

CHAPTER 4

TEST PLANNING

1) WHAT IS TEST PLAN:- Software test plan document is a guide book for testing process. It is required for the successful execution of testing process for a project. It contains comprehensive information to carry out the testing activities. A **TEST PLAN** is a document describing software testing scope and activities. It is the basis for formally testing any software/product in a project.

A document describing the scope, approach, resources and schedule of intended test activities. It identifies amongst others test items, the features to be tested, the testing tasks, who will do each task, degree of tester independence, the test environment, the test design techniques and entry and exit criteria to be used, and the rationale for their choice, and any risks requiring contingency planning. It is a record of the test planning process.

2) WHO Creates the TEST PLAN document:-

Senior Tester/ Test Manager / Test Lead/ Test Co-ordinator etc....

3) WHY THERE IS NEED OF TEST PLAN:-

- To get an effective testing process with proper/good outcome
- To Avoid the random testing.
- To make there is not any missing features
- To Optimizes the utilization of resources
- To have a good Risk management

What are the Benefits of Test Plan?

Value of writing a test plan is tremendous. It offers a lot of benefits like:

- It serves as a roadmap to the testing process to ensure your testing project is successful and helps you control risk.
- Proper test plan provides a schedule for testing activities, so, you can have a rough estimate of time and effort needed to complete the software project
- It clearly defines the roles and responsibilities of every team member, outlines the resource requirements which are essential to carry out the testing process
- Planning and a test plan encourages better communication with other project team members, testers, peers, managers, and other stakeholders
- Helps people outside the test team such as developers, business managers, customers properly understand the details of testing

So, what happens when one doesn't have a test plan?

- Scope of testing will not be properly defined

- There will be a misunderstanding about roles and responsibilities and this could lead to important tasks left undone
- Test team will not have clear test objectives, without which critical and essential system characteristics will not be adequately tested
- Test team will not be aware of when the test process ends, which will compromise the quality, functionality, effectiveness, and efficiency of the software

4) WHEN TO CREATE A TEST PLAN:-

As soon as **SRS** document is base-lined in the Requirement Gathering and Analysis phase and when Development Plan, Project Plan are ready then the test plan document is created.

5) HOW TO CREATE THE TEST PLAN:-

Test Plan Template

IEEE (Institute of Electrical and Electronics Engineering), an international institution that defines standards and template documents which are globally recognized. It has defined the IEEE 829 standard for system and software documentation. This IEEE 829 standard Test Plan Template specifies the format of creating the test plan. There are 17 attributes in the standard test plan template. They are as follows as:-

The table below lists out the test plan parameters according to the IEEE 829 standard test plan template.

<u>Parameter</u>	<u>Description</u>
Test Plan Identifier	Uniquely identifies the test plan & may include the version number
Introduction	Sets objectives, scope, goals, resource & budget constraints
Test Items	Lists the systems and subsystems which are to be tested
Features to be Tested	All the features & functionalities to be tested are listed here
Features not to be Tested	Lists the features of the software product that need not be tested

Approach	Has sources of test data, inputs and outputs, testing priorities
Item pass/fail	Describes a success criteria for evaluating the test results
Suspension Criteria	Has criteria that may result in suspending testing activities
Test Deliverables	Includes test cases, sample data, test report, issue log
Testing Tasks	Describes dependencies between tasks & resources needed
Environmental Needs	Lists software, hardware or other testing requirements
Responsibilities	Lists roles and responsibilities assigned to the testing team
Staffing Needs	Describes the additional training needs for the staff
Schedule	Details on when the testing activities will take place are listed
Risks	Lists overall risk of the project as it pertains to testing
Approvals	Contains signature of approval from stakeholders

The format and content of a software test plan vary depending on the processes, standards, and test management tools being implemented from company to company. Nevertheless, the following format, which is based on IEEE standard for software test documentation, provides a summary of what a test plan can/should contain.

- **Test Plan Identifier:** Provide a unique identifier for the document. (Adhere to the Configuration Management System if you have one.)

syntax:- Project Name_project version_level of plan_plan versions
for e.g.:- Whatsapp 12.1 MTP 1.2 or Flipkart 34.9 STP 2.0

Test Plan Types

There are 2 types of test plans:

- **Master Test Plan:** A single high-level test plan for a project/product that unifies all other test plans.
- **System Test Plan:** Test Plans for each level of testing or for different major types of testing .
 - Unit Test Plan
 - Integration Test Plan
 - System Test Plan
 - Acceptance Test Plan

Testing Type Specific Test Plans like Performance Test Plan and Security Test Plan etc...

■ **Introduction:**

- Describe the project
- Provide an overview of the test plan.
- Specify the goals/objectives.
- Specify any constraints.

- **References:** List the related documents which were used/referred to create the test plan document, with links to them if available, including the following:

- SRS
- Project Plan
- Configuration Management Plan
- Development Plan
- Test document of similar kind of projects
- Test document of previous version of same project
- Quality Plan

- **Test Items:** List the test items/ **Modules** (software/products) and their versions which is going to be tested for this current release.

■ **Features to be Tested:**

- List the features of the Modules (software/product) to be tested.
- Provide references to the Requirements and/or Design specifications of the features to be tested

■ **Features Not to Be Tested:**

- List the features of the software/product which will not be tested.
- Specify the reasons these features won't be tested.

■ **Test Approach:**

- Mention the overall approach to testing.
- Specify the testing levels [if it's a Master Test Plan], the testing types, and the testing methods [Manual/Automated; White Box/Black Box].

■ **Test Deliverables:**

List test deliverables, and links to them if available, including the following:

- **Test Plan (this document itself)**
- **Test Scenario**
- **Test Cases**
- **Defect Report**
- Test Scripts
- Test Metrics
- Test Reports
- Execution Log

■ **Test Environment:**

- Specify the properties of test environment: hardware, software, network etc.
- List any testing or related tools.
- For e.g.:-

<u>Hardware :-</u>	
RAM	2GB
Processor	Intel i3 core Processor with 3GHz
Operating System	Windows , Linux
Server	Apache Tomcat
Browsers	Google Chrome, Mozilla firefox
<u>Software:-</u>	
Pdf Reader	Adobe Pdf Reader
Defect Tracking Tool	Mantis
Test Management Tool	Test Link

■ **Item Pass/Fail Criteria:**

- Specify the criteria that will be used to determine whether each test item (software/product) has passed or failed testing.
- This criteria help to take the decision to stop the testing permanently
- For e.g.:-

EXIT Criteria:- (item pass/fail criteria)
1) All the Test Case should e executed (i.e 100% Test Coverage)
2) 90% Test case should be Pass and 10% Test case may be fail with low Severity and low Priority
3) Required quality of product (software) should be achieved.
4) All the Test Deliverables should be Updated and completed

■ **Suspend and Resume Criteria:**

- Specify criteria to be used to suspend the testing activity where the testing is stopped on temporary bases .
- Specify testing activities which must be redone when testing is resumed.
- For e.g.:-

Suspend Criteria	Resume Criteria
1) Show stopper defect found (Blocker defect)	1) Show stopper defect is resolved and retested
2) No Electricity	2) Electricity issue resolved
3) System crashed	3) System is repaired and started working
4) Network crashed	4) Network is available

■ **Schedule:**

- Provide a summary of the schedule, specifying key test milestones, and/or provide a link to the detailed schedule.
- For e.g.:-

Sr.No.	Task/Activities	Days(Hrs)	Date Range
1	Test plan Writing	2	21/4/2020 -22/4/2020
2	Test Scenario Writing	2	23/4/2020-27/4/2020
3	Test Case Writing	3	28/4/2020-30/4/2020
4	Test Case Execution	3	4/5/2020-6/5/2020
5	Defect Reporting	1	7/5/2020

■ **Staffing and Training Needs:**

- Specify staffing needs by role and required skills.
- Identify training that is necessary to provide those skills, if not already acquired.
- It can also be defined in a tabular /Paragraph format

■ **Roles and Responsibilities:**

List the responsibilities of each team/role/individual.

For e.g.:-

Sr.No.	Name of the Person	Designation	Task/Activities
1	Shreejith Mohan	Tester	Test plan Writing Test Scenario Writing Test Case Writing Test Case Execution Defect Reporting

■ **Software Risks Issues:(Product Risk)**

- List the risks that have been identified which are related to product /Quality of the application.
- For e.g.:-
 - Third party component not available
 - Government Regulations and policy changes
 - Major changes in the software requirements
 - Incorrect requirement in SRS document
 - Incorrect Design Specification
 - Inability to use and understand the new package/tools
 - Safety and Security related risk etc.....

■ **Risk and Contingencies: (Project Risk)**

Here we mention the list of project related risk which impacts or effects on the testing process. And here we also Specify the mitigation plan and the contingency plan (Solution/Back Up) for each risk. For e.g.:-

- **Risk:-**
 - System Crash
 - Electricity issues / Power failure
 - Tester left the company
 - Network connection is not available.
 - Delay in receiving BUILD.
 - Delay in training.
 - Less Time allocated for testing.

- Managers have poor co-ordination with colleagues and has poor communication skills
- **Contingencies:- (Solution /Back Up for each project related risks)**
 - Provide leadership training to respective managers
 - Reschedule the testing activities / Monitoring daily testing activities.
 - Call the system administrator for network, system related issues.
 - Hire a new tester for the project

■ **Approvals:**

- Specify the names and roles of all persons who must approve the plan.
- Provide space for signatures and dates. (If the document is to be printed.)
- for e.g.:-

Sr. No.	Name	Designation	Date	Sign	Remark
1	Shreejith Mohan	Test Manager			

EXTRA ATTRIBUTES:-

■ **Assumptions and Dependencies:**

List the assumptions that have been made during the preparation of this plan.
List the dependencies.

■ **Entry Criteria:**

- Specify the criteria that will be used to determine when to start with test case execution on the (software/product).

For e.g.:-

ENTRY Criteria:- (Pre-Conditions)

- 1) Build must be available.
- 2) Environment must be ready .
- 3) Test case document must be completed .
- 4) Test cases are ready to execute.

■ **Estimate:**

- Provide a summary of test estimates (cost or effort) and/or provide a link to the detailed estimation.

Test plan is a guidebook for the testing process and is vital to keep the entire testing process on the right track. If you have a solid plan and test plan document in place, chances are the testing process will go smoother. This brings us to the end of this article. Hope the things that you have learned here today will help you as you head out on your software testing journey.

Test Plan Guidelines

- Make the plan concise. Avoid redundancy and superfluousness. If you think you do not need a section that has been mentioned in the template above, go ahead and delete that section in your test plan.
- Be specific. For example, when you specify an operating system as a property of a test environment, mention the OS Edition/Version as well, not just the OS Name.
- Make use of lists and tables wherever possible. Avoid lengthy paragraphs.
- Have the test plan reviewed a number of times prior to baselining it or sending it for approval. The quality of your test plan speaks volumes about the quality of the testing you or your team is going to perform.
- Update the plan as and when necessary. An out-dated and unused document stinks and is worse than not having the document in the first place.