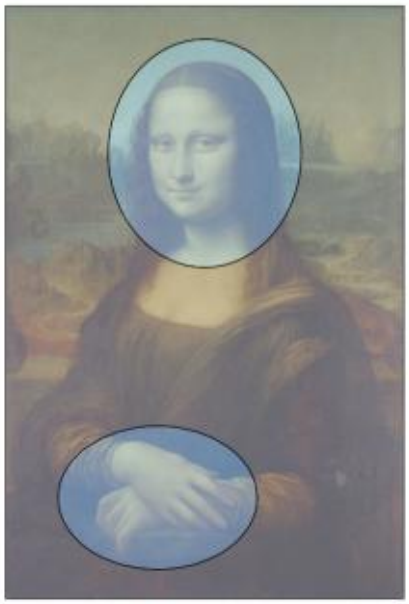
The 2024 approach, with Inkscape 1.3 or later, is a little simpler. Rather than creating complex arrangements of groups and clones, you just duplicate the image (Ctrl-D) until you have as many copies as you have shapes to clip with. Each copy is then clipped with one of the shapes – so in this case I will duplicate once, and clip twice. Selecting one of those clipped versions shows a bounding box that makes it clear that the entire image is still present – so all you've done so far is drastically increase the size of your file, due to that duplication.



The last step, however, is to right-click on each clipped image and select "Crop Image to Clip". This throws away much of the image content, such that the bounding boxes are now only as large as they need to be, and the status bar will show that the image dimensions have reduced.

But this is 2025 and Inkscape 1.4 gives us a new approach that is simpler to apply than both of these. The result will be conceptually closer to the first, but the simplicity alone probably makes this the preferred approach in most cases. The steps are as follows:

- Prepare the bitmap image and clipping shapes as before.
- Select all of the objects.
- Switch to the Shape Builder tool (default keyboard shortcut: X).
- Click within each of the clipping shapes so that they are shown with a blue translucent fill (see image below).
- Press Enter, or click on the Accept button in the tool control bar.



What you're left with is similar to the 2014 approach – clipped clones of the original image. But whereas the older approach left the original on the canvas (inside a group), this method moves the original bitmap data into the <defs> section of the SVG content – basically a part of the file that is used to store resources that are required to draw your design (such as gradient and filter definitions), but which do not directly appear on the canvas.

Because the original image is no longer present on the canvas, you can't select it in order to clone it again should you need to create another clipped shape – perhaps focusing on the eyes or the mouth, for example. At first this might seem like a bit of a limitation of this approach compared with the older method, but there is a very simple workaround that renders it a non-issue.

If you require another clone of the image, just duplicate (or copy and paste) one of your existing clipped shapes, then release the clip either via the context menu or the Object > Clip > Release Clip menu entry. This will leave you with a clone of the image from the <defs> section, plus a copy of your clipping path, which you can then delete or edit as necessary. Don't be surprised if the clipping path looks a little different to your original – Inkscape throws away the style data when the path is used for clipping in this way, as it's no longer necessary. What you'll see, therefore, is the default SVG rendering of a path with unset fill and stroke – which appears as though it's got a black fill.

Of course you're free to set it back to whatever fill and stroke you prefer for your clipping paths (that'd be transparent fill and bright green stroke, for me) if you want to reuse the path rather than deleting it. Note that if you clip "normally" rather than using the Shape Builder, Inkscape preserves the style information for the path. It's only the path shape data that is relevant for clipping, so whether the style of a clipping path is conserved or not is irrelevant for your final design.

In the event that you change your mind entirely you can, of course, undo the Shape Builder operation to return to the original situation of having the image directly on the canvas and no longer in <defs>. But what if you've saved and reloaded, such that you can't undo back to that step any more, or you've made other edits since then that you don't want to undo? Releasing one of your clipped shapes will, as above, get you a clone of the image plus the clipping path. Selecting the clone and using the Edit > Clone > Unlink Clone menu entry will turn the clone back into a real image on the canvas. But beware! This does not remove the image from the <defs> section, so you now have two copies of the image data in your SVG file, bloating its size. Assuming nothing else is using the <defs> version (i.e. you've removed all the clones from your document), you can use File > Clean Up Document to clear out any unused entries in the <defs> section, including the image data.

When using the Shape Builder with a bitmap image, it's also extremely easy to create an 'inverse clip'. We've looked at how to clip the image to leave only the areas enclosed by paths, but it's just as easy to remove only those areas instead. Consider, for example, creating a version of the image with the face punched out (so to speak). For this, the steps are very similar to the earlier ones:

- Prepare the bitmap image and clipping shape.
- Select all of the objects.
- Switch to the Shape Builder tool (default keyboard shortcut: X).
- Click on the image, outside of the clipping shape.
- Press Enter, or click on the Accept button in the tool control bar.

Perhaps what's most interesting here is the clipping path that's being used. It's no longer the path you originally drew, but rather a complex path which covers the image and has a hole in it that corresponds to your original clipping path. In other words, an 'inverse' clipping path. Release the clip to see it in all its unset fill glory.

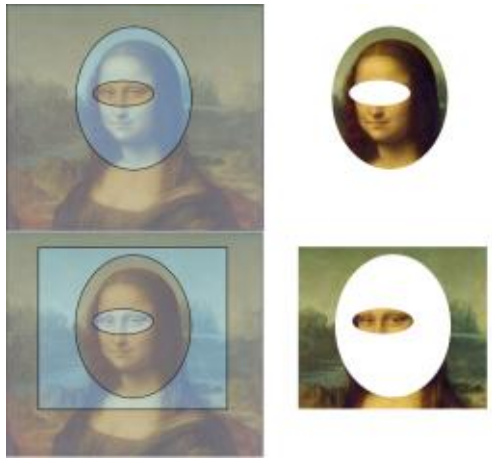
Creating an inverse clipping path has historically required manual work with Boolean operations.

More recently, Inkscape has had a direct means to achieve this via Object > Clip > Set Inverse Clip (LPE) but, as the name suggests, this uses a Live Path Effect rather than just creating a suitable inverse path. It also doesn't work on bitmap images, so it's a non-starter in this specific case. The Shape Builder approach is much, much simpler than trying to create a suitable inverse path yourself, so it's definitely the approach I will use in future.

If you do want your original, non-inverse, path back when you release the clip, just select the inverse clipping path, use Path > Break Apart, and remove the outer part.

Although this specific example results in a complex clipping mask, that won't always be the case. For disjointed areas, the Shape Builder will more commonly produce separate clipping paths – as in the case of the separate ellipses for face and hands at the start of this article. Consider these two uses of the Shape Builder:

The top design results in a single complex clipping path consisting of an inner and an outer loop. The bottom design results in two clipping paths: one simple path for the eyes, and a complex path for the outer section. Each of the resultant shapes in the bottom design can be moved independently, which may not necessarily be what you want.



If you do need to keep several parts relatively positioned after clipping, I strongly advise grouping them immediately after the Shape Builder has done its thing. It is possible to unclip them all, use Path > Combine to turn all the clipping paths into a single complex path, remove the excess clones and then re-clip a single remaining clone to create the same visible result with just a single clipping path – but there are very few cases where such extra effort would be warranted.

Will the Shape Builder be the last word in techniques for chopping up bitmap images into smaller parts? Only time will tell. But it's definitely easier and more intuitive than the older approaches, so it will be my preferred approach for such work – for the time being, at least.

Image Credits
"La Gioconda" (aka "Mona Lisa") by Leonardo da Vinci
http://en.wikipedia.org/wiki/File:Mona_Lisa,_by_Leonardo_da_Vinci,_from_C2RMF_retouched.jpg

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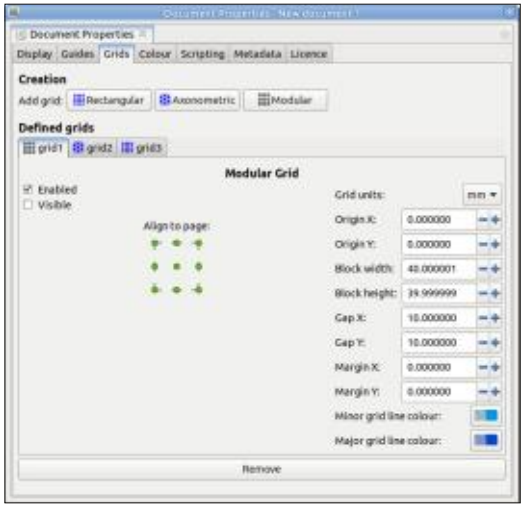
Inkscape - Part 156

Let's begin this month by talking about grids. These are a feature that I rarely use, but there's no denying that they can be invaluable when trying to keep objects neatly aligned – such as when using Inkscape as a makeshift DTP program in which you want text boxes to live on an underlying structure, defined with a rectangular grid. Some artistic or engineering work can also make heavy use of grids, particularly if you're using an axonometric grid to create lines using an isometric (30°) or oblique (45°) projection.

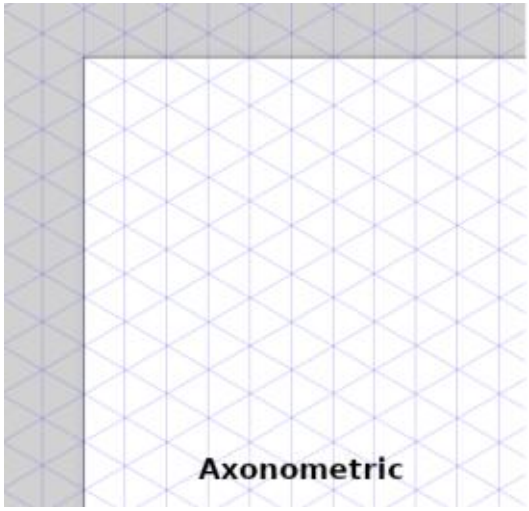
Rectangular and axonometric grids have been part of Inkscape for a long time, but version 1.4 adds a third: modular grids. These share some similarity with rectangular grids, in that they are based on horizontal and vertical lines. But whereas rectangular grids use lines that extend to infinity to mark out squares and rectangles in the page, modular grids instead use an infinite array of rectangular blocks, with optional spacing between them.

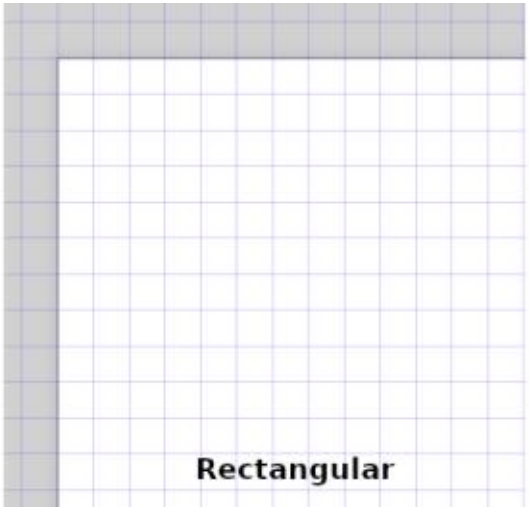
For any new Inkscape users, it's worth pointing out exactly how grids work. They're purely a construction aid, and do not appear in exported or printed output from the program. Most commonly they're used in conjunction with snapping, causing the cursor to snap to grid lines and intersections as you draw shapes on the canvas. Pressing the '#' key will toggle the visibility of all the grids at once, and when they're not visible then they can't be snapped to. This makes it easy to use grids for general layout, but to turn them off quickly if you need to draw something off the grid lines without turning off snapping in general.

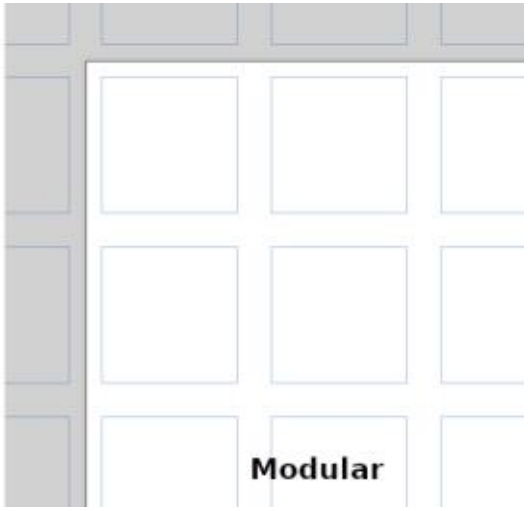
Creating grids has been made slightly easier in 1.4. They still live in the Grids tab inside the File > Document Properties dialog, but the previous approach of picking the grid type from a popup menu and then having to click the New button has been streamlined into direct creation buttons for each type of grid. You can still create multiple grids, mixing the types and parameters as you see fit, with each of them appearing as a separate tab in the lower part of the dialog.



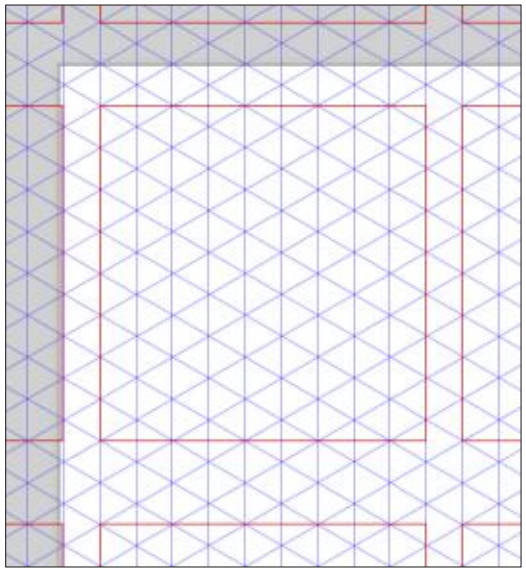
It can be useful to have multiple grids active at once if you carefully tweak the parameters to create some kind of relationship between them. For example, here's a modular grid (red) and axonometric grid (blue), adjusted so that the modular grid creates a series of 'frames' inside of which the axonometric grid could be used to draw isometric designs. Consider something like a sprite sheet for an







isometric game, or trying to design a coherent set of icons with a faux-3D effect, to see where such a capability could be useful.

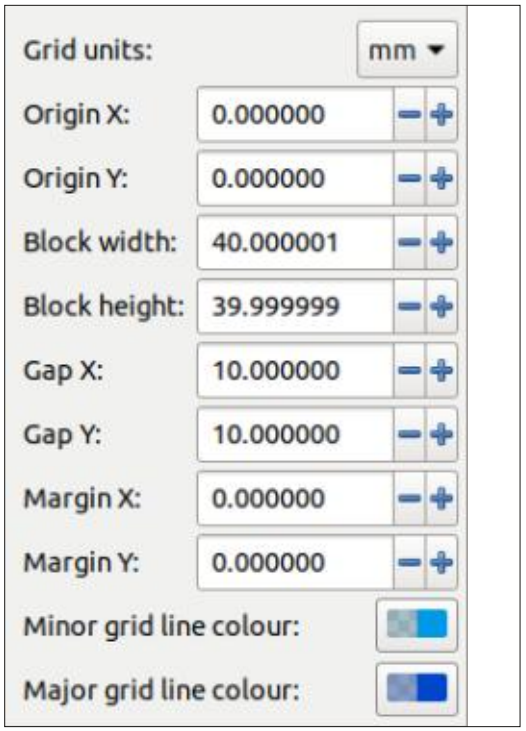


But it can also be useful to create multiple grids that may not be so obviously related to each other. Usually in this situation you'll use the fact that each grid has its own 'Visible' checkbox to turn them on and off without having to remove any of them completely. Unfortunately there's no keyboard shortcut to make toggling individual grids easier, so if you do want to use multiple grids like this, you'll be making frequent trips to the tabs in this dialog to turn each one on and off.

I covered rectangular and axonometric grids a decade ago, in FCM #97, and not a great deal has changed about their configuration since then. All the grid types now feature the 'Align to page' buttons – an array of 9 icon buttons that just act as shortcuts for setting the Origin X and Origin Y fields to some common values. But otherwise the controls for configuring rectangular grids remain largely identical.

Axonometric grids, on the other hand, have gained one other convenience feature with 1.4. Next to the Angle X and Angle Y fields is a button to open a small door-hanger dialog. This contains a single field in which you can put a width:height ratio from which the angles will be calculated. This just saves you performing a little trigonometry if you know the ratio you want. For example, putting a value of "2:1" into this field results in the angles being set to 26.565051°. I'm sure you'll agree that, for most people, entering the ratio would be preferable to calculating the angles for yourself. Few people are likely to use this feature, though, as for the most common angles of 30° or 45° it's still easier to type them into the fields directly as degrees. "1.73205 :1" and "1:1" would be the equivalent ratios if you really want to know.

Although little has changed regarding rectangular and axonometric grids, the star of the 1.4 grid party is, of course, the modular grid, so let's take a look at the parameters for those.



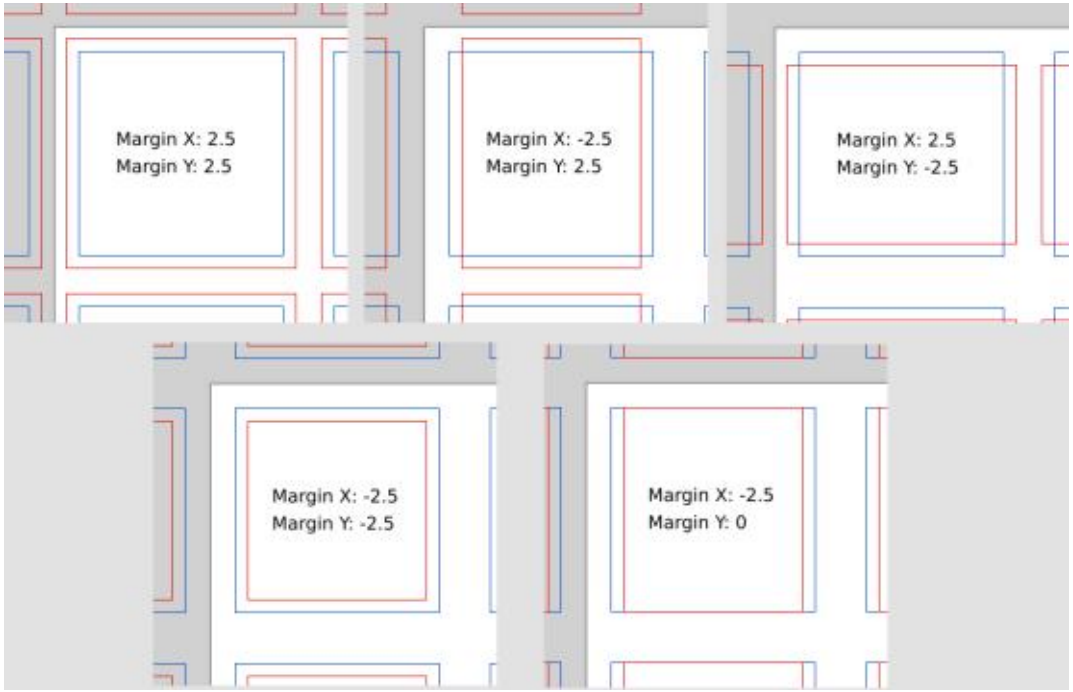
I'm sure you can work out what the Grid Units control does. The two Origin fields set the position of the top-left corner of the grid. You might expect values of 0 to result in a block being positioned so that its top-left corner is perfectly aligned with the top-left corner of the page, but that's not the case due to the Gap values. These fields set the distance between blocks, but they're dished out equally on opposite sides of the block: a Gap X of 10 mm will result in a space of 5 mm to both the left and the right of each block, and similar logic applies to Gap Y. So if you do want your first block to be right in the corner of the page, you'll need to set the Origin values to a negative value of half the corresponding Gap field. In other words, with a Gap X of 10 mm you need to set Origin X to -5 mm (and the same for the Y values). In most cases, however, a bit of a space between the page border and the grid is desirable, so leaving the origin values at zero might be fine. As usual, the exact parameters you need will be highly dependent on what you're drawing, and how your image relates to the underlying grid.

The Block Width and Block Height fields are pretty self-explanatory, other than the fact that it seems to be impossible to set them to nice, round, equal numbers. Having entered "40" into each field, you can see from the screenshot that one has been nudged slightly up, and the other

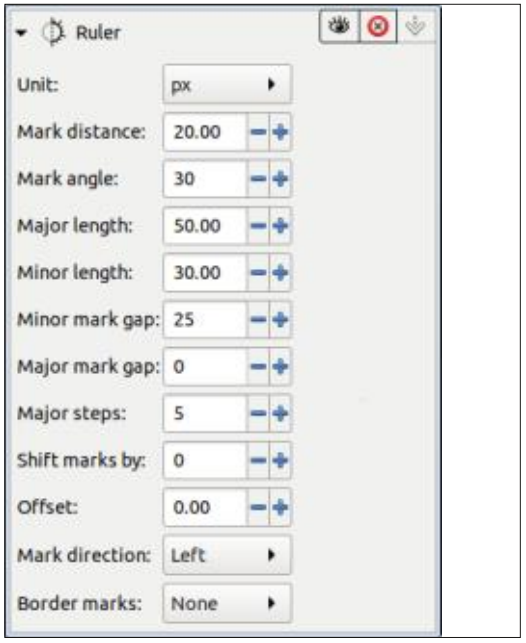
slightly down. Similar discrepancies seem to happen regardless of the Grid Units, so it's not just a problem with some internal conversion from millimetres to pixels. The differences are tiny, and unlikely to cause a genuine problem for anyone – but it is rather annoying.

The Margin X and Margin Y fields set an offset that is used to draw a second block, centered on the first. This can be used to draw a margin box around each block, or to draw an inset box by using negative values. The margin boxes are drawn in the color set by the Minor Grid Line Color field, while the main block uses the corresponding Major Grid Line Color. In this screenshot, I've set the Minor Color to solid red, and the Major Color to solid blue – you can see how different margin values result in different minor boxes. Both major and minor blocks can be snapped to, so careful use of these fields might provide you with some useful snap points without requiring an additional grid to be created (though that's still an option, of course).

I think the new modular grid type is a great addition to Inkscape, but it's a little limited by the lack of some convenience features similar to the new Aspect Ratio option for axonometric grids. I'd love to be able to define a modular grid by telling Inkscape that I want each block to be 40 mm × 30 mm, and have it work out the Gap values required to fit as many blocks as possible onto the page, neatly centered. Or, conversely, set the gap value and number of blocks on the page, and have Inkscape work out the block dimensions.



Moving on from grids, there have been some small updates to a couple of the Live Path Effects (LPEs). First of all, the Ruler LPE has gained three extra parameters: Mark Angle, Minor Mark Gap, and Major Mark Gap:



The Mark Angle parameter allows you to create rulers in which the tick marks extend from the base path at an arbitrary angle, rather than always being perpendicular to it. The value is in degrees, and can be either positive or negative, depending on which way you want the marks to slant.

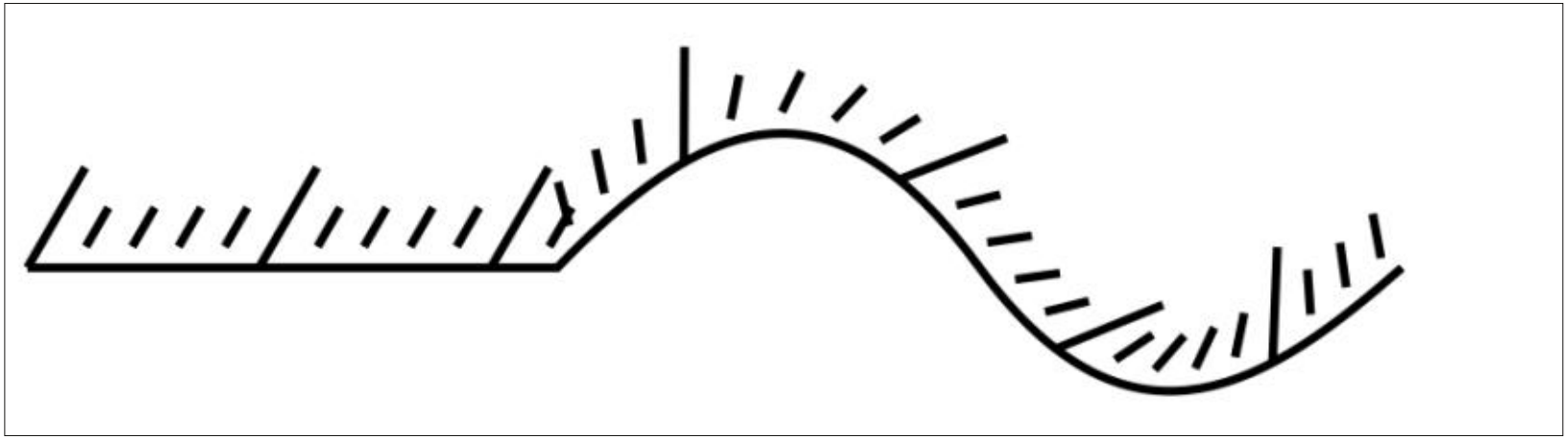
The Minor and Major Mark Gap fields let you offset the start of each tick some distance away from the base path. The value is a percentage of the overall mark length, but the mark is also shortened by this amount such that its end point remains the same. This means that if you want to shift the marks away from the base path while retaining their length, you'll need to adjust the Major Length and/or Minor Length parameter as well.

This image (next page, top right) shows the result of using the parameters from the screenshot above – a Mark Angle of 30°, and a Minor Mark Gap of 5.

Unfortunately, the Gap fields won't accept negative values, so they can't be used to shift the marks out of the opposite side of

the base path in order to produce an asymmetric design in which, say, the tick marks extend 1/3 of their length on one side, and 2/3 on the other.

The only other LPE to have received an update worthy of the Inkscape 1.4 release notes is Taper Stroke. This adds a new option of 'Clamp' for the Start Direction and End Direction parameters. These parameters determine whether the taper at each end veers towards one side or is centered, with the new option cutting the shape off squarely, with no taper at all. To that end I think the use of 'Clamp' as the option name is a bad one; 'None' or 'Square' would have been more descriptive, while 'Butt' would have better mirrored the naming used in the Fill & Stroke dialog.



The following image shows a line without the LPE applied, then two copies which do have it. The second line has the Start Direction set to 'Center' and the End Direction set to 'Left'. The last line uses 'Clamp' and 'Right'. You can see that the 'Clamp' option drastically reduces the length of the line, cutting it off where the taper would usually begin, so you may need to create an artificially long base path if you want to use this option.

Next month we'll continue exploring more of the changes that have been introduced in Inkscape 1.4.

Mark uses Inkscape to create comics for the web (www.peppertop.com/) as well as for print. You can follow him on Twitter for more comic and Inkscape content: **@PeppertopComics**