Background

- Test harness for JDK unit and regression tests
- Started in 1997
- Over 10,000 tests (Aug 2012)
Requirements

• Easy to develop and run tests
• Support different kinds of tests:
  • compiler, runtime, applets, ...
• Support “extreme” tests
  • System.exit, security managers, etc
• Extensible
Why not JUnit ... ?

- jtrek predates most other test harnesses
- Started in 1997, for JDK 1.1
Why not JCK?

- JCK is designed as a conformance test suite
- Different design constraints
jtreg Features

• Multiple operating modes
  • *othervm*: each test in its own JVM
    • maximum isolation, high overhead
  • *samevm*: all tests in the same JVM
    • low overhead, minimal isolation
  • *agentvm*: combination of above
Runtime tests

- Tests pass if they don’t throw an exception
- Tests are automatically compiled as needed
- Can specify security manager or policy
- Can specify need for necessary JVM opts
Compiler tests

- Positive tests: should compile
- Negative tests: should not compile
- Limited golden file support to check errors
- Augmented in JDK 6 for anno processing tests
Shell tests

- Execute shell script
- Provides way to run arbitrary series of commands
- More useful in early days, while platform evolving
- Hard to test and maintain for all platforms
- Recommended to use Java code instead
Golden file tests

- Golden file tests are typically fragile and often contain transient info such as date, time and file paths
- Deliberately minimal support, for compiler tests only
Reporting

- Flexible reporting to console
  - none, summary, verbose
- Plain text, HTML and XML reports
- XML reports compatible with continuous build and test systems like Hudson
Test Selection

- Can specify subsets of tests to be run
- Can specify list of tests not to be run
Not so good

- Poor IDE integration
- Each test is typically its own package root
  - IDEs typically prefer a single package root
Recent features

- Concurrent test execution in separate JVMs
- TestNG support
- Subdirectories can be marked as containing TestNG-style tests
References

- http://openjdk.java.net/jtreg/
- http://openjdk.java.net/projects/code-tools/jtreg/
- https://wikis.oracle.com/display/OpenJDK/jtreg