FTF 2016
TECHNOLOGY FORUM

CREATING AN ADVANCED EMBEDDED SETUP WITH YOCTO

FTF-AUT-N1787

HEINZ WROBEL
AUTOMOTIVE FAE MANAGER
FTF-AUT-N1787
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AGENDA

- Goals and Ease Of Use, Demo
- Setting up Meta-bluebox, Demo
- Machine and Image Configuration, Demo
- Using Classes to Add Generic Features, Demo
- Kernel and U-Boot Tweaks, Demo
- XFCE on an Embedded System, Demo
- Miscellaneous Topics

BEWARE!
WE WILL USE VERY FEW POWERPOINT SLIDES!

GOALS AND EASE OF USE

Goals

- Show you a real implementation of a complex SDK modification, **`meta-bluebox`**
- Illustrate possible options for Yocto setup and recipe changes
- Discuss `(bad|good|better)` options with you!
- Point to compromises made

- We want to be more nimble with **`meta-bluebox`** releases than with the “big” SDK
  - **`meta-bluebox`** is pretty rapid Work In Progress!
  - Quality level should still be high

- You learn about what I do for BlueBox!
- I learn about what you think of it!

Ease Of Use

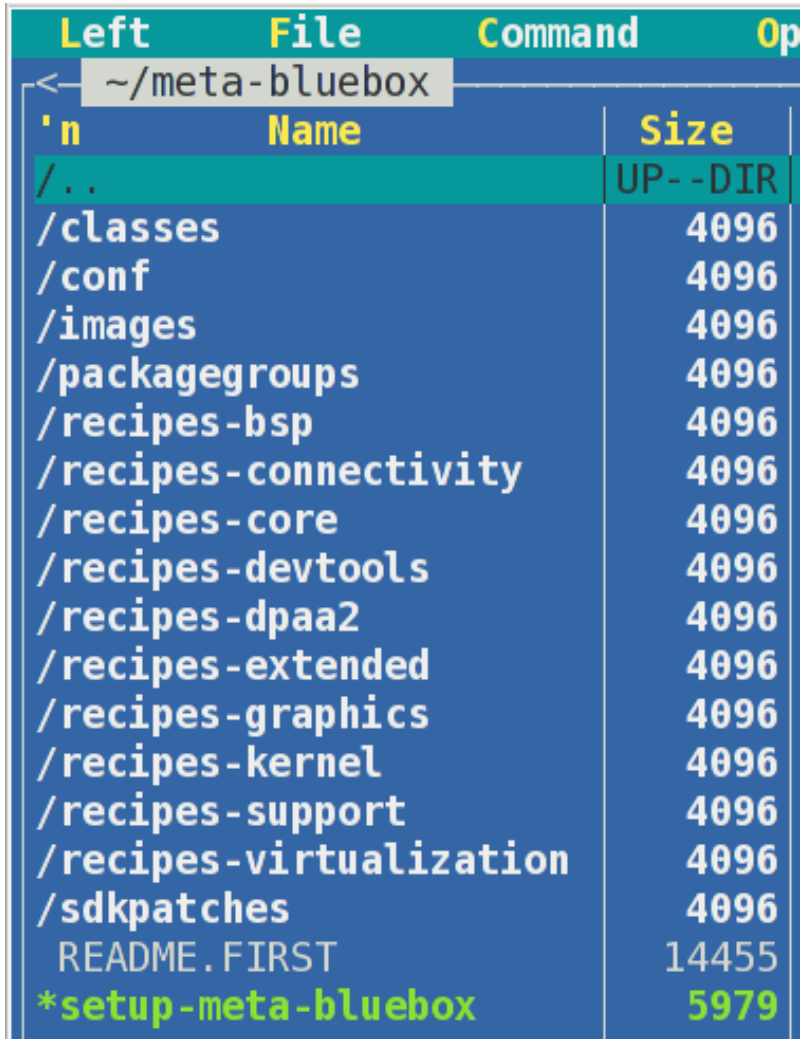
- **`meta-bluebox`** layer should be easy to integrate into existing SDKs
- BlueBox images should be easy to build, and deploy
  - We look at that for images and deploy scripts
- The images should be full featured for Ease Of Use
  - Image definitions

SETTING UP META-BLUEBOX

The Setup Support

- Single README.FIRST
- Single setup script
- Names matched to the SDK structure

- **Be obvious**
- **Be reproducible**
- **Be straightforward**



DEMO TIME!

MACHINE AND IMAGE CONFIGURATION

Distro and Machine are Two Separate Topics!

- layer.conf always needed
- distro defines overall behavior
- machine defines target specifics

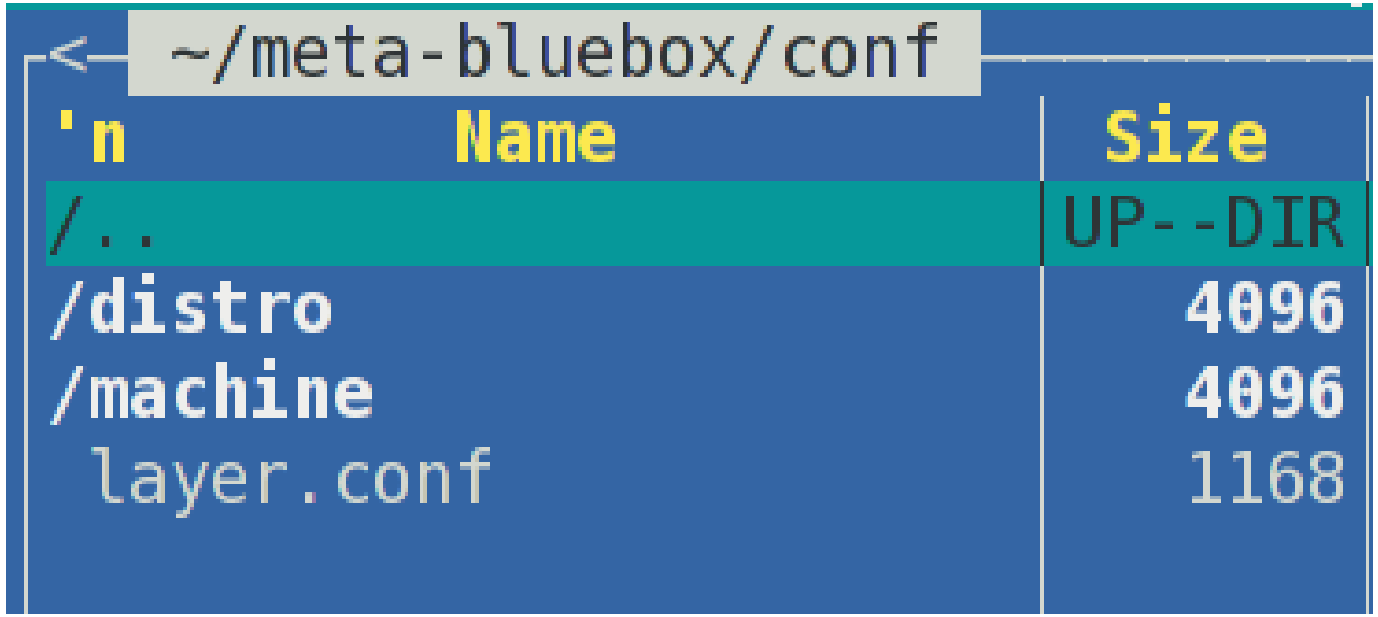
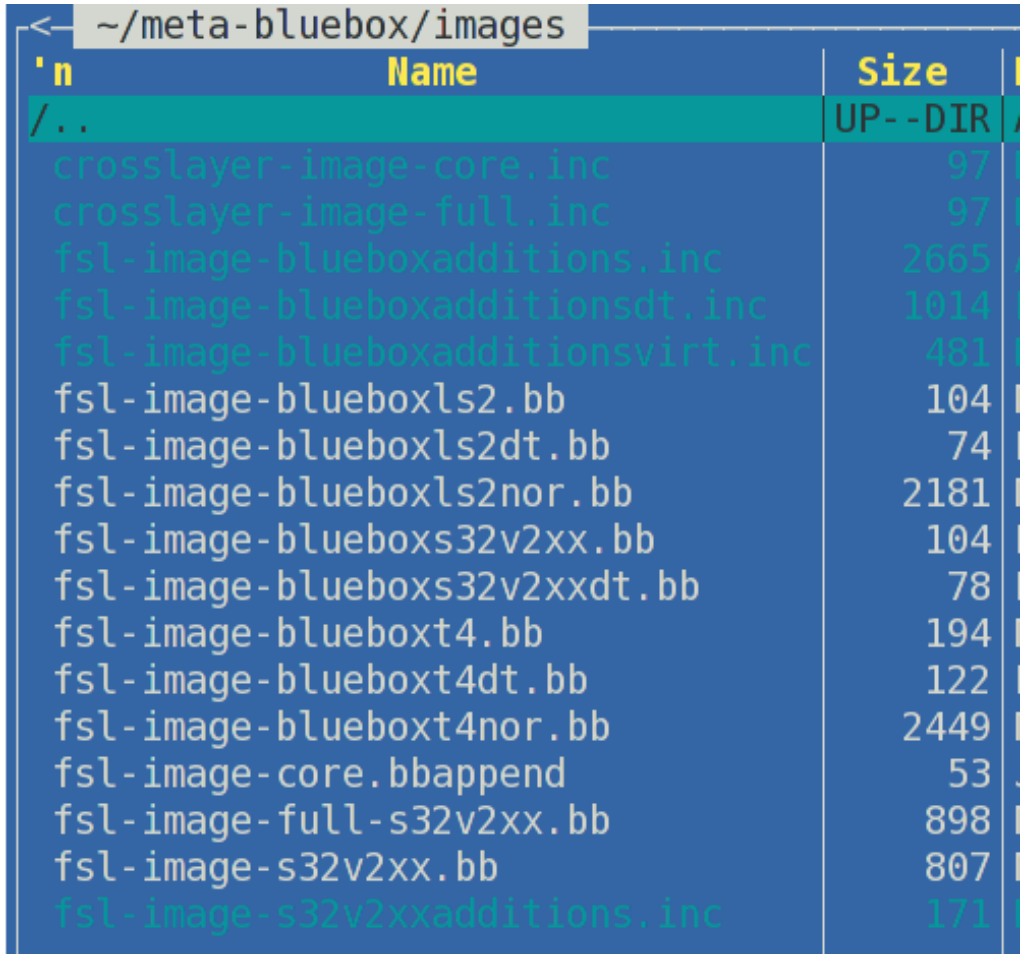


Image Definitions

- Incremental image definition for BlueBox
- SDK specific baseline references
- Use case specific images
  - NOR Flash image
  - Standard image
  - Graphical Desktop image



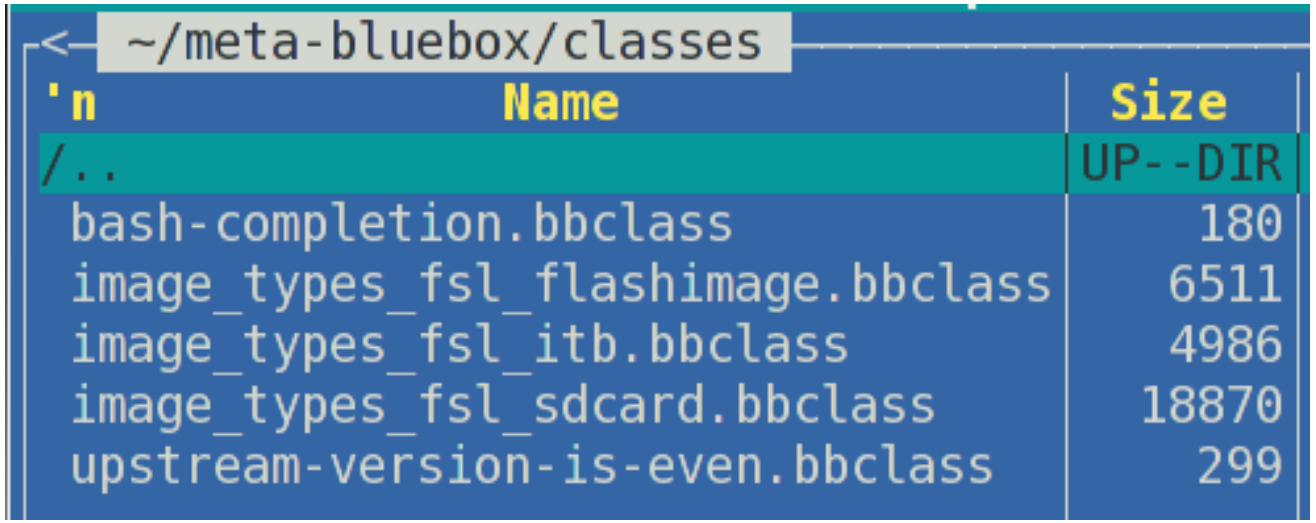
DEMO TIME!

USING CLASSES TO ADD GENERIC FEATURES

Custom Classes

- Classes add features to recipes
  - Automatic NOR binary image
  - .itb file generation for ARMv8
  - Bootable SD-Card for S32V234

- An image is a recipe!

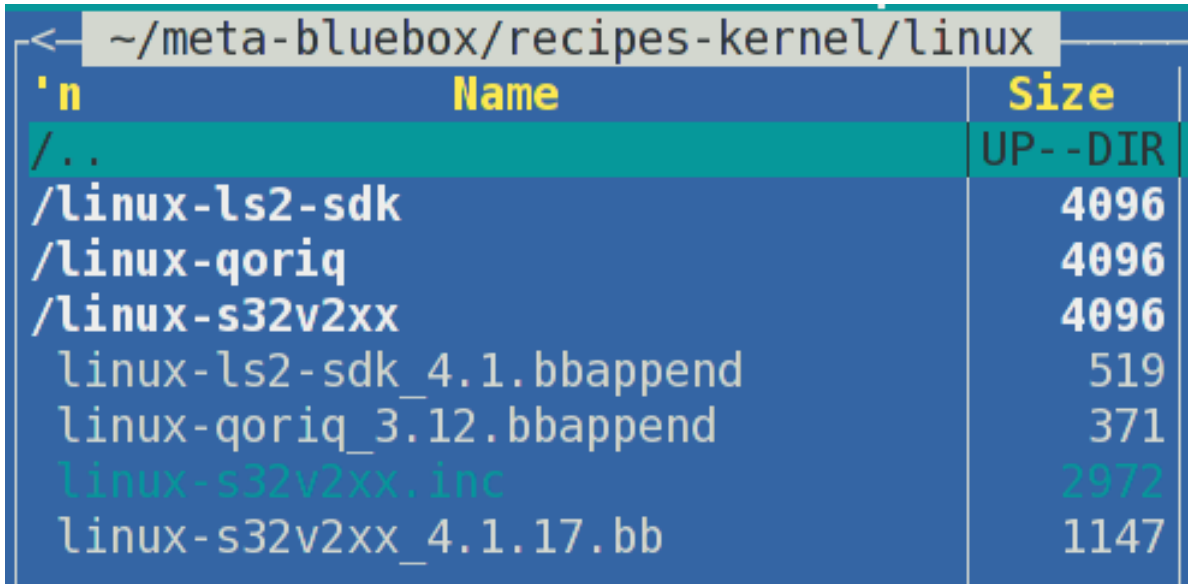


DEMO TIME!

KERNEL AND U-BOOT TWEAKS

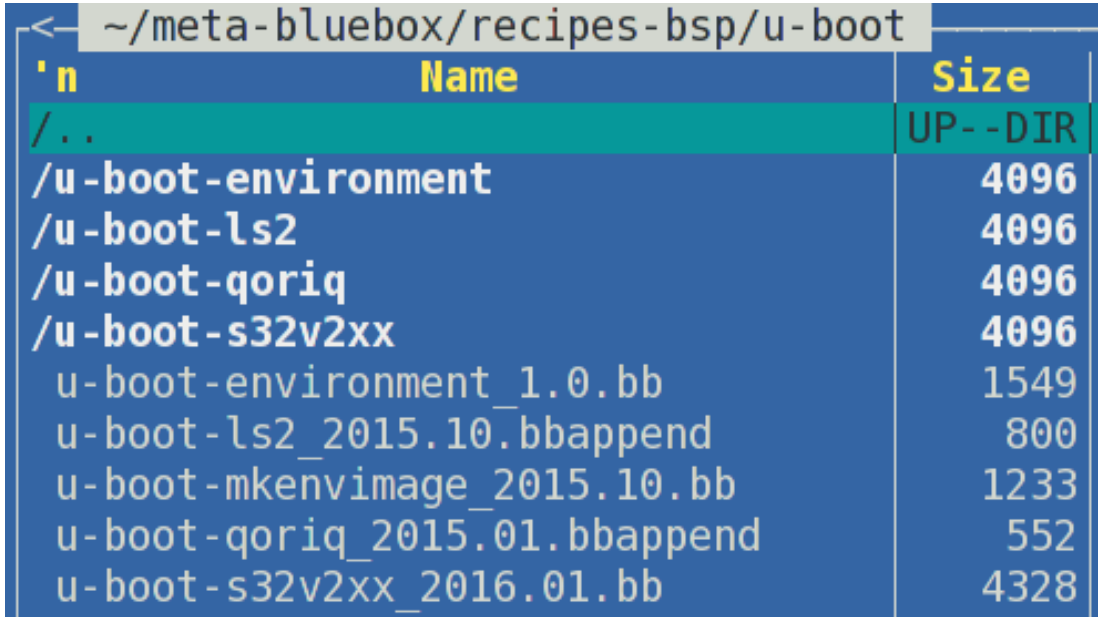
Linux Kernel Customization

- How to override the kernel config
- Dealing with target specific patches
  - Patches
  - File additions
  - Kernel config fragments



U-Boot Customization

- U-Boots are very SoC/Board specific
- U-Boot default environments required!
  - Added simple way for custom env
  - Added missing tool build for env



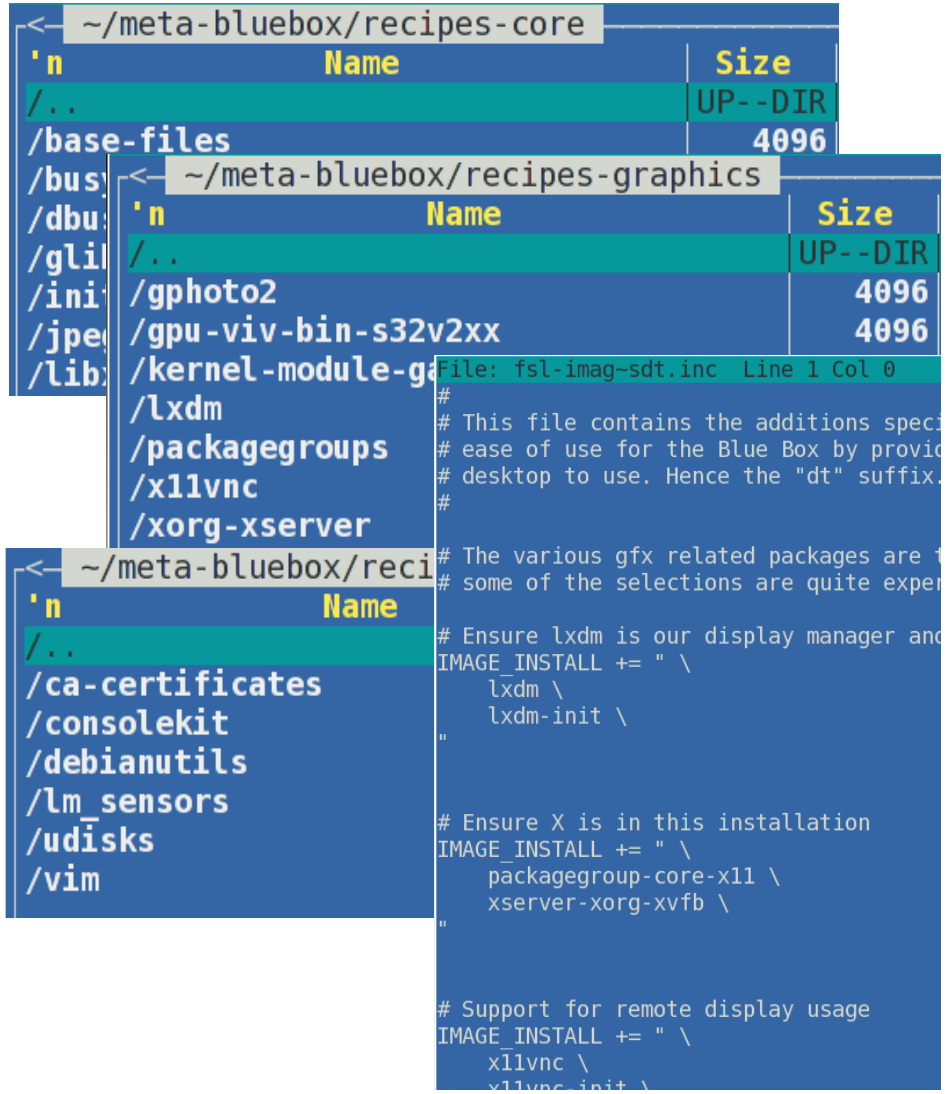
DEMO TIME!

XFCE ON AN EMBEDDED SYSTEM

Adding XFCE Into the Picture

- Few additions actually, but …
- **Complex** to get something usable

  - lxdm
  - x11vnc/xvfb
  - consolekit
  - Packagegroups for xfce/x11
  - Config file tweaks …
  - Dependencies, dependencies …



DEMO TIME!

MISCELLANEOUS TOPICS

There is More…

- Examples for additional package setups
  - lmsensors
  - yum
  - Bug fixes through .bbappend
  - Various other things

- What else would you like to discuss?

SECURE CONNECTIONS
FOR A SMARTER WORLD

ATTRIBUTION STATEMENT