

Fast track to OpenEmbedded and Yocto Project

If you are working with embedded Linux you will be aware that the Yocto Project is a key component for generating device firmware. This intensive one day workshop will teach you how to make effective use of OpenEmbedded and Yocto Project to create highly functional, reliable system images for your target device. It will show you how to select packages, how to customise system behaviour, and how to create your own meta layers. With the relevant information under your belt you will have your embedded Linux system up and running in no time!

The theory is backed up with hands-on labs where you will get a chance to try out all the concepts covered in the presentations. You will build a fully-functional system using a BeagleBone Black development board.

Duration

1 day

Audience

This workshop is ideal for software engineers who are familiar with embedded devices but need to apply that knowledge to Linux development, and to those who are familiar with Linux, but want to apply that knowledge to embedded systems

Prerequisites

Attendees should know C/C++ pretty well, and must be familiar with Linux command-line tools such as 'find', 'grep' and 'make'

Course materials

All attendees will receive:

- A printed copy of the presentations and lab notes
- A USB flash drive containing worked solutions to the problems, plus electronic copies of the course materials
- A free copy of the trainer's book, "Mastering Embedded Linux Programming"

Bring your own laptop!

About half the workshop is dedicated to hands-on sessions. Consequently you will need to bring a laptop along with you (or destop, if you can carry it :-)). Pretty much any recent laptop be fine so long as it is at least dual core and has at least 8 GB memory. **No Macintoshes, please.** I will provide USB flash drives (which are yours to keep) with a copy of Ubuntu pre-installed. You just need boot your laptop from the USB drive. Please note that this means you must be able to access the BIOS boot menu at start up.

If demand for this workshop is high it may be necessary for people to team up into groups of two

Outline

The Yocto Project

- Introduction to OpenEmbedded and the Yocto Project
- Layers, recipes and packages
- Installing Yocto Project
- Building images for a target board

Packages and layers

- The relationship between a recipe and the packages it generates
- Simple customisations: adding packages to the image
- Extending Yocto Project through layers
- Creating a layer

Bitbake and recipes

- Bitbake variables and assignment
- Controlling bitbake
- Writing simple recipes

Extending recipes with bbappend

- Overriding a recipe vs appending with bbappend
- Creating and adding a patch to a recipe
- Extending tasks with prepend and append

Board Support Packages

- Creating a BSP meta layer
- Setting the machine configuration
- Customising the kernel recipe

About the trainer



Chris Simmonds has been using Linux in embedded systems for over 15 years. He has been running training courses and workshops in embedded Linux since 2002 and has delivered hundreds of sessions to many well-known companies in the UK, Europe, USA, South America and SE Asia. He is the author of the book “Mastering Embedded Linux Programming”, and is a frequent presenter at open source and embedded conferences, including Embedded Linux Conference and Embedded World. You can see some of his work on the "Inner Penguin" blog at www.2net.co.uk

Enquiries and bookings

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