04.4.19

////////////////////////////////

The Truth!

The Importance of Good Test Data Management

Troy Walsh

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Agenda

» Why it's important

» What makes good test data

» Types and limitation

» How and when to load

» Example strategies

» Demo

» Takeaway

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Important Notes About Tools

» Concepts are more important than the tools

» Favor tool interoperability over best of breed

» No tool is right for every project

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Why Do I Care About Test Data Management

» Time

» Money

» Confidence

» Credibility

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Warning Signs

» Production or long lived
  › Legal!?!
  › Historical only

» Query bases data
  › Representative?
  › Sufficient?
  › Reproducible?

» Conditional code
  › Validity?
  › Reproducible?

```javascript
//Go to page
await driver.get('https://TESTPAGE.BIZ');

// Check what user the system has
let text = await driver.findElement(webdriver.By.id("username")).getText();

// Login
switch(text) {
    case "Ted":
    LoginPage.Login.call(person1, "Ted", "123Test");
    break;
    case "Ned":
    LoginPage.Login.call(person1, "Ned", "123Test");
    break;
    case "Fred":
    LoginPage.Login.call(person1, "Fred", "123Test");
    break;
    default:
    LoginPage.Login.call(person1, "Zed", "123Test");
}

// Logout
await driver.findElement(webdriver.By.css("#logout")).click();

// Wait for login button
await driver.wait(webdriver.until.elementLocated(webdriver.By.id("login")), 10000);

//take snapshot via cbt api
await driver.takeSnapshot();

//quit the driver
await driver.quit()
```

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Good Test Data

» Sufficient
  › Enough data to suite your testing needs

» Representative
  › Reasonably represents what production will look like

» Reproducible
  › Can reproduce a failure

» Automated
  › Limited manual intervention

» Legal/ethical/safe

Summary

2 Run(s) Completed (2 Passed, 0 Failed)

659 Total tests +659

658 ● Passed
0 ● Failed
0 ● Others

100% Pass percentage

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Types Of Test Data

» Production
  › Simple copy of production
» Random
  › Random data that gets seeded in test environments
» Sanitized production data
  › Masking/Scrubbing PII (Personally Identifiable Information)
» Fixed
  › Scripted data setup
  › Usually part of CI/CD
  › Usually source controlled
» Dynamic
  › Data create for/by specific tests

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Limitations And Risk

» Production
  *Do NOT do this terrible thing!
» Sanitized
  › Compatibility
  › Sufficiency
» Fixed
  › Pesticide paradox
  › Maintenance cost
» Random
  › Validity
» Dynamic
  › Not easy

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There is no single solution
You need a combination of types

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How Do You Load Data

» *UI*
  › Expensive/Fragile
» Direct data inserts
  › Very easy to create invalid data
» Restore – Snapshot, etc.
  › Updating baseline can be rather manual
» Bulk upload – SSIS, DAT files, etc.
  › Repeatable/Maintainable
» Service layer
  › Fast/Targeted/Repeatable/Maintainable

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When Do You Load Data

» Manual
  › Depends on individuals
» Scheduled
  › Not always followed or communicated

» CI/CD
  › Part of your release pipeline
» Pre suite
  › Run at the beginning of an automation run
» Just-in-time
  › Automated in test setup

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What's Missing

» 3rd party systems
  › Test instance
  › Service virtualization
    – CA Service Virtualization
    – Parasoft Virtualize
    – Rational Test Virtualization Server
    – Many many more
» Parallelization
  › Access
  › State
» Performance testing
  › Representative (including scale)

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Manual Strategy - Example

» Types of data
  › Scrubbed
  › Fixed
  › *Random
» When
  › CI/CD
» How
  › Bulk upload

Sufficient
Representative
Reproducible
Automated

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Automated Strategy - Example

» Types of data
  › Scrubbed
  › Fixed
  › Dynamic
  › *Random
» When
  › CI/CD
  › Service layer
» How
  › Bulk upload
  › Pre-suite
  › Just-in-time

Sufficient
Representative
Reproducible
Automated

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Accessing Test Data

» Permissive/Fuzzy
  › Assume validity of current data
» Query based
  › Predefined queries to find valid test data
» Oracle/Golden dataset
  › Deterministic, based on test data setup
» Just-in-time/Dynamic
  › Tests create their own deterministic data

» AI

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Cleanup

» Nuke and repave
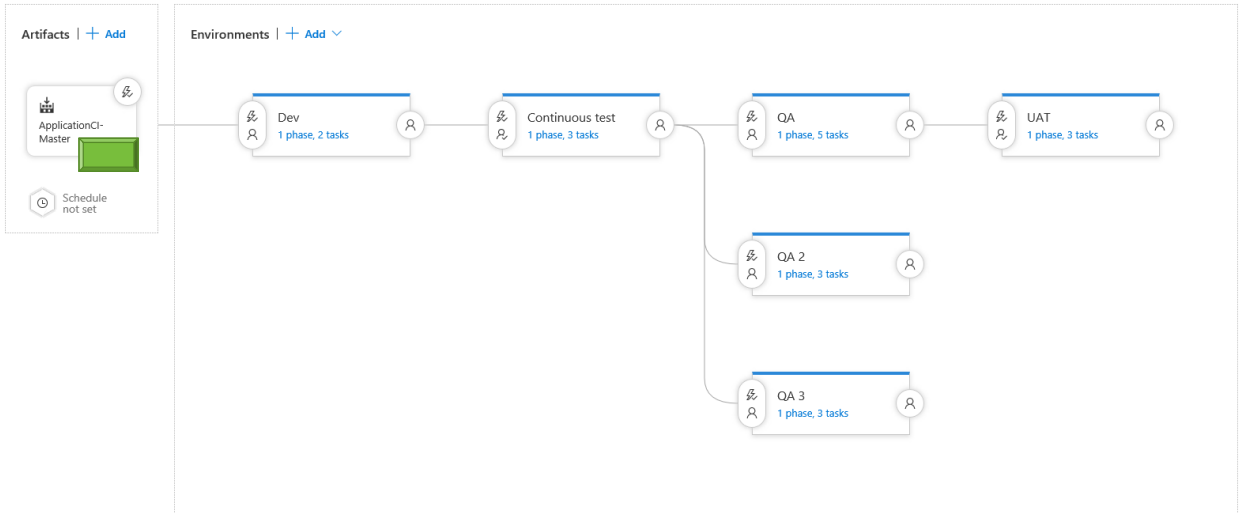» Automation specific
  › Post suite
  › Post test

» *Only when it makes sense

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When It Works Well

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Automation Demo

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What Does It Take

» Collaboration
  › QA
  › Dev
  › Operations
» *Tools
  › Informatica - Test Data Management
  › CA - Datamaker
  › Compuware - Test Data Management
  › IBM - InfoSphere Optim Test Data Management
  › Many many more

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Keys To Effective Test Data Management

» Have a strategy!

» Automate automate automate
» Version static test data
» Plan for parallelization
» Production like
» Review it
» Remember 3rd party systems

» *Don't reinvent the wheel

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Questions?

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THANK YOU

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