

Test Automation and Tools

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Why is test automation important?

- Tedious
 - A lot of work is repetitive
- Time consuming
 - One case took ten times longer to perform than a manual one
- Need to reduce cost

What are the current problems?

- Minimization of testing effort with adequate quality
- How and how much domain testing is required to minimize testing effort in product testing?
- Scalability of automated testing
- Support for multi-organization testing
- Integrated solution for test management and planning, test case generation, and test execution

Applying Problems to Product Line Testing

- Test multiple products concurrently while incorporating variations
- Tools need to support variations
- Test management
- Test case execution
- Test case generation

Test Management

- Tool requirements for variations
 - Efficiently packages required test cases
 - Automatically specifies required test cases
 - Support linking between test cases and product variants
 - Automatically generate reports for traceability
 - Gives hints on tested variations
- Execution of test cases related to specific variants

Test Case Generation

- Tools required
 - Automatically creates specific test cases for specific domain and product
 - Easily incorporates different variant points between different products
 - Should be as reusable as possible
- Issues
 - Repository sources for product line information

Test Case Execution

- Limited adoption of new tools may be required

Conclusion

- Product line testing is complex and has a number of underlying issues
- Automation may help with testing efforts
- Adequate tools are required to make automation feasible