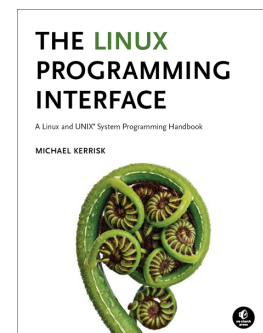


# Linux Control Groups (Cgroups)

Course code: M7D-CGROUPS02

This course provides a thorough introduction to Linux control groups (cgroups), one of the components used in a range of modern applications, including container frameworks, sandboxing technologies, and *systemd*. Detailed presentations coupled with carefully designed practical exercises provide participants with an understanding of cgroups and the knowledge to build and troubleshoot applications that use cgroups.



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## Audience and prerequisites

The primary audience comprises designers, programmers, and systems administrators who are building, administering, or troubleshooting applications that employ cgroups.

Participants should know how to log in to a Linux or UNIX system and be familiar with common shell commands. No particular programming experience is required.

## Course materials

- A course book (written by the trainer) that includes all course slides and exercises
- A source code tarball containing example programs written by the trainer to accompany the presentation

## Course duration and format

One day, with around 30-40% of the course time devoted to practical sessions.

## Course inquiries and bookings

For inquiries about courses and consulting, you can contact us in the following ways:

- Email: [training@man7.org](mailto:training@man7.org)
- Phone: +49 (89) 2155 2990 (German landline)

## Prices, dates, and further details

For course prices, upcoming course dates, and further information about the course, please visit the course web page, <http://man7.org/training/cgroups/>.

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## About the trainer



Michael Kerrisk has a unique set of qualifications and experience that ensure that course participants receive training of a very high standard:

- He has been programming on UNIX systems since 1987 and began teaching UNIX system programming courses in 1989.
- He is the author of *The Linux Programming Interface*, a 1550-page book acclaimed as the definitive work on Linux system programming.

- He has been actively involved in Linux development, working with kernel developers on testing, review, and design of new Linux kernel-user-space APIs.
- Since 2000, he has been involved in the Linux *man-pages* project, which provides the manual pages documenting Linux system calls and C library APIs, and was the project maintainer from 2004 to 2021.

## Linux Control Groups: course contents in detail

Topics marked with an asterisk (\*) may be covered, if time permits.

### 1. Course Introduction

### 2. Cgroups: Introduction

- Preamble
- What are control groups?
- An example: the pids controller
- Creating and destroying cgroups
- Populating a cgroup
- Enabling and disabling controllers

### 3. Cgroups: A Survey of the Controllers

- The cpu, memory, freezer, and pids controllers
- Other controllers

### 4. Cgroups: Advanced Features

- Cgroup namespaces
- Release notification (cgroup.events file)
- Delegation

### 5. Cgroups: Thread Mode (\*)

- Overview of thread mode
- Creating and using a threaded subtree
- Further details

### 6. Cgroups Version 1 (\*)

- Cgroups v1: hierarchies and controllers
- Cgroups v1: populating a cgroup
- Cgroups v1: release notification
- Cgroups v1: delegation
- Problems with cgroups v1; rationale for v2