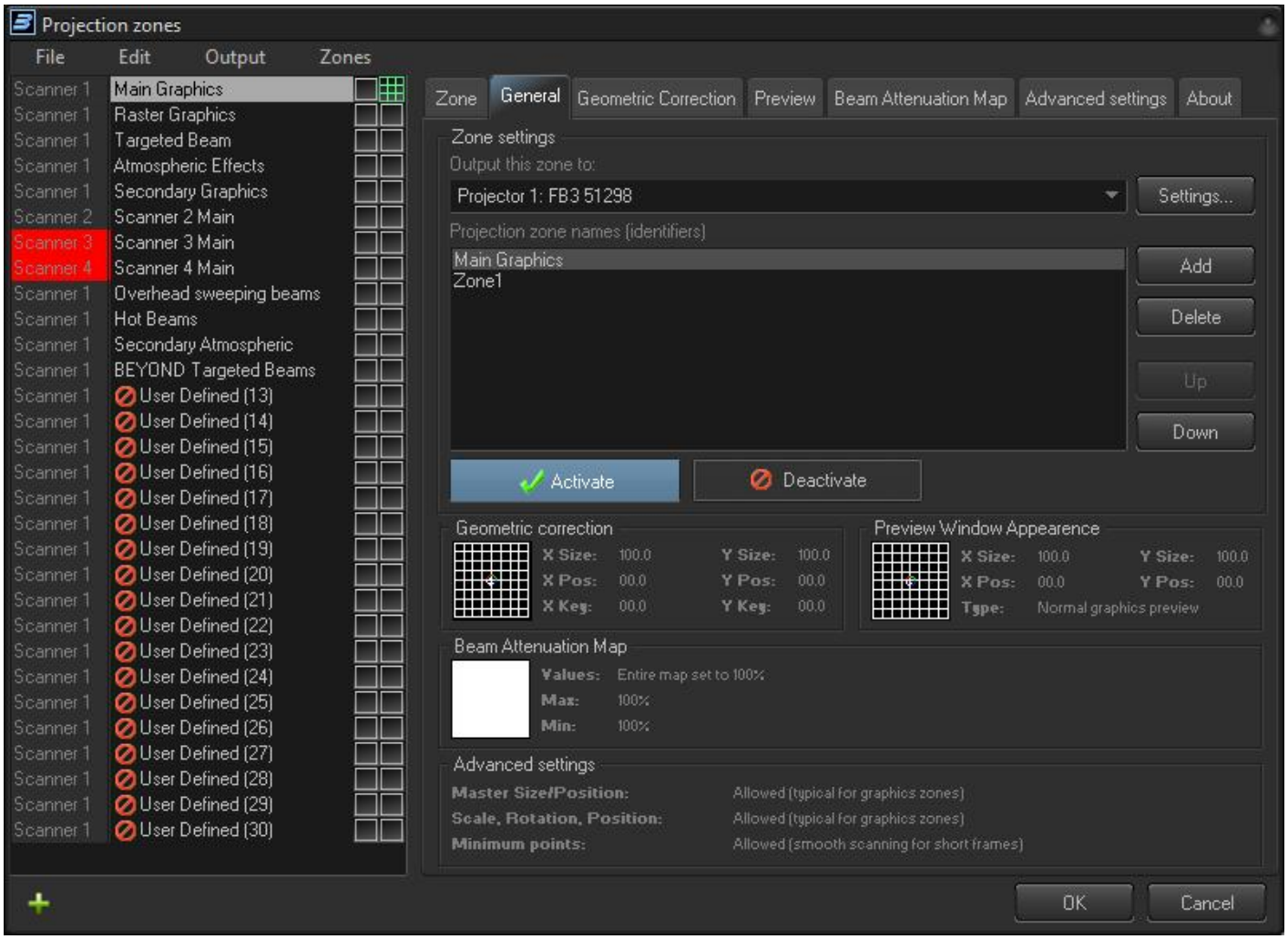
Projection Zones

BEYOND includes Pangolin's exclusive ILDA-Award-winning Projection Zones technology, which allows BEYOND to access a virtually unlimited number of projection areas (zones) either from a single laser projector, or up to six laser projectors.

Projection Zones combine a projector selection with Geometric Correction for that particular zone, along with the Preview Window Appearance for that zone and a Beam Attenuation Map that can control the brightness in that particular zone.

The Projection Zones window is shown below.



The list of projection zones can be seen and selected on the left side of the window. When you click on a zone in the left side, the tabs on the right allow you to view and adjust the parameters for each projection zone. To view and adjust the parameters, click on the Geometric Correction, Preview Window Appearance, Beam Attenuation Map or Other tab.

Note that when a listing is red, it is because there is no laser controller that is able to output to that projector (scanner).

Projector (scanner) Output section

The area toward the top of the General tab, labeled Output this zone to allows you to indicate the projector (scanner) that will be used for that zone, and also to adjust the parameters for that projector. This is how you indicate which projector will be used for each zone. Pressing the “Settings…” button will display the Projector Settings window.

Projection zone names (identifiers)

The next section, allows you to specify one or more Projection Zone Names. Since there are many zones, you should give a descriptive name to each zone such as “Main Graphics” or “Scanner 2 Beam zone”.

Test pattern control section

The bottom section allows you to display a test pattern if desired, and it is possible to project a test pattern on multiple zones simultaneously in this mode. This allows you to adjust geometric correction settings on overlapping projectors.

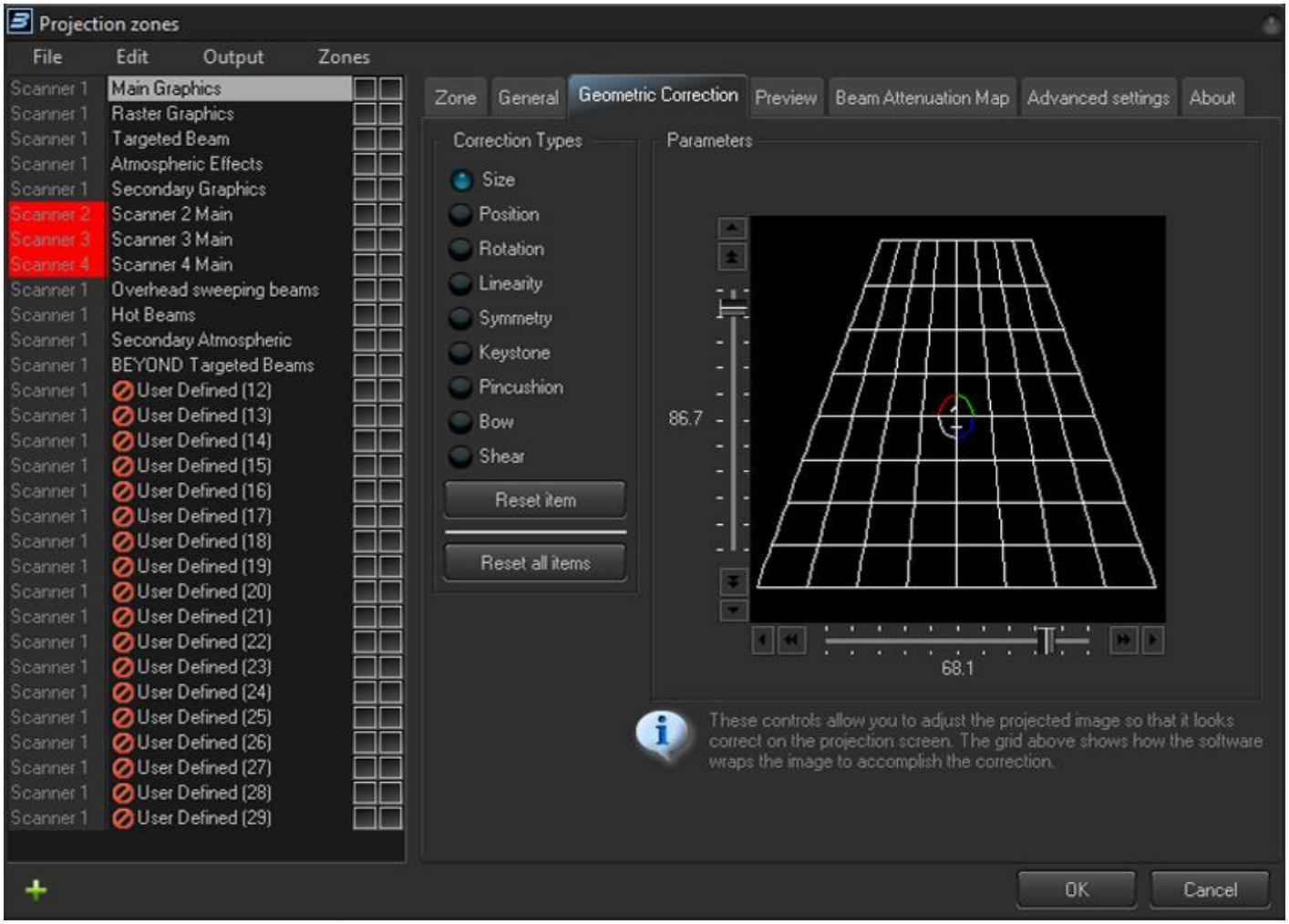
There are two different test patterns available for selection: a Simple test pattern and a Grid test pattern. The simple test pattern has roughly 500 points, and the grid test pattern has roughly 1000 points. Using the simple test pattern when you are projecting multiple test patterns from the same set of scanners will help to reduce flicker.

In addition to the lines that make up the actual test pattern, each test pattern also has an identifying number to help distinguish which test pattern is being projected from which zone.

Geometric Correction section

The next section shows the Geometric Correction parameters for the selected zone, and allows you to adjust it. The Geometric Correction settings allow you to adjust the geometric correction for each projector. Moreover, each projector can actually have multiple geometric correction settings if desired simply by directing more than one zone to the same projector.

To adjust the geometric correction, you click, on the different Correction Types and then move the sliders that appear on the sides and top of the window, or you can click and drag the mouse in the window area.



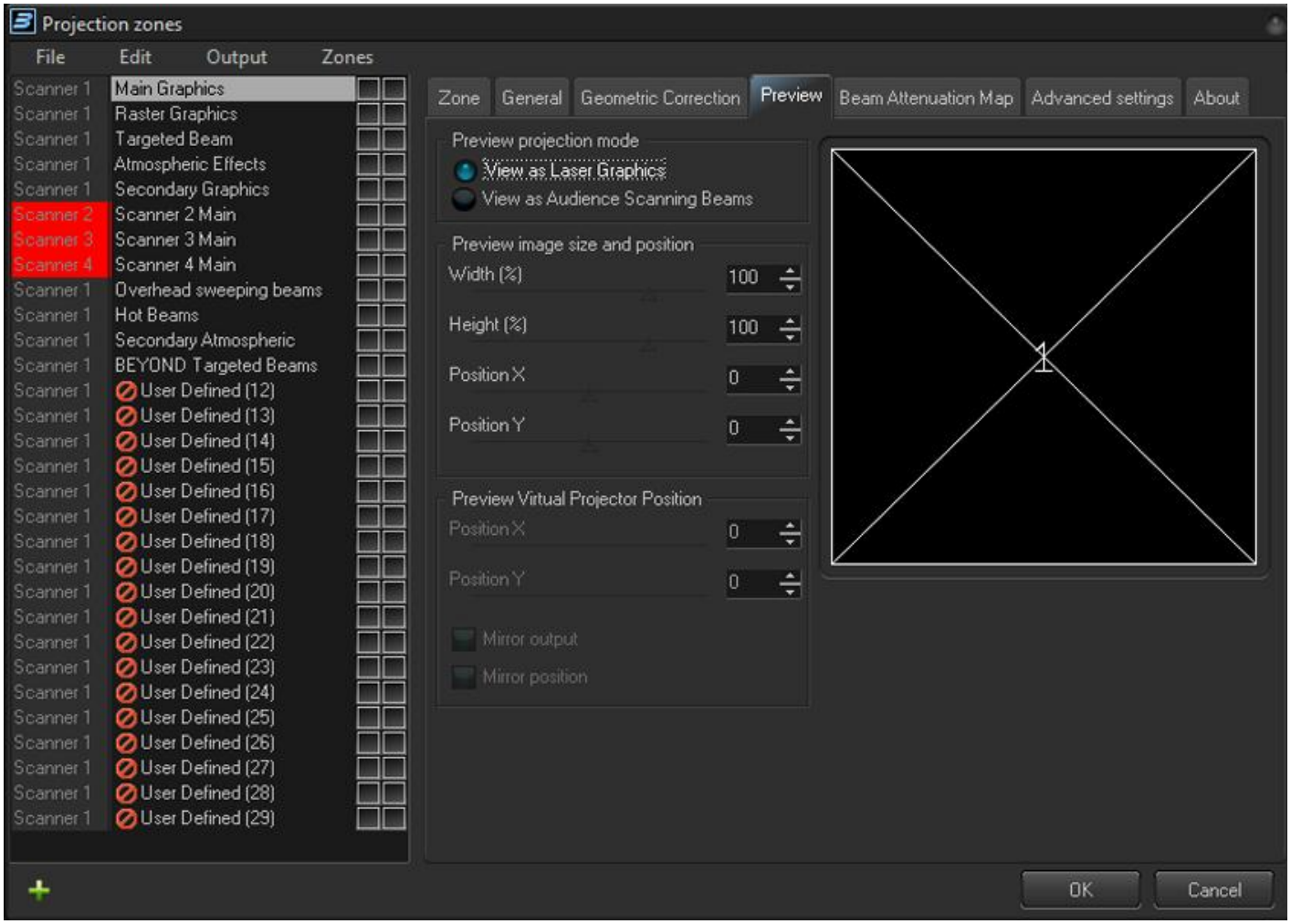
Preview Window Appearance section

The next section shows the Preview Window Appearance for the selected zone, and allows you to adjust it. Note that it is possible to specify a Preview Window Appearance for each projection zone, and this preview window appearance is independent of the laser output so master size, position and geometric correction do not affect the preview window.

For each zone, the Preview image size and position can be adjusted. Moreover, you can specify whether the preview for that zone should be normal laser graphics, or audience scanning beam effects.

If you specify that the preview should be Audience Scanning Beams, you get a few more options. You can control the vanishing point created by the actual projector position. You an also chose whether or not to mirror the output and the position in the preview window.

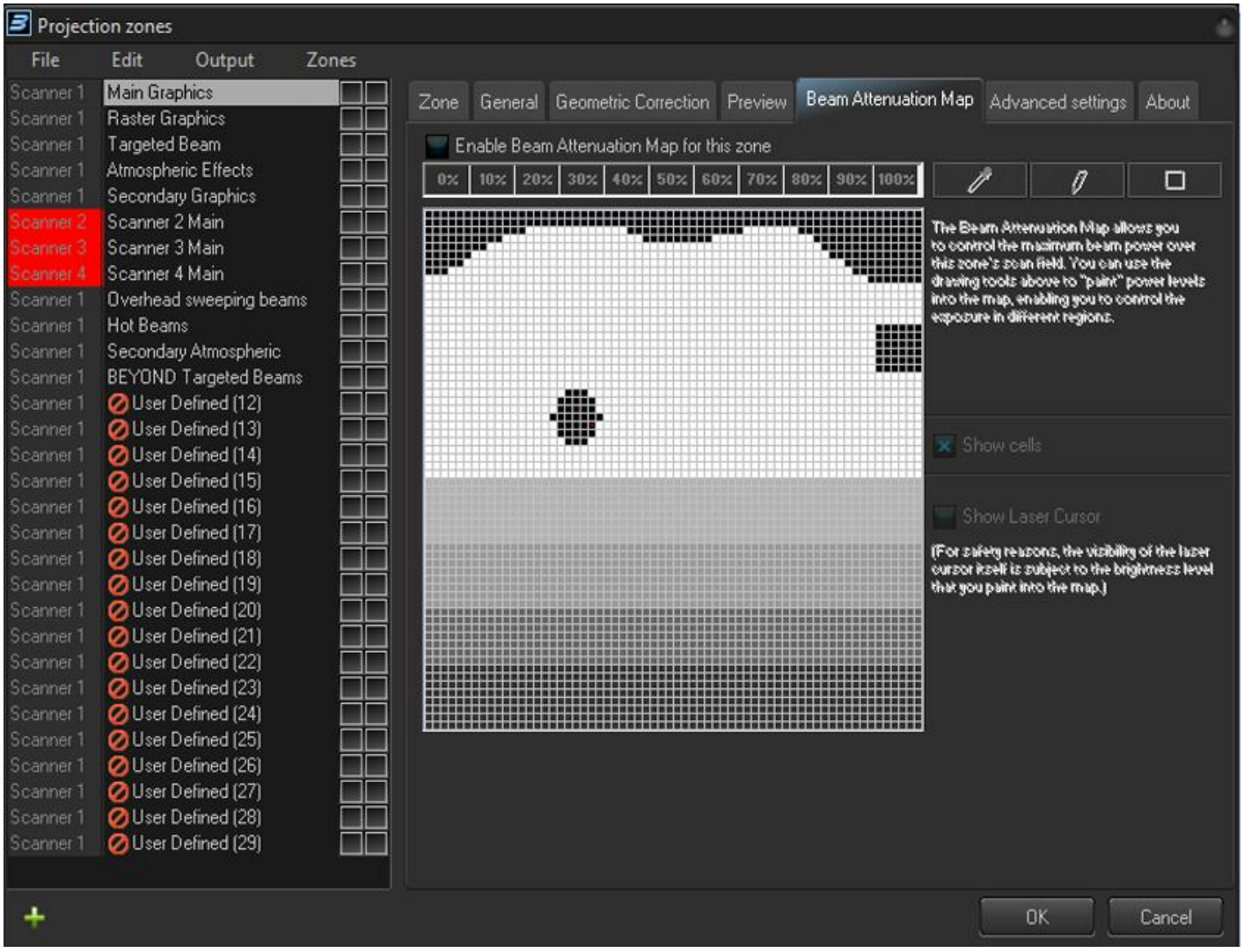
You would mirror the output and position when you are sending the output of a single FB3 to multiple projectors at either side of a stage. When this is selected, the preview window automatically duplicates and mirrors the output even though there is only one signal source for both projectors.



Note that with all of this flexibility, you can adjust the preview window for each zone to truly simulate what the show will look like in the final venue.

Beam Attenuation Map section

The next section shows the Beam Attenuation Map section for the selected zone, and allows you to adjust it. The Beam Attenuation Map allows you to control the brightness of the beam over the entire projection zone and allows non-uniform brightness maps.

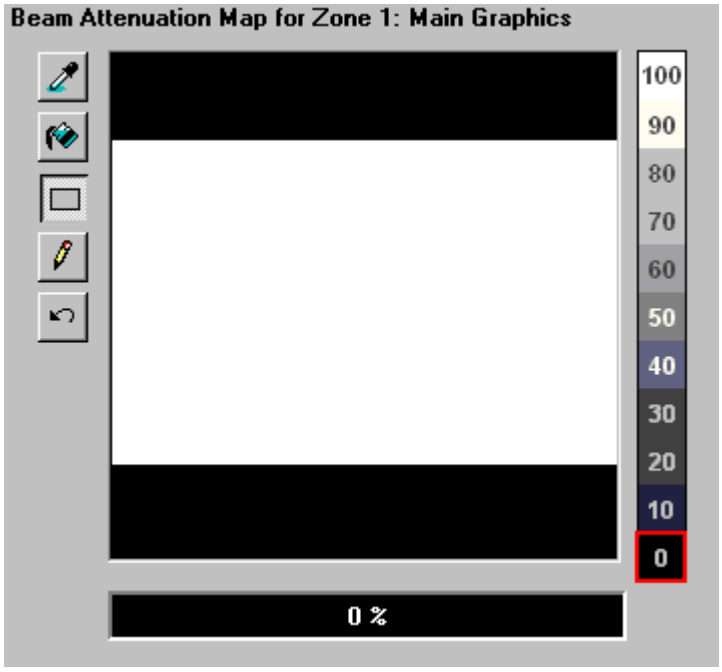


The Beam Attenuation Map is a 64 by 64 “pixel” brightness control map. Each pixel can be set to any brightness level from 0 to 100%. Rudimentary tools are provided to sample a brightness level in the map, fill the entire map with the selected brightness level, fill a rectangular area with the selected brightness level and freehand-draw brightness levels into the map.

The Beam Attenuation Map can be used for graphics, atmospheric and beam effects.

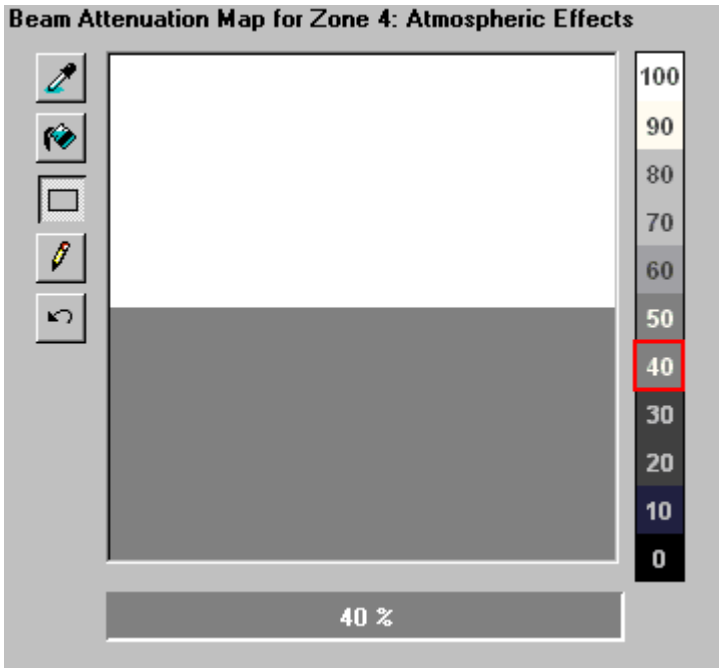
Example Beam Attenuation Map use with laser graphics

One common graphics use would be to prevent scanning above or below a certain point. For example, lets say that you were projecting laser graphics over a standard television screen with a 4:3 aspect ratio. Since the laser typically has a 1:1 aspect ratio, this would mean that the graphics could possibly scan above the top or below the bottom of the screen. You can use the Beam Attenuation Map to make sure that the brightness at the top and bottom of the screen is zero.



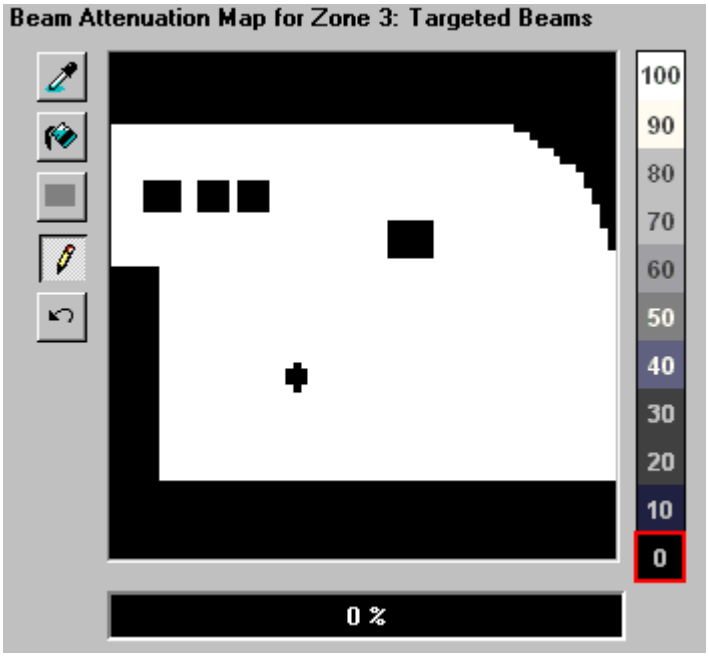
Example Beam Attenuation Map use with audience scanning

Another common use would be to reduce the brightness below the horizon to a level that would be more pleasing for audience scanning viewers. This can easily be done by selecting a reduced brightness level, and filling the rectangular area below the horizon.



Example Beam Attenuation Map use with targeted beam effects

Another common use would be to protect certain areas from hazardous laser exposure or to reduce the brightness in certain areas. When doing beam shows outdoors, it is often necessary to ensure certain areas (such as the windows in certain buildings) won't be exposed. Using the rudimentary drawing tools, it is possible to "carve out" areas from the projected area.



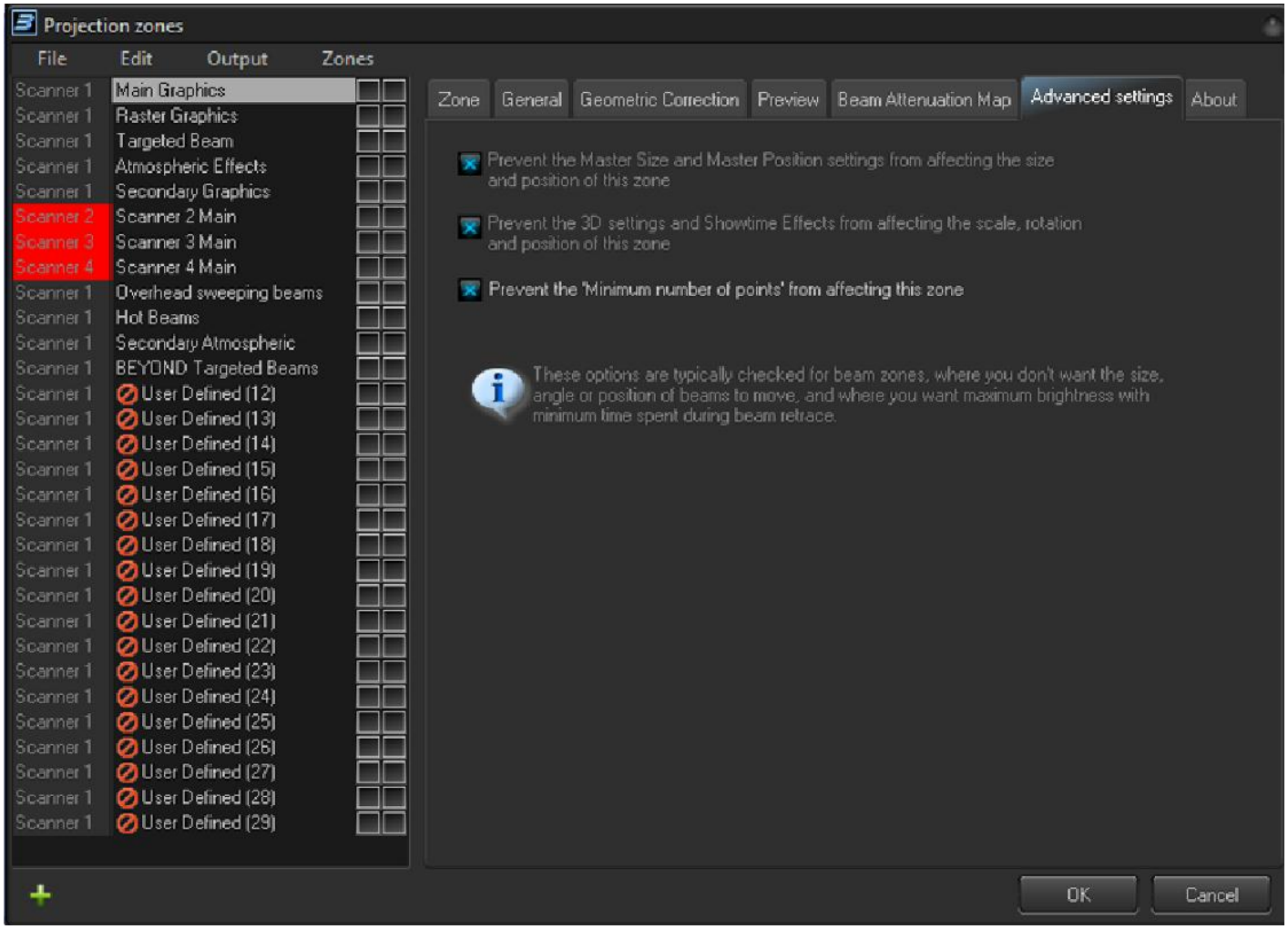
Other Scanning Parameters section

The next section shows the Other Scanning Parameters for the selected zone, and allows you to adjust them. These are advanced scanning parameters which are particularly well suited for zones used for targeted beam effects.

When the Prevent master size and master position check box is checked, it will make it so that the Master Size and Master Position controls in the Projector Settings window do not affect the output of this zone.

When the Prevent 3D settings and Showtime effects check box is checked, it will make is so that the output of this zone is not affected at all by any effect that would cause beam frames to no longer hit their intended targets. For example, if you painstakingly adjusted the position of a beam to precisely hit a mirror, you would not want the position of this beam to be affected in any way. The two options above ensure that even if you mistakenly use affects that would change the position, or accidentally change the Master Size settings, these beams will continue to hit their intended targets.

The Minimum number of points setting in the Projector Settings window can be adjusted to relieve the scanners from trying to scan high duty-cycle images that might cause power limiting. Setting the Minimum number of points to 200 or higher can actually increase the life of your scanners. However, doing so will mean that if you project less than 200 points, the additional points will be blanked. For beam frames, it is often undesirable to have any unintended blanking at all because such blanking would tend to reduce the power of the display. When the Prevent minimum number of points check box is checked, all scanner output will be dedicated strictly to producing laser output and the Minimum number of points setting is ignored.



Recommended use of the first eight zones

Although we do not restrict the use of zones in any way, for maximum compatibility Pangolin recommends that the first 8 projection zones be used as follows:

Zone	Projector	Name	Comment
Zone 1	Projector 1	Scanner 1 Main	Used for most common output
Zone 2	Projector 2	Scanner 2 Main	Used for anything directed to scanner 2
Zone 3	Projector 3	Scanner 3 Main	Used for anything directed to scanner 3
Zone 4	Projector 4	Scanner 4 Main	Used for anything directed to scanner 4
Zone 5	Any projector	Secondary Graphics	Used for a second graphics screen
Zone 6	Any projector	Raster Graphics	Reduced in size used for raster graphics (retained for compatibility with LD2000 zones)
Zone 7	Any projector	Hot Beams	Used for high-intensity beams which may or may not be directed within the audience area
Zone 8	Any projector	Atmospheric Effects	Used for atmospherics and audience scanning (retained for compatibility with LD2000 zones)
Zone 30	Any projector	Targeted Beams	Used for QuickTargets beams

Sending cues to specific Projection zones

Projection Zones can be specified within BEYOND cues, so that when you trigger a cue, it will automatically be sent to one or more specific zones. See the help topic about Cue Properties for more information.

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