```
icc2_shell> man set_floorplan_width_rules
2.  Synopsys Commands                                   Command Reference
                          set_floorplan_width_rules

NAME
       set_floorplan_width_rules
              Defines a width floorplan rule.

SYNTAX
       set_floorplan_width_rules
              -object_types type_list
              -lib_cells lib_cells
              -type concave | continuous | incorner | jog | simple
              -direction direction_list
              -name rule_name
              [-except_project_lib_cells lib_cells]
              [-project_extension distance]
              [-max_project_spacing distance]
              [-layers layer_list]
              [-gap_size distance]
              [-forbidden_list width_list]
              [-forbidden_ranges {{low high} {low1 high1} ... }]
              [-max distance]
              [-min distance]
              [-offset distance]
              [-step distance]
              [-valid_list distance_list]
              [-valid_ranges {{low high} {low1 high1} ... }]
              [-offset_ranges {{low high} {low1 high1} ... }]

   Data Types
       type_list       list
       lib_cells       collection
       direction_list  list
       rule_name       string
       layer_list      list
       width_list      list
       low             float
       high            float
       low1            float
       high1           float
       distance        float
       distance_list   float

ARGUMENTS
       -object_types type_list
              Specifies the list of object types for the width floorplan rule.
              The width of these type of objects is checked. Valid values for
              this option are block_boundary, core_area, hard_macro, place-
              ment_blockage, routing_blockage, shape, soft_macro, unplace-
              able_area, boundary_cell_region, io_pad, cover_bump and
              std_cell_area. This option is mutually exclusive with -lib_cells
              and you must specify one or the other.

       -lib_cells lib_cells
              Specifies the collection of library cells for the width floor-
              plan rule. The width of these library cells is checked. This
              option is mutually exclusive with -object_types and you must
              specify one or the other.

       -type concave | continuous | incorner | jog | simple
              Specifies the width type of the width check. Valid values are
              concave, continuous, incorner, jog, and simple. This is a
              mandatory option.

              concave indicates the distance in horizontal or vertical direc-
              tion between two horizontal or vertical edges whose paral-
              lel_run_length is 0.
```

continuous indicates the distance in horizontal or vertical direction between merged objects. The tool considers an object to be merged If the spacing of two objects is not large than the gap_size and the parallel_run_length value of these two object is larger than 0.

incorner indicates the distance in horizontal or vertical direction between two 270-degree corners.

jog indicates the distance in horizontal or vertical direction between one 90-degree corner and one 270-degree corner.

simple indicates the distance in horizontal or vertical direction. For example, if the placeable sites are sliced into multiple rectangle shapes and let the shapes be as large as possible, the height or width of these shapes represent the "simple" distance.

-direction direction_list
Specifies the sides or directions in which width of object or library cells needs to be checked. Valid values are any, horizontal and vertical. The horizontal argument includes both left and right. Similarly, the vertical argument includes both bottom and top. This is a mandatory option.

-name rule_name
Specifies the name of the width floorplan rule. This is a mandatory option.

-except_project_lib_cells lib_cells
Specifies the collection of library cells for the width floorplan rule where the rule is not applied on the object if specified lib cells project on that object for a given projection distance. This is an optional option. This option is mutually exclusive with -project_lib_cells and you must specify one or the other.

-project_extension distance
Specifies the projection distance of lib cells specified with -except_project_lib_cells on the object so that this rule is not applied for that object. The value specified cannot be negative. This option must be used together with -except_project_lib_cells. This is an optional option.

-max_project_spacing distance
Specifies the maximum spacing of lib cells specified with -except_project_lib_cells to the object within which this rule is not applied for that object. The value specified cannot be negative. This option must be used together with -except_project_lib_cells. This is an optional option.

-layers layer_list
Specifies the routing layers to be considered for the routing_blockage or shape object type. This option must be used together with -object_types routing_blockage or -object_types shape. This is an optional option.

-project_lib_cells lib_cells
Specifies the collection of library cells for the width floorplan rule where the rule is applied on the object if specified lib cells project on that object for a given projection distance. This option must be used together with -object_types std_cell_area and -type simple. This option is mutually exclusive with -except_project_lib_cells and you must specify one or the other.

-gap_size distance
Specifies the gap between objects to be considered continuous. This option can be given only with -type continuous.

-forbidden_list width_list
Specifies a list of widths that are **not** allowed **for** the object **or library cell**. This option is mutually exclusive **with** -valid_list. Values specified cannot be negative. This is an optional option.

-forbidden_ranges **{{**low high**} {**low1 high1**} ... }**
Specifies a list of width ranges that are **not** allowed **for** the object **or library cell**. The width must **not** lie **within** any of low **and** high in the specified list of ranges. This option is mutually exclusive **with** -valid_ranges. Values specified cannot be negative. This is an optional option.

-max distance
Specifies the maximum width **for** the object **or library cell**. The width cannot be greater than **this** value. The value specified cannot be negative. If -min is also specified then **this** value must be greater than the min value. This is an optional option.

-min distance
Specifies the minimum width of object **or library cell**. The width cannot be less than **this** value. The value specified cannot be negative. If -max is also specified then **this** value must be lesser than the max value. This is an optional option.

-offset distance
Specifies a **parameter** in width calculation of object **or library cell**. This option must be used together **with** -step. This **implies** that the width has to be an **integer** multiple of step value plus offset value. This option is mutually exclusive **with** -offset_ranges. Value specified cannot be negative. This is an optional option.

-step distance
Specifies a **parameter** in width calculation of object **or library cell**. This option must be used together **with** -offset. This **implies** that the width has to be an integral multiple of step value plus offset value **or** width has to be in range of an integral multiple of step value plus offset_ranges value. Value specified must be greater than zero. This is an optional option.

-valid_list distance_list
Specifies a list of allowed widths **for** the width of the object **or library cell**. This option is mutually exclusive **with** -forbidden_list. Values specified cannot be negative. This is an optional option.

-valid_ranges **{{**low high**} {**low1 high1**} ... }**
Specifies a list of allowed width ranges **for** the object **or library cell**. The distance must lie **within** any of low **and** high in the specified list of ranges. This option is mutually exclusive **with** -forbidden_ranges. Values specified cannot be negative. This is an optional option.

-offset_ranges **{{**low high**} {**low1 high1**} ... }**
Specifies a list of distance ranges. This **implies** that the width has to be in range of an integral multiple of step value plus offset_ranges value. Values specified can't be negative. This option must be used along **with** -step. This is an optional option.

DESCRIPTION
The set_floorplan_width_rules command defines a named width floorplan rule in the current **design**. The defined rule is persistent. If another floorplan rule by the same name exists then the command errors out.

There is a difference between the object **type** core_area **and**

std_cell_area. The core_area object type means core boundary region without cutting out any blockages and is typically applicable for top level whereas std_cell_area object type means core boundary region after cutting out all blockages and is typically applicable for block level.

If a width rule is defined for a library cell and another width rule is defined for a hard macro then the width rule defined for the library cell takes precedence over the width rule defined for hard macro when checks are done for that library cell.

If the measured value falls inside valid range or is a member of the valid list then there is no violation given by check_floorplan_rules regardless of other constraints like min, max, and so forth. If this measured value is outside valid range or list then a violation is reported if other constraints are specified and they are not met or if no other constraints are specified.

EXAMPLES

The following example creates a width rule named w1 to check the concave width of block boundary and hard macro in horizontal direction, both left and right. The width must be at least 31 and can be at most 153. Also the distance needs to follow integral multiples of 2 plus 34.

```
prompt> set_floorplan_width_rules -name w1 \
   -object_types {block_boundary hard_macro} -type concave \
   -direction horizontal -max 153 -min 31 -offset 34 -step 2
```

SEE ALSO

remove_floorplan_rules(2)
report_floorplan_rules(2)
set_floorplan_area_rules(2)
set_floorplan_enclosure_rules(2)
set_floorplan_extension_rules(2)
set_floorplan_exception_rules(2)
set_floorplan_forbidden_rules(2)
set_floorplan_halo_rules(2)
set_floorplan_length_rules(2)
set_floorplan_spacing_rules(2)

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