man7.org Training and Consulting

Michael Kerrisk

Michael Kerrisk (man7.org Training and Consulting, http://man7.org/training/) provides training and consulting on low-level application development on Linux and UNIX systems. He develops and delivers all courses offered by man7.org. The emphasis of his courses is on providing deep conceptual understanding coupled with intensive in-class practical work.

About the trainer

A software engineer who is passionate about excellent training and writing, Michael Kerrisk has programmed on UNIX systems since 1987, and began teaching UNIX system programming courses in 1989.

He has for many years been **active in Linux development**, working with kernel developers on design review, testing, and documentation of new Linux kernel–userspace APIs, work for which he has become well-known in the Linux community. In many cases, he personally knows the implementers of the APIs that he describes in his courses; in some cases he has been influential in shaping those APIs.

Since 2004, he has been the **maintainer of the Linux man-pages project** (http://www.kernel.org/doc/man-pages/), which provides documentation of the Linux system call API, as well as the APIs in the standard C library. He is the author or coauthor of more than 400 of the around 1000 manual pages provided by the project.

Originally from New Zealand, Michael is nowadays based in Munich, Germany, from where he delivers online training and also regularly travels to deliver onsite training courses and conference presentations across Europe, as well as in the USA and other parts of the world.

The Linux Programming Interface

Michael Kerrisk is the author of *The Linux Programming Interface* (TLPI), published in 2010 by No Starch Press (http://man7.org/tlpi/).

At 1550 pages, with around 200 example programs, 115 diagrams, and 88 tables, TLPI is widely acclaimed as the **definitive work on system programming for Linux** (and UNIX) systems (see http://man7.org/tlpi/reviews/). TLPI has been translated into Korean, Japanese, Simplified Chinese, Traditional Chinese, and Russian.
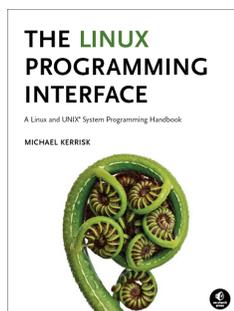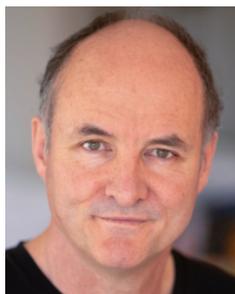
Course materials

Extensive training materials (course books and sample code) are provided as part of all man7.org courses. All training material used in man7.org courses is developed by the trainer. Course books are printed on demand for each course, and updated following every course, based on attendee feedback and teaching experiences. Naturally, the training materials are updated constantly to keep up with Linux developments. This short, frequent feedback loop results in **training materials of exceptional quality and currency**. Samples of the training materials can be found at http://man7.org/training/.

The courses

Delivered by a trainer with more than 30 years' experience of UNIX programming who works from detailed training materials he wrote himself, **man7.org courses rapidly cover a wider and deeper range of topics** than other comparable courses.

All courses follow a highly interactive lecture-plus-lab format, with extensive practical sessions to consolidate the "theory" covered in the course. Courses are delivered in English.

Onsite, online, and custom courses

Course are available for **onsite** delivey in almost any location. All courses are also available for **onlne** delivery.

Custom courses, whose length and content are tailored to client requirements, are available upon request.

Clients and references

Past and current clients include Google, IBM, Cisco Systems, BMW, Apple Inc., Robert Bosch, and the French, British, and American governments. Contact details for referees from past courses are available upon request.

Michael has, with his calm and thorough presentation and teaching skills, a way of decomposing complex topics into manageable pieces and explaining them, both separately as well as how they work together.
– Marcus Hufvudsson, Systems Developer

Simply put, Michael Kerrisk's trainings easily are the best you can find in the field of Linux system programming.
– Emmanuel Gras, CEO, Alsid

man7.org: Overview of Selected Courses

The list below provides a summary of selected courses taught by Michael Kerrisk. Custom courses are also available upon request. Further details on standard and custom courses can be found at http://man7.org/training/.

Linux/UNIX System Programming
Course code: M7D-LUSP01 (5 days)

Intended for a wide audience, including system programmers, embedded developers, devops engineers, and security engineers, this course provides a deep understanding of the operating system architecture and low-level interfaces required to build system-level applications on Linux and UNIX systems ranging from embedded processors to enterprise servers.

Detailed presentations coupled with many carefully designed practical exercises provide participants with the knowledge needed to write complex system, network, and multithreaded applications.

Topics covered include file I/O; files, directories, and links; signals; process creation and termination; program execution, multithreaded programming with POSIX threads; IPC (pipes, FIFOs, shared memory, semaphores, and sockets); and I/O multiplexing (*poll()*, *select()*, and *epoll*).

Linux Security and Isolation APIs
Course code: M7D-SECISOL02 (4 days)

Covering topics including namespaces (with a deep dive into user namespaces), capabilities, seccomp (secure computing), and control groups (cgroups), this course provides a deep understanding of the low-level Linux features used to design, build, and troubleshoot container, virtualization, and sandboxing frameworks.

As well as developers, designers, and administrators creating or deploying container frameworks, the diverse audience for this course includes embedded developers and security engineers.

System Programming for Linux Containers
Course code: M7D-SPLC02 (5 days)

This course is aimed particularly at developers, administrators, and devops engineers who develop, maintain, administer, or troubleshoot container and sandboxing frameworks.

After covering some fundamentals of Linux/UNIX system programming (file I/O; files, directories, and links; signals; processes; process creation and termination; and pro-

gram execution), the course goes on to examine the low-level Linux features (namespaces, user namespaces, capabilities, seccomp, and control groups) used to implement privileged applications and build systems such as Docker, LXC, Flatpak, and Firejail.

Building and Using Shared Libraries on Linux
Course code: M7D-SHLIB02 (1.5 days)

This course provides a thorough understanding of the process of designing, building, and using shared libraries on Linux. Topics covered include: fundamentals of library creation and use; shared library versioning; symbol resolution; library search order; dynamically loaded libraries; controlling symbol visibility; and symbol versioning.

Linux System Programming Fundamentals
Course code: M7D-SPINTRO01 (2 days)

This course provides a sound understanding of the basic operating system features and low-level interfaces (principally, system calls and library functions) that are used to build build system-level applications on Linux and UNIX systems. Topics covered include: file I/O; files, directories, and links; signals; processes; process creation and termination; and program execution.

Other courses

Other course include:

- Linux/UNIX Threads and IPC Programming
- Linux/UNIX IPC Programming
- POSIX Threads Programming
- Linux/UNIX Network Programming
- Linux Capabilities and Namespaces
- Linux Control Groups (Cgroups)
- Linux Secure Computing (Seccomp)

A pictorial overview of all courses taught by Michael Kerrisk can be found at https://man7.org/training/index.html#course_overview.