



Promoting IT Efficiency

**QAIassist**  
**Blog Article**  
Software Testing

## ***The Cycle of Life: Software Testing***

### ***Context***

From the initial days of Information Technology (IT), practitioners have always recognized the need to establish and apply a suite of industry recognized best practices. One of these best practices is used to develop and maintain computer applications – it is called the cycle of life for software. A number of lifecycles have been developed to address specific disciplines within this cycle of life – examples include Project Management Lifecycle (PMLC), Software Development Lifecycle (SDLC), and Software Testing Lifecycle (STLC). In all cases, these lifecycles are made up of a number of phases, each containing a predefined set of deliverables.

### ***Software Testing Lifecycle (STLC)***

The STLC is used by application development and maintenance teams to test and verify the functionality of an IT application or system – the intent is to ensure a certain degree of quality has been incorporated into the application being delivered. It is used across an organization and is applied from the inception of a project (development or maintenance) through a successful implementation of the required solution. Though a multitude of STLC's exist, they are commonly based on a phased approach, pre-defined deliverables, and standard naming conventions. The STLC traditionally executes in parallel and concurrently with a software development lifecycle (SDLC). The following provides an overview of the phases within a traditional Software Testing Lifecycle.

#### **Systems Analysis**

The Systems Analysis phase is the first phase to be performed within an STLC. It is initiated in conjunction with a project being authorized or approved. Its purpose is to ensure proper and effective planning is applied to the strategic and user acceptance testing effort and activity that will be performed on the application prior to it being placed in the production environment. This includes defining the user acceptance criteria and conditions the user community will apply to assess the functionality being delivered.

#### **Design**

The purpose of the Design phase within the STLC is to

1. Ensure proper and effective planning is applied to define the system integration and unit testing efforts to be performed on the application
2. Establish the pre-defined testing criteria and conditions that will be used to evaluate the system integration and unit testing results

#### **Build**

The Build phase is an iterative process within the STLC. Its purpose is to ensure all the technical code that has been developed reflects the pre-defined unit testing criteria established during the Design phase - the following steps are applied

1. Apply and execute the pre-defined unit testing criteria (defined in the Design phase) against the technical code that have been created
2. Identify and document unit testing deviations (expected results versus actual results)
3. Communicate unit testing deviations to the development team
4. Retest revised technical code against the unit testing criteria
5. Confirm that all the pre-defined unit testing criteria have been satisfied
6. Promote the authorized technical code from the unit test environment to the system integration test environment.

### ***Test***

Like the Build phase, the Test phase is an iterative process within the STLC. Its purpose is to ensure all the technical code that has been developed reflects the pre-defined system integration testing criteria established during the Design phase – the following steps are applied

1. Apply and execute the pre-defined system integration testing criteria against the technical code that have been created
2. Identify and document system integration testing deviations
3. Communicate system integration testing deviations to development team
4. Retest revised technical code against system integration testing criteria
5. Confirm that all the pre-defined system integration testing criteria have been satisfied
6. Promote the authorized technical code from the system integration test environment to the user acceptance test environment.

### ***Release***

Just like the Build and Test phases, the Release phase is also an iterative process within the STLC. Its purpose is to ensure that what has been developed meets the user acceptance testing criteria established during the Systems Analysis phase – the following steps are applied

1. Apply and execute the pre-defined user acceptance testing criteria against the technical code that has been generated
2. Identify and document user acceptance testing deviations
3. Communicate user acceptance testing deviations to development team
4. Retest revised technical code against the user acceptance criteria
5. Confirm that all the pre-defined user acceptance testing criteria have been satisfied
6. Promote the authorized technical code from the user acceptance test environment to the production environment.

The STLC can be applied by development teams to create applications – it can be applied by support teams to maintain applications.

*QAAssist is the industry recognized benchmark in information technology (IT) methodologies for small and mid-sized business (SMB's) – including the certification and support of practitioners delivering QAAssist IT Methodology solutions. Article authored by Cameron Watson – President of QAAssist. Visit QAAssist's website—[www.qaassist.com](http://www.qaassist.com)*