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Test Environment for Software Testing

network configured.

Web ~

What is a Test Environment?

A testing environment is a setup of software

execute test cases. In other words, it supports

Test bed or test environment is configured as

per the need of the Application Under Test.

test execution with hardware, software and

and hardware for the testing teams to

Testing

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Test Maturity Model

What is Bug

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On a few occasion, test bed could be the combination of the test environment and the test data it operates. Setting up a right test environment ensures software testing success. Any flaws in this

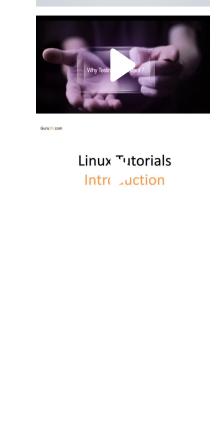
process may lead to extra cost and time to the client. In this tutorial, you will learn-

• What is a Test Environment • Key areas to set up in Test Environment

- Process of Software Test environment set up • Test Environment Management
- Test Environment Checklist Challenges in setting up Test Environment Management
- Best practices for setting up a Test Environment Management
- For the test environment, a key area to set up includes

Key areas to set up in Test Environment

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 Hardware includes Server Operating system Network

Client operating system

System and applications

Front-end running environment

Browser

Test data

• Documentation required like reference documents/configuration guides/installation

Database server

- guides/ user manuals
- Tests are limited to what can be tested and what not should be tested. Following people are involved in test environment setup
- Developers Testers

• System Admins,

• Sometimes users or techies with an affinity for testing. The test environment requires setting up of various number of distinct areas like,

Process of Software Test environment setup

Setup of Test Server Every test may not be executed on a local machine. It may need establishing a test server,

Network set up as per the test requirement. It includes,

(Developers, designers, content writers, etc.)

cron set up, Java-based applications, etc. Network

Internet setup

which can support applications.

• LAN Wifi setup • Private network setup

It ensures that the congestion that occurs during testing doesn't affect other members.

Many companies use a separate test environment to test the software product. The

the same issues as a live production server, without corrupting the production data.

common approach used is to copy production data to test. This helps the tester, to detect

• All PII (Personally Identifiable Information) is modified along with other sensitive data.

Privacy is the main issue in copy production data. To overcome privacy issues you should

For example, Fedora set up for PHP, Java-based applications with or without mail servers,

For web testing, you may need to set up different browsers for different testers. For desktop applications, you need various types of OS for different testers PCs.

Test PC setup

For example, windows phone app testing may require • Visual Studio installation

• Alternatively, assigning a windows phone to the tester.

Bug reporting tools should be provided to testers. **Creating Test Data for the Test Environment**

Bug Reporting

• Windows phone emulator

The approach for copying production data to test data includes, • Set up production jobs to copy the data to a common test environment

The PII is replaced with logically correct, but non-personal data.

Testers or developers can copy this to their individual test environment. They can modify it as per their requirement.

look into obfuscated and anonymized test data.

as it is and anonymization is not required.

Test Environment Management

Render XPS, EP & EPS documents to raster images

2. Test environment management as per the test team demands.

3. As per the new requirements creating new environments

Querying the database using SQL script is an effective approach.

For Anonymization of data two approaches can be used,

• Remove data that is irrelevant to your test.

• BlackList: In this approach, all the data fields are left unchanged. Except those fields specified by the users. • WhiteList: By default, this approach, anonymizes all data fields. Except for a list of fields which are allowed to be copied. A whitelisted field implies that it is okay to copy the data

Also, if you are using production data, you need to be smart about how to source data.

List of activities by the Test environment management function include, Aspose.Page for Java

1. Maintenance of a central repository with all the updated version of test environments.

Hardware

Software / connections

Environmental data

Maintenance tools/processes

If this is not the case, analyze the supply time!

Such as scanners, special printers, handhelds, etc.

With the regression test set, consider the Defect

If no, prepare a list of all possible members involved in

keeping the test environment running. It should

For instance, acceptance criteria, maintenance

quality attributes for environments are there in

requirements, etc. Also, check whether other/extra

include their contact information as well.

administration to collect test data.

ASPOS

Test Environment Management deals with the maintenance and upkeep of the test bed.

7. Co-ordination till an issue resolution. **Test Environment Checklist**

5. Updating/deleting outdated test-environments

6. Investigation of issues on the environment

4. Monitoring of the environments

1 Check whether required

available?

equipment for testing is

Check whether peripheral

Check whether the standard

test data sets are available?

data owners about the test

Check whether a single point

environment maintenance?

Does the agreement reached

of contact exists for test

about the readiness and

hardware, and other issues).

3. Elaborate setup time

4. Shared usage by teams

results will be corrupted.

the test team.

Management

Summary:

conduct the testing

System and applications

• Remote environment

Elaborate setup time

Complex test configuration

Combined usage between teams

5. Complex test configuration

quality of the test

data exist?

equipment is available?

2 Are the needed applications An application such as excel, word, drawings, etc. specified? For the new software does Has the organization experience with use and maintenance of the software? the test environment exist for the organization?

Do agreements with the test Consider functional maintenance.

environment? agreement. Do all members involved in the maintenance process are known? Besides these, there are a few more questions to answer before setting up the test environment. • Whether to develop an internal Test Environment or to outsource? • Whether to follow an internal company standard or follow any External (IEE, ISO, etc.)? • How long the test environment is required? • Differences between the test and production systems and their impact on test validity must be determined. • Can you re-use an existing setup for other projects in the company? Challenges in setting up Test Environment Management 1. Proper planning on resource usage Ineffective planning for resource usage can affect the actual output. Also, it may lead to conflict between teams. 2. Remote environment

It is possible that a Test environment is located geographically apart. In such a case, the

If the testing environment is used by development & testing team simultaneously, test

Certain test requires complex test environment configuration. It may pose a challenge to

testing team has to rely on the support team for various test assets. (Software,

Sometimes test set up gets too elaborated in cases of Integration Testing.

Best practices for setting up a Test Environment

2. Connectivity should be checked before the initiation of the testing

3. Check for the required hardware and software, licenses

What is Test Bed in Software Testing?

• For the test environment, a key area to set up includes

• Ineffective planning for resource usage for integration

4. Browsers and versions 5. Planning out the Scheduled use of the test environment. 6. Automation tools and their configurations.

A Test Bed in Software Testing is a software development environment. It allows

not only confined to developers but also used by testers. It is referred to as a test

environment for rigorous and transparent testing of new technologies.

developers to test their modules without affecting the live production servers. Test bed is

• A testing environment is a setup of software and hardware on which the test team will

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SOFTWARE TESTING

1. Understand the test requirements thoroughly and educate the test team members.

 Test data Database server • Front-end running environment, etc. Few challenges while setting up a test environment include,

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