Requirement Traceability Matrix (RTM)

Requirement Traceability Matrix (RTM) is a table (mostly a spread sheet) that shows if each requirement has a respective Test case/cases to make sure if the requirement is covered for testing.

It is basically used to ensure that ALL the requirements and Change Requests are or will be tested.

**Advantages of Requirement Traceability Matrix (RTM):**

Gives Overview of ALL the requirements

Shows how requirements are linked to Test Cases

Makes sure 100% coverage of requirements

Easy to prepare

No special tool is required

**How to prepare Requirement Traceability Matrix (RTM):**

Get all available requirement documents. For eg. Business Requirement Document(BRD), Functional Requirement Document(FSD), Technical Requirement Document(TSD)

First list down All the requirements from BRD one by one with requirement ID#

Now go to FSD, and list all respective functional requirements for each Business Requirements

Open Test Scenario or Test Case document and link available TC IDs to respective Functional Requirements

**Let’s take an example:**

Project: Online Flight Booking Application

Business Requirement Document (BRD) :

This document is provided by the Client with high-level business Requirements. Suppose for Flight Booking Application it shows below 2 requirements

BR\_1 Reservation Module :

It should allow the user to book one or more tickets, one way or a round way for future dates

BR\_2 Payment Module:

User should able to make payment for booked tickets via Credit / Debit Card or through Reward Points

Functional Specification Document (FSD) :

This document is prepared by the Technical team which further elaborate business requirements into functional requirements that can be implemented in software.

Suppose above 2 business requirements in BRD have more detailed functional requirements:

BR\_1 Reservation Module:

FR\_1 : One Way Ticket booking

It should allow user to book one-way ticket

FR\_2 : Round Way Ticket

It should allow user to book round way ticket

FR\_3: Multicity Ticket booking

It should allow user to book one way or round way ticket for multiple cities

BR\_2 Payment Module:

FR\_4: By Credit Card

It should allow user to make payment by Credit Cards

FR\_5 By Debit Card

It should allow user to make payment by Debit Cards

FR\_6 By Reward Points

It should allow user to make payment by Reward Points

**What is Requirements Traceability Matrix (RTM)?**

**What is Traceability Matrix? (TM)**

A Traceability Matrix is a document that co-relates any two-baseline documents that require a many-to-many relationship to check the completeness of the relationship.

It is used to track the requirements and to check the current project requirements are met.

**What is Requirement Traceability Matrix?**

**Requirement Traceability Matrix (RTM)** is a document that maps and traces user requirement with test cases. It captures all requirements proposed by the client and requirement traceability in a single document, delivered at the conclusion of the Software development life cycle. The main purpose of Requirement Traceability Matrix is to validate that all requirements are checked via test cases such that no functionality is unchecked during Software testing.

Requirements Traceability Matrix (RTM) is used to trace the requirements to the tests that are needed to verify whether the requirements are fulfilled.

Requirement Traceability Matrix AKA Traceability Matrix or Cross Reference Matrix.

In this tutorial, you will learn more about-

* [Why RTM is Important?](https://www.guru99.com/traceability-matrix.html#8)
* [Which Parameters to include in Requirement Traceability Matrix?](https://www.guru99.com/traceability-matrix.html#3)
* [Types of Traceability Test Matrix](https://www.guru99.com/traceability-matrix.html#4)
* [How to create Requirement Traceability Matrix](https://www.guru99.com/traceability-matrix.html#5)
* [Advantage of Requirement Traceability Matrix](https://www.guru99.com/traceability-matrix.html#6)
* [Requirements Traceability Matrix (RTM) Template](https://www.guru99.com/traceability-matrix.html#7)

**Why RTM is Important?**

The main agenda of every tester should be to understand the client’s requirement and make sure that the output product should be defect-free. To achieve this goal, every QA should understand the requirement thoroughly and create positive and negative test cases.

This would mean that the software requirements provided by the client have to be further split into different scenarios and further to test cases. Each of this case has to be executed individually.

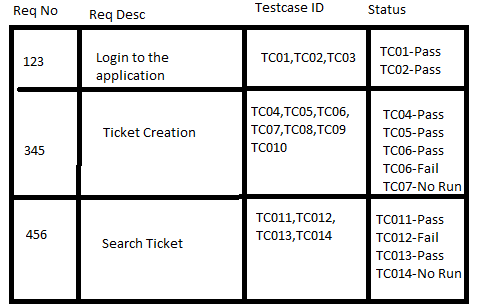
A question arises here on how to make sure that the requirement is tested considering all possible scenarios/cases? How to ensure that any requirement is not left out of the testing cycle?

A simple way is to trace the requirement with its corresponding test scenarios and test cases. This merely is termed as ‘Requirement Traceability Matrix.'

The traceability matrix is typically a worksheet that contains the requirements with its all possible test scenarios and cases and their current state, i.e. if they have been passed or failed. This would help the testing team to understand the level of testing activities done for the specific product.

**Which Parameters to include in Requirement Traceability Matrix?**

* Requirement ID
* Requirement Type and Description
* Test Cases with Status

[](https://www.guru99.com/images/1/requirements-traceability-matrix.png)

Above is a sample requirement traceability matrix.

**Types of Traceability Test Matrix**

In Software Engineering, traceability matrix can be divided into three major component as mentioned below:

* **Forward traceability**: This matrix is used to check whether the project progresses in the desired direction and for the right product. It makes sure that each requirement is applied to the product and that each requirement is tested thoroughly. It maps requirements to test cases.
* **Backward or reverse traceability:** It is used to ensure whether the current product remains on the right track. The purpose behind this type of traceability is to verify that we are not expanding the scope of the project by adding code, design elements, test or other work that is not specified in the requirements. It maps test cases to requirements.
* **Bi-directional traceability ( Forward+Backward):**This traceability matrix ensures that all requirements are covered by test cases. It analyses the impact of a change in requirements affected by the[Defect](https://www.guru99.com/the-unconventional-guide-to-defect-management.html)in a work product and vice versa.

**Advantage of Requirement Traceability Matrix**

* It confirms 100% test coverage
* It highlights any requirements missing or document inconsistencies
* It shows the overall defects or execution status with a focus on business requirements
* It helps in analysing or estimating the impact on the QA team's work with respect to revisiting or re-working on the test cases