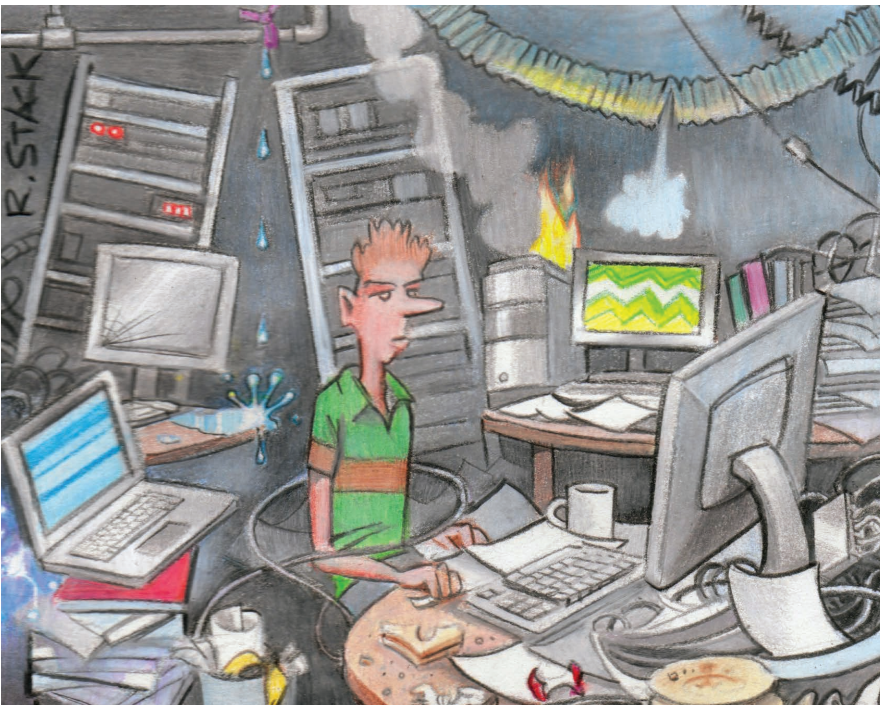# The Frictionless Development Environment Scorecard

Diomidis Spinellis

THE ENVIRONMENT IN which we work as developers can make a tremendous difference on our productivity and well-being. I've often found myself trapped in an unproductive setup through a combination of inertia, sloth, and entropy. Sometimes, I put off investing in new, better tools—other times, I avoid the work required to automate a time-consuming process.

Moreover, regardless of which phase I'm in, changes in my environment blunt the edge of my setup. I thus occasionally enter into a state where my productivity suffers death by a thousand cuts. I've also seen the same situation when working with colleagues: cases where to achieve a simple task, they waste considerable time and energy jumping through multiple hoops.

A stressful couple of years gradually pulled my development environment into an unproductive disarray. Over the past few months, I've recovered from this state thanks to multiple small- and medium-scale investments. The scorecard in this column is based on my personal experience and observations as well as suggestions from colleagues. Use it to evaluate and fix your own environment. Some fixes involve tweaks to your setup, while others might require you to install new tools, learn new skills, and negotiate with managers. They're all worthwhile investments. ◍

DIOMIDIS SPINELLIS is a professor in the Department of Management Science and Technology at the Athens University of Economics and Business and the author of the books *Code Reading* and *Code Quality: The Open Source Perspective* (Addison-Wesley, 2003, 2006). Contact him at dds@aueb.gr.

Post your comments online
by visiting the column's blog:
www.spinellis.gr/tools

WORKSTATION SETUP

- [ ] Are my personal settings and preferences consistent on all the computers I'm using? Are they stored under version control? Can I install them on a new computer with a single command?
- [ ] Are my GUI tools configured to launch with the font, size, position, and colors that suit me?
- [ ] Are my favorite key bindings configured to be the same for the shell, command-line tools, and GUI environments?
- [ ] Can I access the GUI clipboard from the command line?
- [ ] Can I edit any file with my favorite editor/IDE using single simple shell command? With a single mouse click?
- [ ] Can I open a shell window in the directory I'm browsing?
- [ ] Can I launch the file explorer for the shell's current directory?
- [ ] Is sufficient context (user name, host name, directory path) visible on my shell's command line? Is it displayed on the window's title bar?
- [ ] Does my environment offer command/command argument/file name completion?
- [ ] Can I view/edit/search previously entered commands?
- [ ] Are my files getting backed up? Is the backup tested, accessible, off-site, and in multiple media, with regularly retained copies?

WORK ENVIRONMENT

- [ ] Do I have a keyboard, mouse, and chair that match my preferences? Are they comfortably positioned?
- [ ] Can I easily take notes and draw by hand?
- [ ] Are my real desk and screen desktop free from clutter?
- [ ] Is my workplace quiet, or can I isolate myself from distracting sounds?
- [ ] Do I have sufficient screen real estate? Is it positioned at the height of my eyes, free from glare, and facing in a direction with low light?
- [ ] Do I wear the reading glasses/contact lenses I need?
- [ ] Can I work free from interruptions from other people, phone calls, and messaging pop-ups?
- [ ] Do I have the CPU power, main memory, disk space, software, administrative permissions, and communication tools I need for working efficiently?
- [ ] Do I have access to a meeting room? Does it have a whiteboard, screen projector, and flip chart?
- [ ] Do I keep sensible working hours?
- [ ] Do I get along well with my colleagues?
- [ ] Can I easily access my line manager, clients, and key people in other teams?

- [ ] Does my line manager help me set SMART (specific, measurable, attainable, relevant, time-booted) goals and prevent other work from distracting me?
- [ ] Am I getting the food and sleep I need?
- [ ] Do I have a mentor? Someone who can review my code? Someone with whom I can discuss design?
- [ ] Am I getting appropriate training?

REMOTE HOSTS

- [ ] Can I use a remote host with a simple command? Without re-entering my password?
- [ ] Can I easily execute a command on the remote host from my local environment?
- [ ] Can I easily synchronize my files between the two?
- [ ] Can I easily launch a GUI application?

GENERAL-PURPOSE TOOLS

- [ ] Can I search for a string in a set of files?
- [ ] Can I search recursively down a directory tree? Ignoring case? Only in a subset of files? With a regular expression?
- [ ] Can I search displaying only matching file names? Displaying only the matching part? Displaying context? Highlighting the match?
- [ ] Can I obtain the difference between two files? Recursively down a directory tree? Ignoring blanks? With a graphical display? With textual output?
- [ ] Can I package regularly executed commands in a script?
- [ ] Can I quickly locate a file by its name?

EDITING

- [ ] Can I use the same editor for all my code and documentation editing tasks?
- [ ] Can I search (and replace) with regular expressions?
- [ ] Is all my code syntax-highlighted?
- [ ] Can I view multiple files or parts of a file side by side?
- [ ] Can I see and edit previous commands and searches?
- [ ] Can I get context-sensitive help and auto-completion for my code?
- [ ] Can I spell-check what I write?
- [ ] Is auto-indentation and spacing correctly configured for all types of files I'm editing?

DEBUGGING

☐ Can I step through my code?

☐ Can I set a breakpoint in the code?

☐ Can I set a data breakpoint?

☐ Can I see the value of local and global variables?

☐ Can I see the result of a function call?

☐ Can I navigate through data structures?

☐ Can I evaluate the value of an expression or function?

☐ Can I attach my debugger to a running or a remotely running process?

☐ Can I debug a crashed process?

☐ Do I obtain telemetry on processes that have crashed in the field?

☐ Can I trace system calls/library calls/network packets/IPC calls?

☐ Can I filter and process the results of these traces?

APPLICATION DEVELOPMENT

☐ Can I quickly build the application I'm working on after a change?

☐ Do I have access to a test environment that mirrors the production one?

☐ Can I test the application with a single command?

☐ Can I profile the code?

☐ Can I do the above on all supported platforms and versions?

☐ Can I perform test coverage analysis on the code?

☐ Can I automatically check my code for common or tricky errors? Are these checks run by default? Are they clean?

☐ Does the application log its actions? Is the log detail level easily configurable?

☐ Are all the application elements (source code, scripts, documentation) under version control?

☐ Can I easily create a branch to work on my changes?

☐ Can I see who changed each line of the code and why?

☐ Is there a two-way link between the issue database and the version control system?

☐ Are tests and tools allowing me to refactor code with confidence?

☐ Can I commit comments and style fixes without bureaucratic interference?

☐ Do I have access to the specialized tools I need to perform my job?

☐ Is documentation for the tools and APIs I'm using readily available? Is it hyperlinked, searchable, and available offline?

PROBLEM AT HAND

☐ Have I understood the problem? Am I working on the correct one?

☐ Are the allocated resources (time, people) realistic?

☐ Is there a test case (set) for what I'm building or trying to fix? Can I run it with a single command?

☐ If it's for a fix, is it minimal?

☐ If it's for a new feature, does it cover all corners?

☐ If it's a performance problem, is it a representative workload?

☐ Can I enter the debugger with a single command?

☐ Can I obtain the application logs I need with a single command?

☐ Can I easily see the data I want in a friendly textual or graphical format?

FINALLY...

☐ Do I regularly monitor my development environment to pinpoint and alleviate sources of friction?

☐ Do I help my colleagues to do the same?