Virtuoso Design Review Flow Guide

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Contents

1

Introduction to Design Review Flow

The Design Review flow captures and records all communication between reviewers and designers when reviewing a layout cellview in Virtuoso Layout Suite and Virtuoso Schematic Editor. Design Review helps in the consolidation and tracking of every event status change in the system for future reference.

The Design Review Editor form in the Virtuoso Layout Suite provides the interface for the review. This form lets you capture and streamline communication related to the review. You can populate a user-defined checklist so that reviewers can follow a systematic approach for conducting the review for a layout. You can select what checks can be used during the review process. It is optional to use a checklist for a review, but if used, reviewers can use one or more checklist category for a given review. The core task is to review and sign off defects. A designer can refer to the defects, if any, and resolve them.

While review is underway, reviewers can mark defects using the Design Review Editor form in the current layout cellview as an action item for designers to attend to and fix later. Reviews are created with the *Review Status* automatically set to *open*. Unless all the defects are resolved, it is not possible to set the *Review Status* to *pending sign off* or *signed off*.

The *Audit Trail* is also available under *Review Status*. This lets you investigate a log of status-change events with time stamps and user IDs. Each design review has its own corresponding audit trail. A consolidated HTML summary report can also be used for investigating details of various reviews conducted on the current cellview or across the hierarchy.

The Design Review Flow

In the Design Review flow:

1. The reviewer initiates a specific review by using a checklist that can be suitable for certain designs or customers. Checklists are stored in the SKILL file `drvCheckLists.il` and can be loaded at startup from the `.cadence/dfII/drv` directory on a `setup.loc` path.

- To override checklist, load `drvCheckList.il` from CIW, for example, `load("xxx/drvCheckList.il")`.
- To preview loaded checklist, use `drvCheckLists()`.
- To append over an existing checklist, use `drvCheckLists()` and `drvRegisterCheckLists()`.

2. Reviewers create defect markers in a design to pinpoint the spots for fixes. These markers are also shown under predefined categories in the Navigator and Annotation Browser assistants. Each defect is represented by a glyph on the canvas. It is possible to have multiple defects of the same description but one defect glyph is created for one defect at a time.
3. Designers analyze the markers and can choose to fix or ignore them. They can add comments for each defect in the Design Review Editor. Designers can move the mouse over the defect markers on the canvas to see the cross halo in the Navigator or Annotation Browser assistants. A single-click on the marker shows an info balloon, double-click opens the Design Review Editor form, right-click displays the menu to update the marker in the canvas itself. When all defects are attended or resolved, designers can update the *Review Status* to *pending sign off*.
4. Subsequently, reviewers can review the fixes again and sign off the design.

   Note: When a review is signed off, all its associated defects are automatically hidden.

Prerequisites

The prerequisites for running Virtuoso Design Review Flow are:

- **Virtuoso Studio version:** IC23.1
- **License:** Virtuoso Layout Suite XL or higher tiers

Related Topics

Performing Design Review

Design Review Forms

2

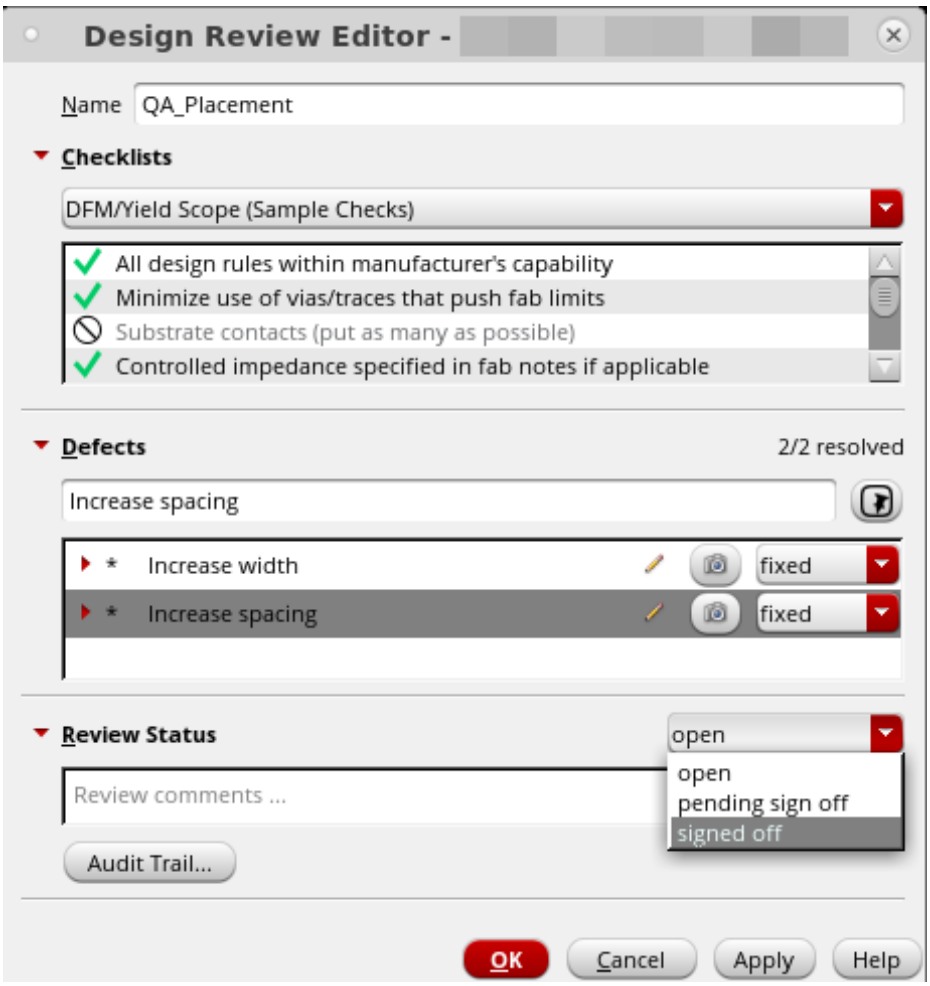
Performing Design Review

Design review ensures that all review details are located at one place for reference. It is easy to review, fix, and synchronize with design data in the Navigator or Annotation Browser. The canvas interaction and visualization makes it a very context-specific review process.

To review a design and create defect markers as a reviewer:

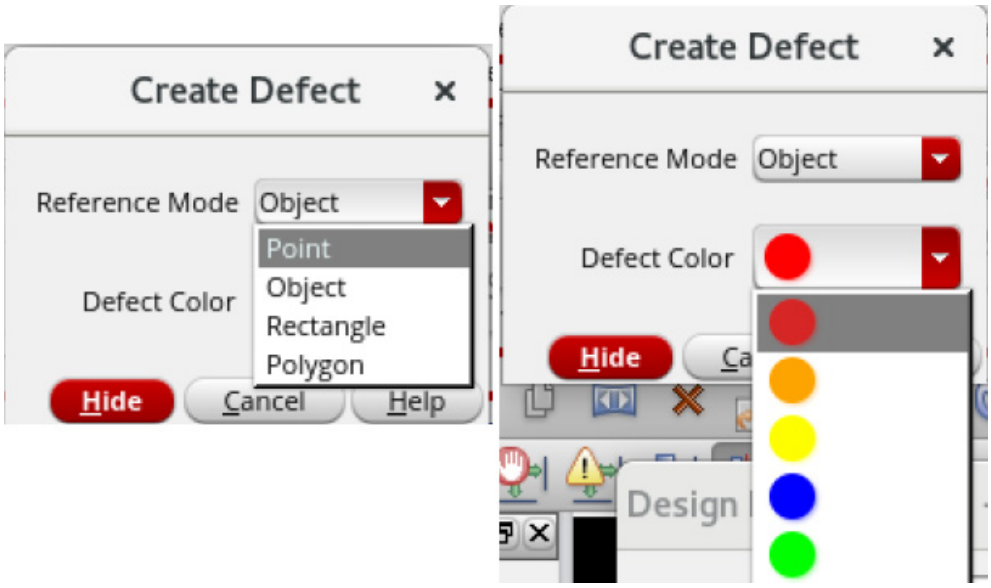
1. Right-click in the layout canvas and click *Design Layout Review – Create Review*. The Design Review Editor form opens.

2. Specify a unique name of the review in the *Name* field of the form.

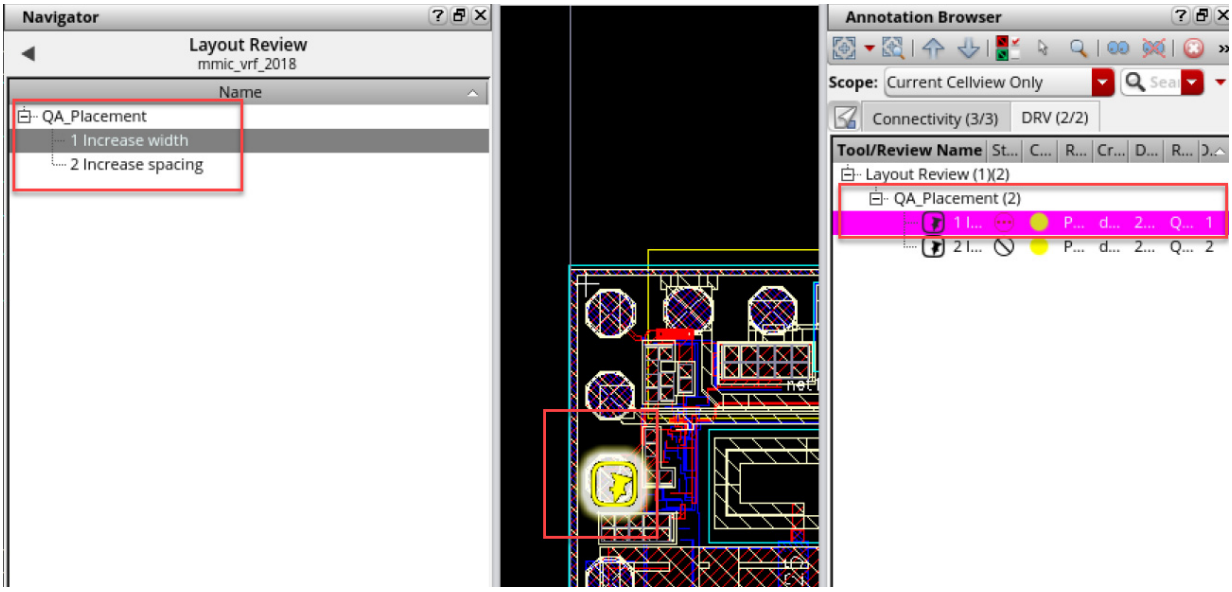


3. [Optional] Select the checklist that you want to use from the drop-down list in the *Checklists* section.
4. [Optional] Select the check boxes displayed in the text field to indicate the checks being used or double-click them to indicate the checks being ignored.
5. [Optional] Specify a name for the defect in the *Defects* section and click the *Add Defect Marker* button.
6. Press `F3` to open the Create Defect form.

7. Specify the values for the *Reference Mode* or *Defect Color* fields in the form.



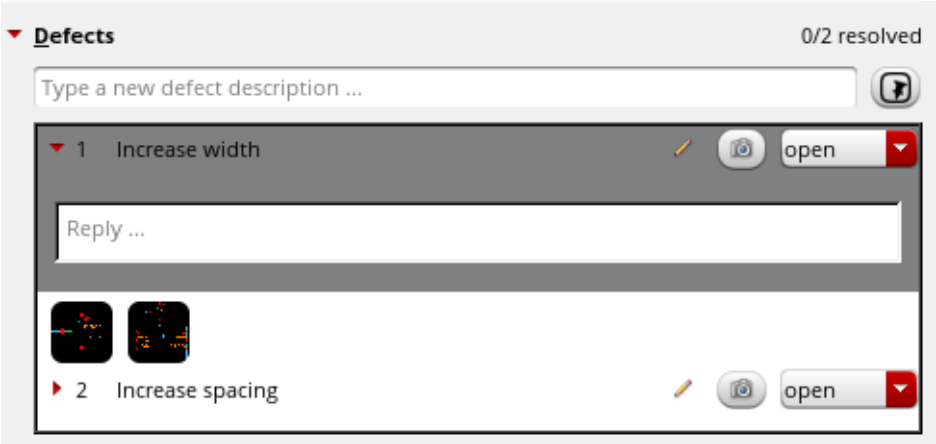
8. Place the defect icon at the appropriate location on the canvas and observe cross-views or Annotation Browser. Note the new tab for defects `DRV` in the Annotation Browser and new object category `Design Review (DRV)` in the Navigator.



9. [Optional] Click the camera icon next to the defect in the Design Review Editor form to attach a screenshot of the defect area. You can add more than one screenshot to a defect.

   Note: You can view the screenshots in full size and browse through them by clicking on

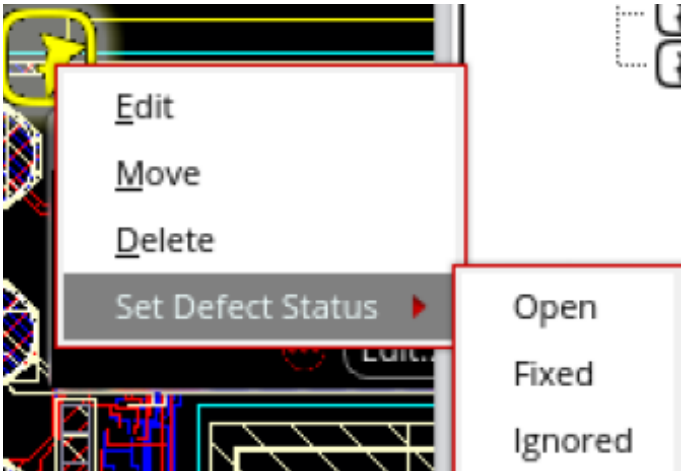
a thumbnail under the defect. Right-click on a thumbnail and click *Delete* to remove that screenshot.



10. Specify the appropriate review status by selecting a value from the adjoining drop-down list in the *Review Status* section.
11. Click *OK* or *Apply* to save the defects in the layout database.

To review a design defect and update the status of a review as a designer:

1. Review the defects listed in the *Defects* section by selecting them and cross-viewing in the canvas and Annotation Browser.
2. Update the status of each defect by selecting the values from the adjoining drop-down list, or use the right-click menu in the canvas itself. You can also add comments by clicking the pencil icon on the defect row.



3. Finally, report the appropriate review status by selecting a value from the adjoining drop-down list in the *Review Status* section to the reviewer.

Related Topics

Introduction to Design Review Flow

Creating a SKILL Callback for Checklist Items

Design Review Forms

Creating a SKILL Callback for Checklist Items

You can create a SKILL callback for a checklist item. This is useful if you want to automate the described check by using custom SKILL code. The callback expects a single argument, and the argument passed is a disembodied property list (DPL), which contains the following:

- `cellViewId` of the design the review is performed on
- Name of the review
- Description of the check
- Checklist the check belongs to

Running a callback is logged in the audit trail.

To register a SKILL callback, define the callback SKILL procedure in the CIW. The following example adds the *Shielding exist* callback to the *High Speed Signal (Sample Checks)* checklist:

1. Define a callback that raises a dialog to report all shielded nets in a design.

```
procedure(CCSGetLCVName(cv)
    sprintf(nil "%s/%s/%s" cv->libName cv->cellName cv->viewName)
)
procedure(CCSGetShieldedNets(cv)
    let((shieldedNets
         (shieldingConstraints setof(c ciCacheGet(cv)->constraints
                                    c->type == 'shielding)))
        foreach(constraint shieldingConstraints
           foreach(member constraint->members
                shieldedNets = cons(car(member) shieldedNets)
           )
        )
        shieldedNets
    )
```

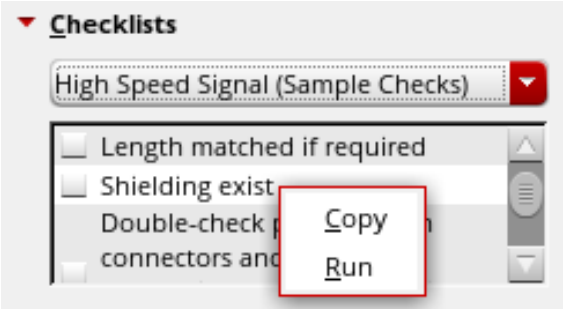
```
)


procedure(CCSReportShieldingConstraints(args)
    info("Running check '%s' from '%s' checklist on cellView '%s' during
review '%s'\n"
         args->checkListItemDescription
         args->checkList
         CCSGetLCVName(args->cellView)
         args->review)


    letseq(((shieldedNets CCSGetShieldedNets(args->cellView))
            (message if(shieldedNets
                        sprintf(nil
                                "Shielded Nets in %s:\n\t%s"
                                CCSGetLCVName(args->cellView)
                                buildString(shieldedNets "\n\t"))
                        sprintf(nil
                                "There are no shielded nets in %s.\n"
                           CCSGetLCVName(args->cellView)))))
        hiDisplayAppDBox(?name gensym('reportShieldedNets)
                         ?dboxBanner "Shielded Nets"
                         ?dboxText message
                         ?dialogType hicInformationDialog)
    )
)
```

2. Ensure that the callback is registered with the check in the relevant `drvCheckList.il` file.

```
drvRegisterCheckLists(
         '(
           (nil category "High Speed Signal (Sample Checks)"
            checks   (
                  "Sufficient clearance to potential aggressors"
                  "Length matched if required"
                  (nil description "Shielding exist" callback
CCSReportShieldingConstraints)
                  "Double-check pad width on connectors and add plane
cutouts if needed to minimize impedance discontinuities"
                  "Add stitching vias to ground plane in large top layer
ground pads (SMA etc) to avoid resonances"
                  )
            )
           )
```

)

3. Create a new design review by right-clicking in the layout canvas and choose *Design Layout Review – Create Review*. The Design Review Editor form opens.
4. From the *Checklists* drop-down list, select *High Speed Signal (Sample Checks)*.
5. Right-click on the newly created *Shielding exist* checklist item and select *Run*. The defined SKILL callback is run on the checklist item.



Related Topics

Performing Design Review

3

Design Review Forms

The design review feature provides you with the following forms that enable you to manage design reviews.

- Design Review Editor Form
- Create Defect Form

Design Review Editor Form

Enables to review a design by using a checklist and adding defect markers.

Field	Description
Name	Specifies the name of the review event.
Checklists	This section provides options to use checklists in reviews.
Checklists Drop-down list	Lists the user-defined checklist names.
Text field for Checks	Shows the list of checks available in the chosen checklist. You can select the check boxes displayed in the text field to indicate the checks being used or double-click them to indicate the checks being ignored.
Defects	This section provides options to add the defect markers and update their status.
Text field for Defect Name	Specifies the description of a defect.
Add Defect Marker	Creates defect markers in a design.
Text field for list of Defects	Displays the list of defects and lets you edit, add notes, or change status of the defects.
Review Status	This section provides options to specify and update review status.
Status Drop-down list	Shows the current review status.
Text field for Comments	Lets you add comments about the review status.

Related Topics

Introduction to Design Review Flow

Performing Design Review

Create Defect Form

Create Defect Form

Enables to review a design by using a checklist and adding defect markers.

Field	Description
Reference Mode	Specifies various reference modes or points on the canvas to create defect markers. The default value is *Object*. ■ *Point* - Adds defect markers on specific coordinates. ■ *Object* - Adds defect markers on an object. ■ *Rectangle* - Adds defect markers on a rectangular region. ■ *Polygon* - Adds defect markers on a polygon region.
Defect Color	Specifies the color of defect markers.

Related Topics

Introduction to Design Review Flow

Performing Design Review

Design Review Editor Form