



What is Traceability Matrix

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Kovair Software is a Silicon Valley based software Product Company specializing in the domain of Integrated Application Lifecycle Management - ALM solutions. Our objective is to make the software development process better, faster and collaborative – anytime, anywhere, using any tool, platform and technology. Kovair’s focus on integrating third party best-of-breed tools enables creation of applications in a synchronized tools environment.

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Need for Traceability

Prior to releasing a product, it is mandatory to check whether the requirements specified by the customer were successfully implemented or not. For this, you need to link the product requirements back to the customer's rationales and forward to corresponding design artifacts, code, test cases, and defects. This linking of project artifacts is called traceability.

Therefore, you need traceability to ensure that the final deliverable is in sync with the customer's requirements and the customer is satisfied.

What is Traceability Matrix?

A Traceability Matrix is a table that helps you trace project related artifacts, both forward and backward. Project related artifacts include requirements, designs, test cases, test steps, defects, and so on. Using a Traceability Matrix, you can trace one of these artifacts to all other linked artifacts.

For example, you can trace a requirement to the appropriate design specifications and code files; trace a design specification to the corresponding test cases; and trace a test case to its corresponding defect. Tracing backward, you can trace a defect back to the requirement to which it is linked.

What are the Benefits of Traceability Matrix?

The benefits of a Traceability Matrix are:

- ❖ Helps you ensure that all the requirements in a project have relevant test cases.
- ❖ Ensures that implementations are in sync with the requirements.
- ❖ Ensures that the Developers are aware of the exact requirements they are working on.
- ❖ Ensures that changes in requirements are propagated across the linked test cases and defects.
- ❖ Provides both backward and forward traceability. For example, a requirement can be traced to a test case, and a test case can be traced back to a requirement.

Traceability Matrix in Kovair

In Kovair, project related artifacts are called entities and Traceability Matrix is called 'Relation Matrix'. The Traceability Matrix appears as a grid wherein cross-entity relationships are displayed, as shown in Figure 1. Traceability Matrix defines the relation between items of two entities. The topmost horizontal row lists items of one entity while the leftmost vertical column lists the items of another entity.

The items of the entity from which you are viewing the Traceability Matrix are displayed along the rows while the items of the other entity are displayed down the columns. For example, if you are viewing a cross entity relationship between Requirements and Test Cases from the Requirement entity then the rows represent the items of the Requirement entity, and columns represent the items of the Test Case entity. The items that are linked by pre-defined relations are connected by relational links. These links are visible in intercepting cells — where a row intersects a column.

The Traceability Matrix grid has been designed so that it can accommodate 10 rows and 10 columns in a single page. However, you can navigate to other pages if the item you want to access is not listed in the first page.

Traceability Matrix uses different pictorial representations to represent the different types of relations that exist between the items belonging to two different entities. A relational link used to depict an impacting relation is different from that of a non-impacting relation. Also, there are different kinds of relational links to differentiate a one-way relation from a two-way relation.

The IDs of the respective entity items are displayed in the title rows and columns, and they act as links that allow the details of a particular entity item to be viewed. Therefore, if there is a Traceability Matrix between two entities, such as Requirements and Test Cases then you can track all the test cases that have been created for a particular requirement.

Furthermore, a requirement, test case, or defect can be viewed and edited by clicking on it from the Traceability Matrix page itself. For example, after fixing a defect, a Developer can modify the status of the defect as 'Fixed'. Hence, the entire process from tracking defects to fixing them can be done from the Traceability Matrix page itself.

Kovair's Traceability Matrix also allows you to select the items that you want to view, by filtering the items. Filters that are available for the respective entities are available here in the Traceability Matrix page as well.

Furthermore, you can filter only related items or only non-related items in the Traceability Matrix grid.

Through the Traceability Matrix page, you can create new relations between two items, or modify or delete existing relations. The details of an existing relation can be modified from the Traceability Matrix page of Kovair by clicking the relational link. Apart from this, you can choose to clear the previously created impacts of an impacting relation.

Kovair allows you to export data from Traceability Matrix. You can choose to export data from a single page of the Traceability Matrix, or all the data available in the Traceability Matrix.

In Kovair, Traceability Matrix is well supported by 'Traceability Views', which provide a hierarchical view of entity items and allow you to track all the entity items that are inter-related at different levels. You can

develop a complete Traceability view by creating a view that includes entities starting from Requirement to Test Cases, to Test Runs, to Defects. The view lists the requirements in beginning, and on expanding a requirement it shows the linked test cases; on expanding a test case, it shows the linked test steps, and so on as shown in Figure 2.

Summary

Traceability ensures that the final deliverable has correctly implemented the requirements specified by the customer — taking into account all the changes undergone during the course of the project. Traceability is achieved by linking the project artifacts, such as requirements, test cases, and defects by means of a table called Traceability Matrix.

In addition, the Traceability Matrix page in Kovair supports end-to-end traceability; it allows one to track different entity items throughout the different phases of lifecycle. One can choose to establish new relations from the Traceability Matrix page, as well as modify existing ones. To view inter-related items of various entities in hierarchical form, one can create and use Traceability Views.