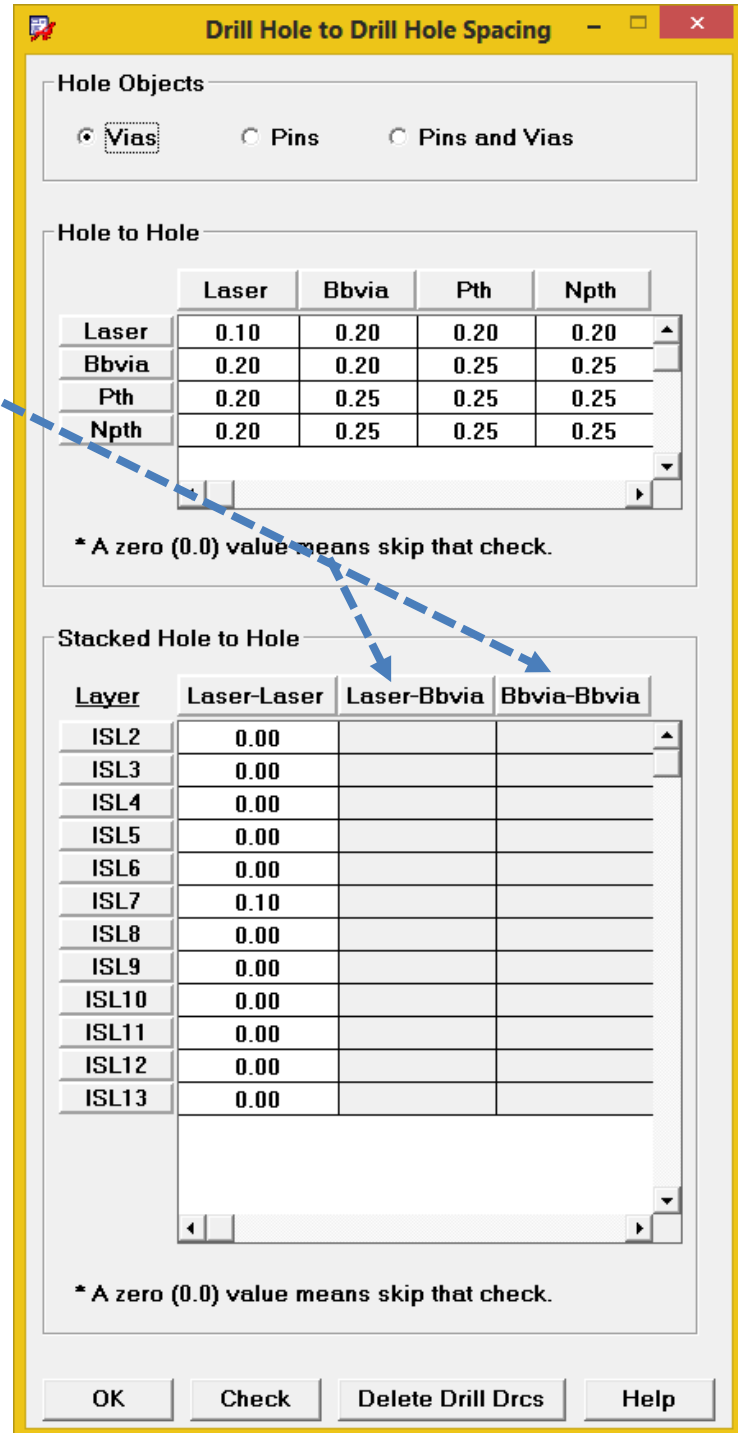


Hole

Facilitates the quick and easy identification of drill hole to drill hole spacing violations for pins and vias in the design.

Features:

- ❑ Automatically determines and list the common layers for stacked vias.
- ❑ Only lists via/pin types that are in the database. A via or pin type that is not in the database will have its form column inactive.
- ❑ Saves the form values with the database and repopulates the form upon re-invocation.
- ❑ Spacing values may be entered using a numerical value or a numerical value with units (10 mils, etc.). A value with units will be converted to the database value.



Drill Hole to Drill Hole Spacing

Hole Objects

Vias Pins Pins and Vias

Hole to Hole

	Laser	Bbvia	Pth	Npth
Laser	0.10	0.20	0.20	0.20
Bbvia	0.20	0.20	0.25	0.25
Pth	0.20	0.25	0.25	0.25
Npth	0.20	0.25	0.25	0.25

* A zero (0.0) value means skip that check.

Stacked Hole to Hole

Layer	Laser-Laser	Laser-Bbvia	Bbvia-Bbvia
ISL2	0.00		
ISL3	0.00		
ISL4	0.00		
ISL5	0.00		
ISL6	0.00		
ISL7	0.10		
ISL8	0.00		
ISL9	0.00		
ISL10	0.00		
ISL11	0.00		
ISL12	0.00		
ISL13	0.00		

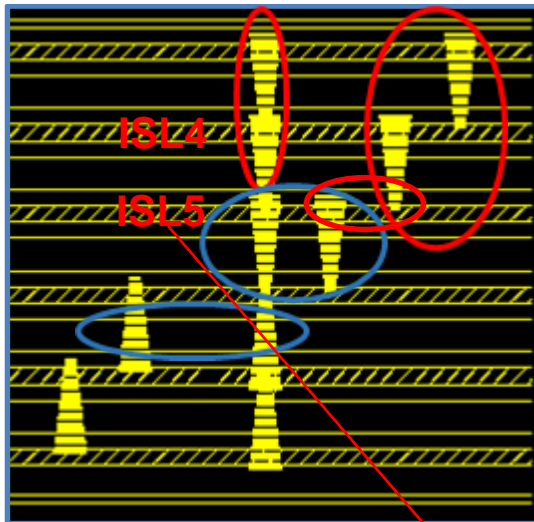
* A zero (0.0) value means skip that check.

OK Check Delete Drill Dracs Help

Example

Vias within the red circles are examples of stacked vias. These could be Laser micro vias or blind/buried (bbvia) vias. These vias will be checked using the values in the Stacked Hole to Hole section of the form.

Vias within the blue circles are examples of non-stacked vias. These vias will be checked using the values in the Hole to Hole section of the form.



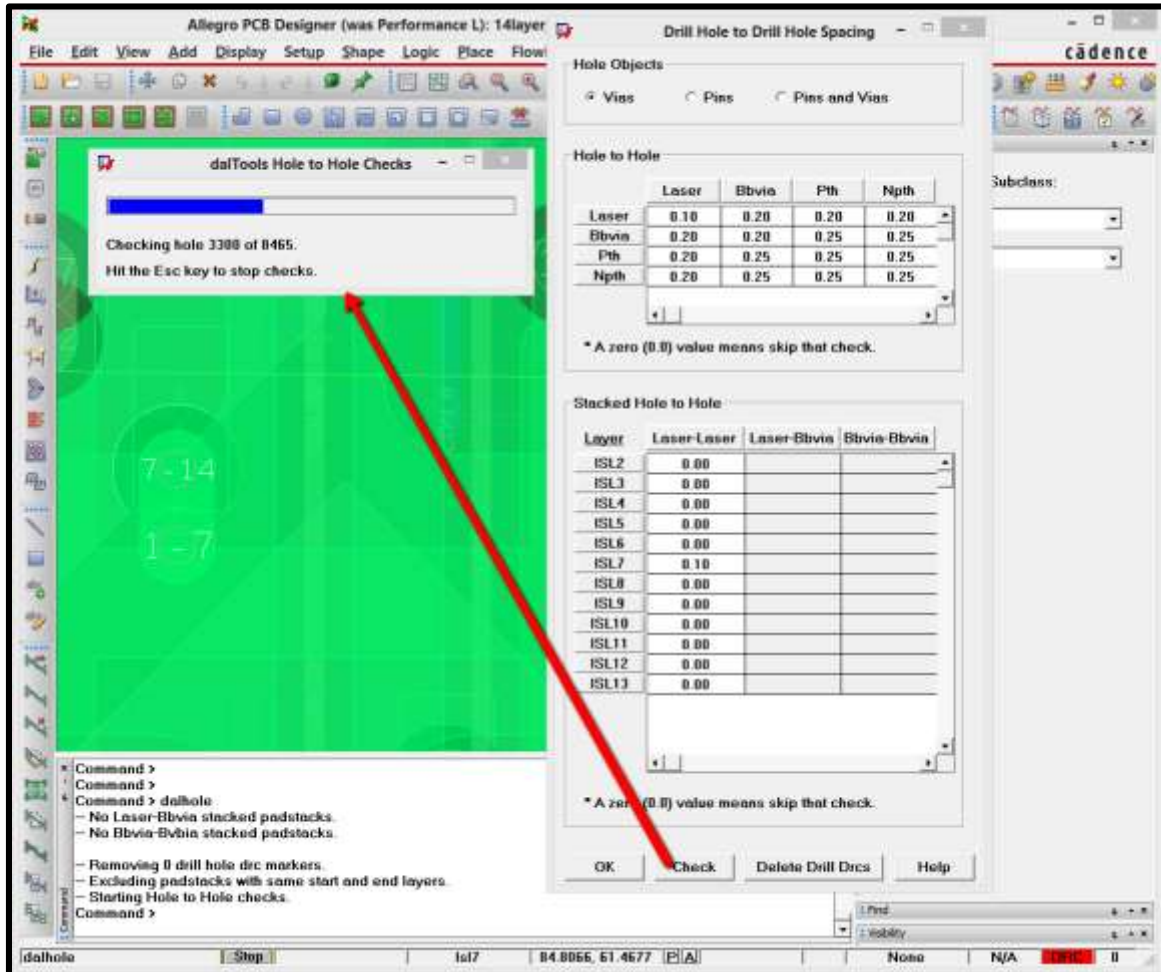
The screenshot shows the 'Drill Hole to Drill Hole Spacing' dialog box. It has three main sections: 'Hole Objects', 'Hole to Hole', and 'Stacked Hole to Hole'. The 'Hole Objects' section has radio buttons for 'Vias', 'Pins', and 'Pins and Vias', with 'Vias' selected. The 'Hole to Hole' section contains a table with columns 'Laser', 'Bbvia', 'Pth', and 'Npth'. The 'Stacked Hole to Hole' section contains a table with columns 'Layer', 'Laser-Laser', 'Laser-Bbvia', and 'Bbvia-Bbvia'. A red arrow points from the 'ISL5' label in the image to the 'ISL5' row in the 'Stacked Hole to Hole' table.

	Laser	Bbvia	Pth	Npth
Laser	0.10	0.20	0.20	0.20
Bbvia	0.20	0.20	0.25	0.25
Pth	0.20	0.25	0.25	0.25
Npth	0.20	0.25	0.25	0.25

Layer	Laser-Laser	Laser-Bbvia	Bbvia-Bbvia
ISL2	0.00		
ISL3	0.00		
ISL4	0.00		
ISL5	0.00		
ISL6	0.00		
ISL7	0.10		
ISL8	0.00		
ISL9	0.00		
ISL10	0.00		
ISL11	0.00		
ISL12	0.00		
ISL13	0.00		

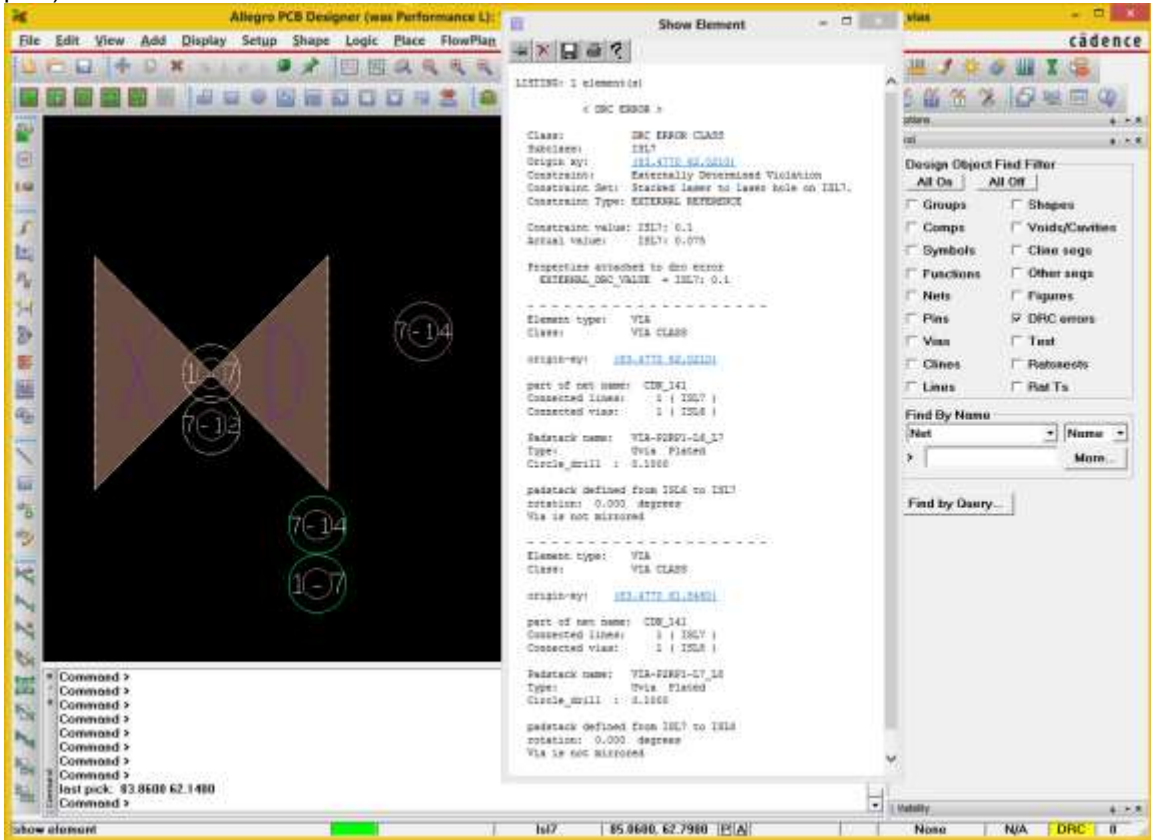
Check

Selecting the Check button starts the hole to hole spacing for vias and/or pins (based on the Hole Objects selection) in the design. A progress meter will be displayed showing the total holes being checked.

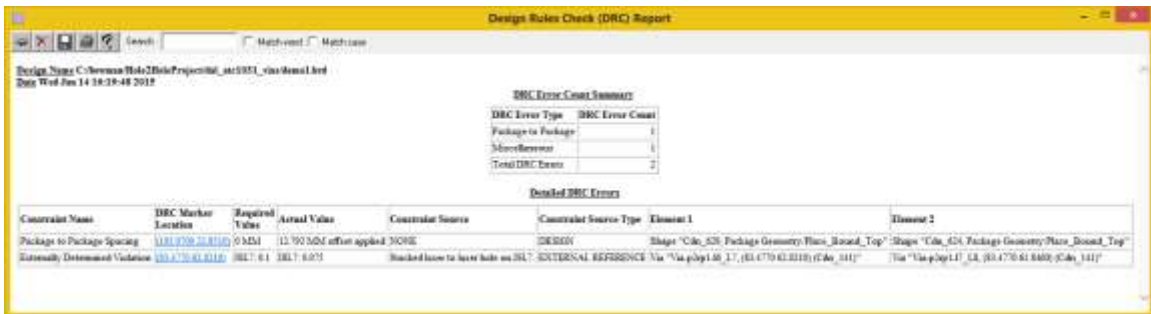


Any padstack whose start and end layers are the same will not be included in the check since there is no hole in the padstack.

When a spacing violation occurs a user defined Drc marker will be placed on one of the vias (or pins) in violation.



The via or pin drill hole spacing violation may also be located by using the Design Rules Check report from Allegro's Quick Reports. In the report look for the Externally Determined Violation constraint name.



Setting the user environment variable dalshowtime (set dalshowtime) will display timing data for the check.

The screenshot shows the Allegro PCB Designer interface. The main window displays a green PCB layout with a circular drill hole highlighted. The 'Drill Hole to Drill Hole Spacing' dialog box is open on the right, showing 'Hole Objects' set to 'Vias' and 'Hole to Hole' settings. The 'Hole to Hole' table is as follows:

	Laser	Bbvia	Pth	Npth
Laser	0.10	0.20	0.20	0.20
Bbvia	0.20	0.20	0.25	0.25
Pth	0.20	0.25	0.25	0.25
Npth	0.20	0.25	0.25	0.25

The 'Stacked Hole to Hole' table is also visible:

Layer	Laser-Laser	Laser-Bbvia	Bbvia-Bbvia
ISL2	0.00		
ISL3	0.00		
ISL4	0.00		
ISL5	0.00		
ISL6	0.00		
ISL7	0.10		
ISL8	0.00		
ISL9	0.00		
ISL10	0.00		
ISL11	0.00		
ISL12	0.00		
ISL13	0.00		

The command window at the bottom left shows the following output:

```

Command >
Command > set dalshowtime
Command > dalhole
- No Laser-Bbvia stacked padstacks.
- No Bbvia-Bbvia stacked padstacks.

- Removing 1 drill hole drc markers.
- Excluding padstacks with same start and end layers.
- Starting Hole to Hole checks.

## Total holes checked: 8495
## Start time: "Feb 13 13:42:15 2015"
## End time: "Feb 13 13:42:33 2015"
## Elapsed time (seconds): 18
## Elapsed time (minutes): 0.3
## Elapsed time (hours): 0.005
## Holes per second: 478

- Total Hole to Hole drcs: 0
- Total Stacked Hole to Hole drcs: 1
- Total Drcs: 1
Command >
  
```

The status bar at the bottom shows 'dalhole' as the active command, 'Randy' as the user, and 'Is17' as the selected object.



1.0_009 03-18-2015



Help

Command: dalHole

Purpose: As PCB designs are becoming more complex more granular hole to hole checking is being required. This check will verify hole to hole spacing between laser uvias, bbvias, plated through hole vias, non-plated through hole vias, plated through hole pins, and non-plated through hole pins. The check is hole edge to hole edge.

Hole Objects->
Holes may be in vias or pins. This field allows the user to select which objects to be checked.

Hole to Hole->
A hole to hole pattern is anything that is not considered a stacked hole to hole. This is where the various via types or pins are in close proximity of each other but not directly on top of one another. Enter the spacing value for each hole to hole combination.

Stacked Hole to Hole->
A stacked hole to hole pattern is defined to be where one via's beginning layer resides on the ending layer of the other via and the other two ending/beginning layers are not the same. The layer name is the common layer between two stacked vias. Enter the spacing value for each stacked hole to hole combination.

OK->
This will close the form and save the values entered. No check will be run.

Check->
This will run the hole to hole checks for all the vias and pins in the design. Any padstack whose start and end layers are the same will not be included in the check since there is no hole.

Delete Drill Drcs->
This will remove all the external drc markers created by this program.

Help->
This will bring up the form you are currently viewing.

Notes->
The "Drill Hole to Drill Hole Spacing" form is dynamically created based upon the padstacks currently in the database.
For example, if there are no non-plated through holes (Npth) in the design then that column will be grayed out. A zero value in any of the cells allows that hole to hole combination not to be checked.

All editable cells must have a value before the check can be run.
Any padstack that has the same Start and End layer will be ignored.
Only padstacks with a circular drill hole will be checked.

Visit our website: www.daltools.com [More Documentation \(PDF\)](#) [Web Demonstration](#)

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Ok