

Quality Assurance processes and methods



Introduction

The importance of controlling the risk of failure in software is quickly growing in today's IT&C environment. With this comes a great responsibility: the success of the software products that we delivered relies entirely on the quality of each developed elements.

At JCommerce, the testing program functions as the final "quality gate" for an application, allowing or preventing the switch from the comfort of the software engineering environment to the business world. When released, our applications are highly reliable.

We provide following Quality Assurance services:

- Testing of Web-based, Client-Server, Desktop applications
- Product Testing
- User Interface, Functionality
- Usability Testing
- Integration, System, Acceptance Testing
- Performance and Load Testing
- Testing on Android, iOS, Windows Mobile, Palm, handheld mobile devices
- Testing on Beta and live production environment
- Cross platform, Cross Browser, Cross Database Testing
- Documentation of entire process

Assuring quality of the developed software is an extremely important part of each phase of an IT project.

Being experienced in this field, we offer system quality audits and support as well as consulting, so that the quality of our Clients' software is faultless.

Testing methods

In respect of the person performing tests, we can make a distinction between tests carried out by **the developers & the QA/testing team**

the developers

- **Unit Testing**

Called as "Component Testing" involves checking that each feature specified in the phase of design has been implemented in the development of component code. Developers usually carry this out, as they understand best how a component works. A component performs only a small part of the functionality of a system and it relies on co-operating with other parts of the system.

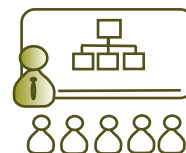
- **Integration Testing**

Known also as "Integration and Testing" (I&T) combines individual software modules, which are tested as a group. The interfaces between the modules or system components and the usage of global data and shared resources are tested to verify the compatibility of components, that constitute a testable system.

the QA/testing team

- **Verification and validation Testing**

It is a stage of checking that a software system meets specifications and that it fulfills its intended purpose.



Type of Tests

Types of testing performed:

- Installation Testing
- Functionality Testing
- Compatibility Testing
- System Integration Testing
- Performance Testing:
 - Stress Testing
 - Availability Testing
 - Response/Load Testing

Testing Process

The testing process involves the following activities:

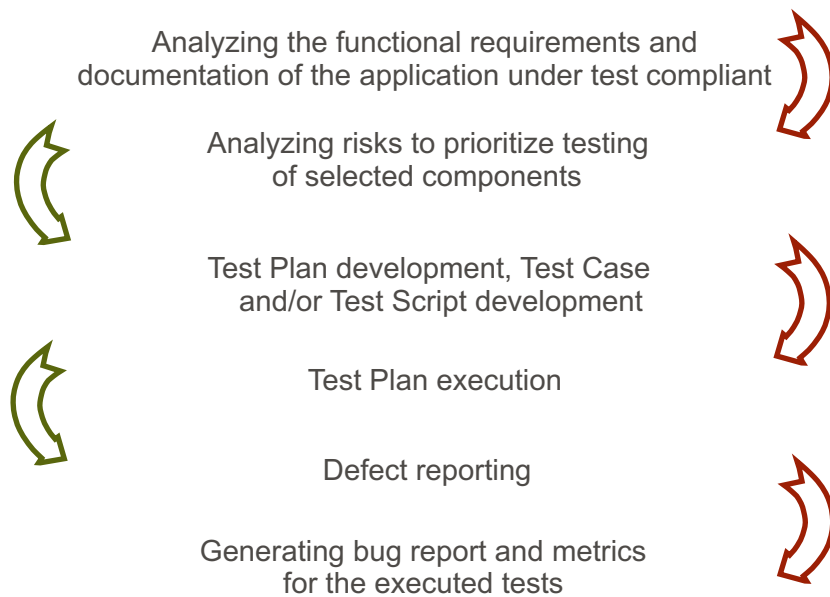
- Creating Software Test Plan
- Analyzing risks
- Creating detailed test cases
- Creating test data
- Setting up the test environment
- Executing tests
- Managing defects
- Analyzing results
- Automation testing process:
 - Defining test framework
 - Creating automation test cases
 - Setting up the test environment
 - Creating test scripts and test data
 - Defining reporting mechanism/system for test runs
 - Carrying out test runs in different environments
 - Analyzing results

The Test Plan, prepared for every project, details specific processes including the testing strategy, features to be tested, test approach, resources, testing schedule, environmental requirements, risks etc.

Test Plan can include:

- Functional Testing (consist of Regression Testing)
- Security Testing
- Recovery Testing
- Acceptance Testing

Testing workflow



Testing tools

Defect Tracking Tools

- Bugzilla
- Mantis
- JIRA
- VersionOne
- Trac
- Microsoft Test Manager



Test Case Management Tools

- TestLink
- Test Director
- NMQA QABook
- Testia Tarantula



Automation Testing Tools

- QTP
- Selenium
- SoapUI
- TestComplete
- Visual Studio
- In-house scripts/utilities



Performance / Load Testing Tools

- JMeter
- OpenSTA
- LoadRunner
- MS Web Application Stress Tool
- Visual Studio
- In-house scripts/utilities



Virtualisation

- VMware Workstation
- VMware vSphere

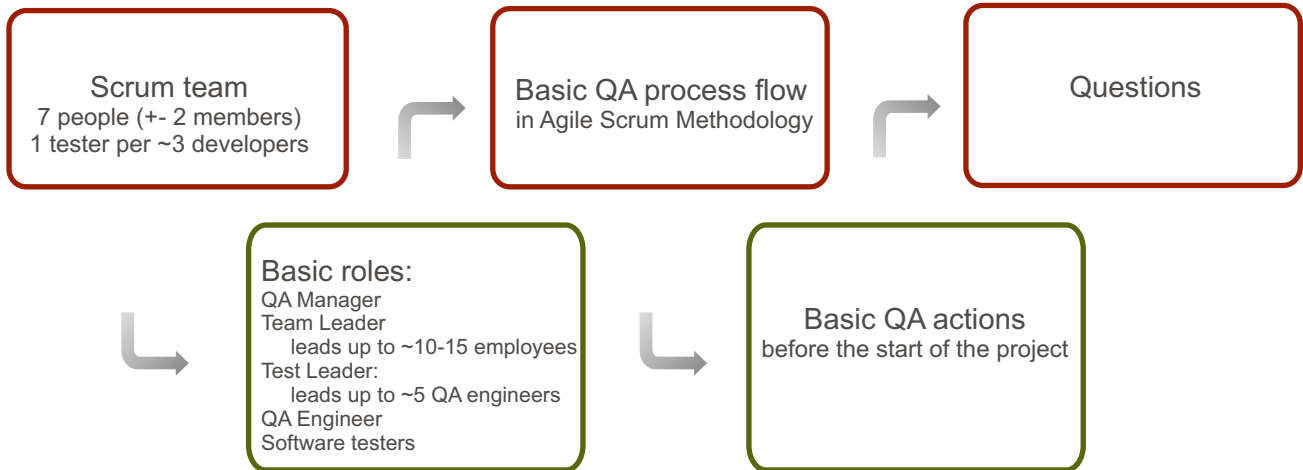


Other Tools

Fiddler, AppScan, Process Explorer, FxCop, JProbe, BoundsChecker, FitNesse, Xenu, LinkScan, HttpWatch, Snagit, JAWS, Netcat, XML Spy, Ghost, DameWare, pcAnywhere, RDP, VNC, PuTTY Manager, Ethereal, Syslinux, Nmap, GoToMeeting, GoToAssist



Scrum Testing methodology



Detailed responsibilities of Quality Assurance Team

QA Manager

- Security of QA on a company level, which consists in devising and establishing a company's quality procedures, standards and specifications
- Setting up and maintaining controls and documentation procedures
- Monitoring performance by gathering relevant data and producing statistical reports
- Ensuring that the product or service meets defined purposes and detailed requirements

Team Leader

- Management of people: guidance, instruction, direction and leadership
- Reporting to a project manager (overseeing several teams)
- Monitoring the quantitative and qualitative results that is to be achieved

Test Leader

- Provision of procedures and directions to follow to ensure clarity, accuracy, and efficacy for functional, load, performance, and stress tests
- Indicating directions on the development of training materials, resources, and sessions for other engineers
- Sharing continuously knowledge and experience across the team
- Executing all software testing lifecycle responsibilities

QA Engineer

- Detection and prevention of faults by inspecting & testing the process, which is focused on providing confidence that quality requirements will be fulfilled

Software testers

- Detection of faults by inspecting & testing the product: planning, preparation and evaluation of software products and related work

Basic QA process flow

- Based on a backlog - testing tasks effort estimation
- Documentation preparation
- Feature functional/non-functional testing
- Test automation
- Regression testing
- Sanity tests

Basic QA actions

- Team members selection
- Team roles assignment
- Tests/defects management tool selection
- Test automation tool/framework selection
- Processes design
- Definition of test environmental needs
- Test plan document creation

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