

**Title:** Constraint Regions

**Product:** OrCAD / Allegro PCB Editor

**Summary:** This application note describes how to define and use constraint Regions.

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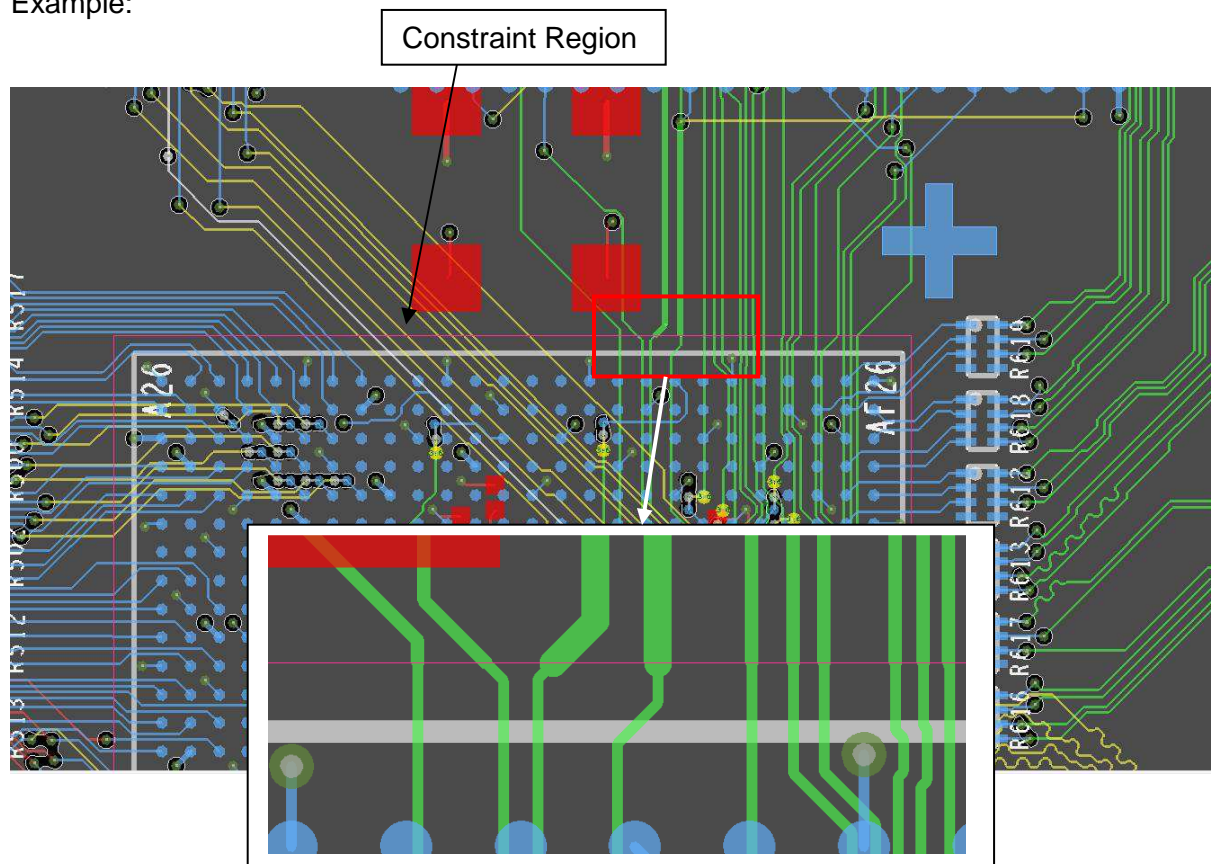
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# 1 Introduction

Constraint regions can be used to define areas on your pcb where other constraints can be defined. For example on a placed BGA component, you may have to allow smaller connect lines, so that they can pass the pins.

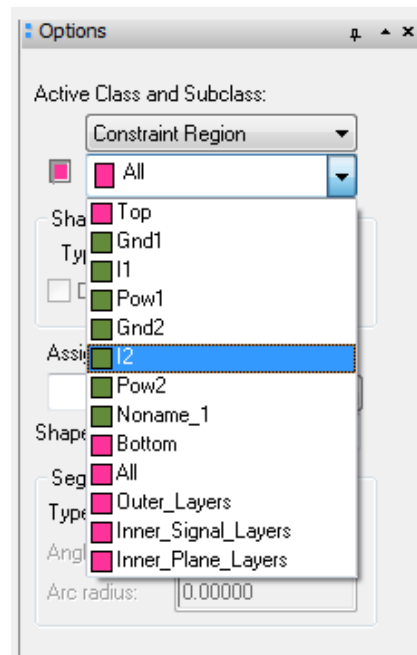
On a constraint region different spacing rules, physical rules or both can be defined. A constraint region can be defined on a single layer or through the entire stack-up. In this application note we first create a region on the layout. Secondly a rule set in the constraint manager will be defined. And the last step is to associate the rule set to the constraint region. It is as well possible to proceed in the reverse order. First defining the constraint set and secondly create the constraint region.

Example:

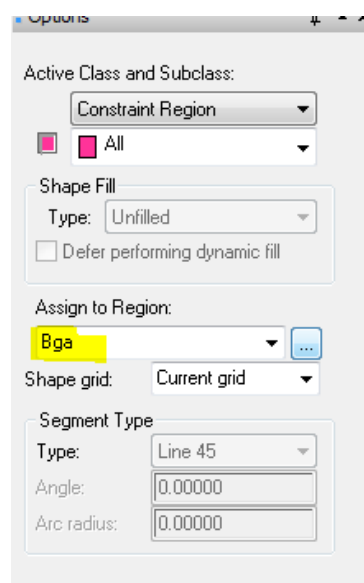


## 2 Create a Constraint Region

With the add shape command a new constraint region can be designed. As class, “Constraint region” has to be selected in the options window. As subclass, the layer on which the region should be placed can be selected. It is also possible to create a region on the “Outer\_Layers” or the “Inner\_Signal\_Layers” instead of a single layer. When you want to create a region which is valid on every layer, select “all” in the subclass menu. All the different shape commands can be used to create a new constraint region (add rectangular, circular, polygon,... shape)



Define a name for the constraint region in the options window, for example BGA.

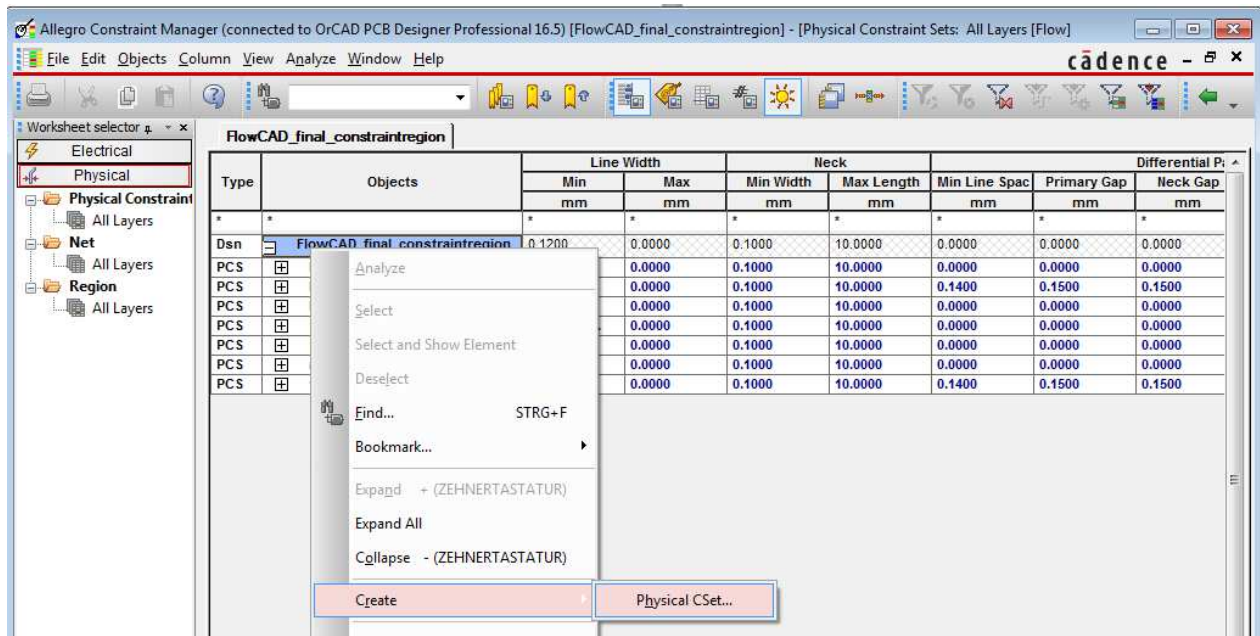


Draw the shape on the desired location on the PCB.

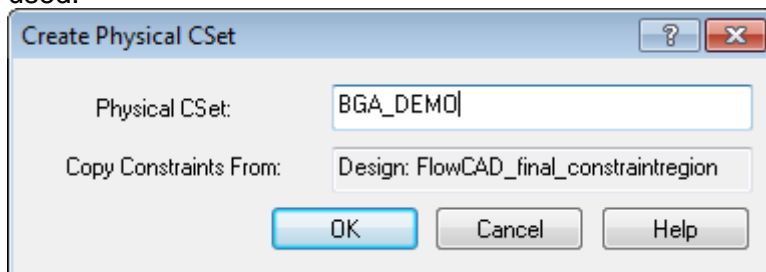
## 3 Set up a rule set

In the constraint manager you can define a constraint set as usual. In this application note it is described, how to create a new physical constraint set.

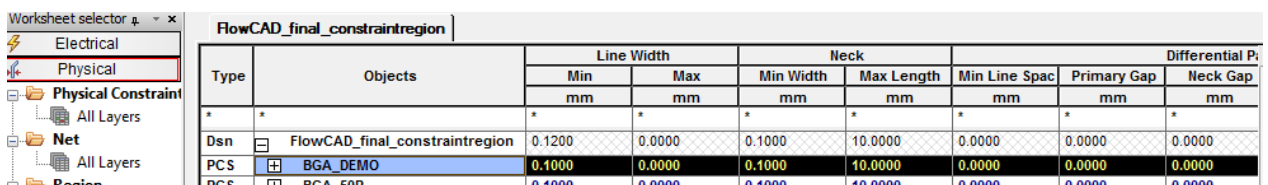
Select the designfile in the physical workbook and press the right mouse button. In the right mouse button menu select Create-> Physical CSet.. to create a new constraint set.



As next step, a constraint set name has to be defined. In this example BGA\_DEMO was used:



Define the physical constraints in the BGA\_DEMO constraint set as desired:



Note: Region rules can only be used for physical, spacing and same net spacing rules.

## 4 Associate the rule set to the constraint region

In the physical workbook a region folder is available in the constraint Manager. The name of the created region is listed in the constraint Manager. In this example, BGA was created in chapter 2.

For the defined region (BGA) a rule set can be referenced. For example the BGA\_DEMO constraint set can be referenced. Or you can also define the values manually in the different fields.

