Yocto Basics

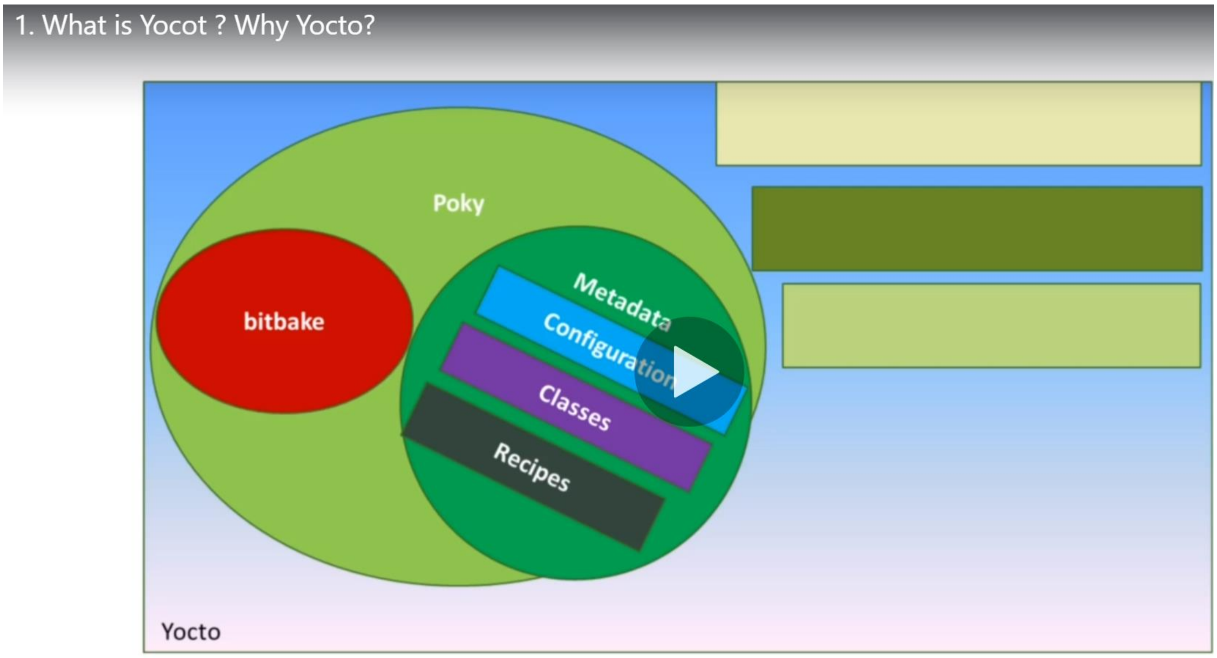
Yocto: The Yocto Project is an open source collaboration project that helps developers create custom Linux-based systems that are designed for embedded products regardless of the product's hardware architecture. Yocto Project provides a flexible toolset and a development environment that allows embedded device developers across the world to collaborate through shared technologies, software stacks, configurations, and best practices used to create these tailored Linux images.

Poky: Poky is the Yocto Project reference distribution. It contains the Open-Embedded build system (BitBake and OE-Core) as well as a set of metadata to get you started building your own distribution.

Bitbake: BitBake is a core component of the Yocto Project and is used by the OpenEmbedded build system to build images. While BitBake is key to the build system, BitBake is maintained separately from the Yocto Project.BitBake is a generic task execution engine that allows shell and Python tasks to be run efficiently and in parallel while working within complex inter-task dependency constraints. In short, BitBake is a build engine that works through recipes written in a specific format in order to perform sets of tasks.

Metadata: One of the most powerful properties of Poky is that every aspect of a build is controlled by the metadata. You can use metadata to augment these base image types by adding metadata layers that extend functionality.

Configuration Files: Files that hold global definitions of variables, user-defined variables, and hardware configuration information. These files tell the Open-Embedded build system what to build and what to put into the image to support a particular platform.



1. What is Yocot ? Why Yocto?

Recipe: The most common form of metadata. A recipe contains a list of settings and tasks (i.e. instructions) for building packages that are then used to build the binary image. A recipe describes where you get source code and which patches to apply. Recipes describe dependencies for libraries or for other recipes as well as configuration and compilation options. Related recipes are consolidated into a layer.

Classes :Class files are used to abstract common functionality and share it amongst multiple recipe (.bb) files.To use a class file, you simply make sure the recipe inherits the class

Eg. inherit classname

Extension: .bbclass

They are usually placed in classes directory inside the meta* directory

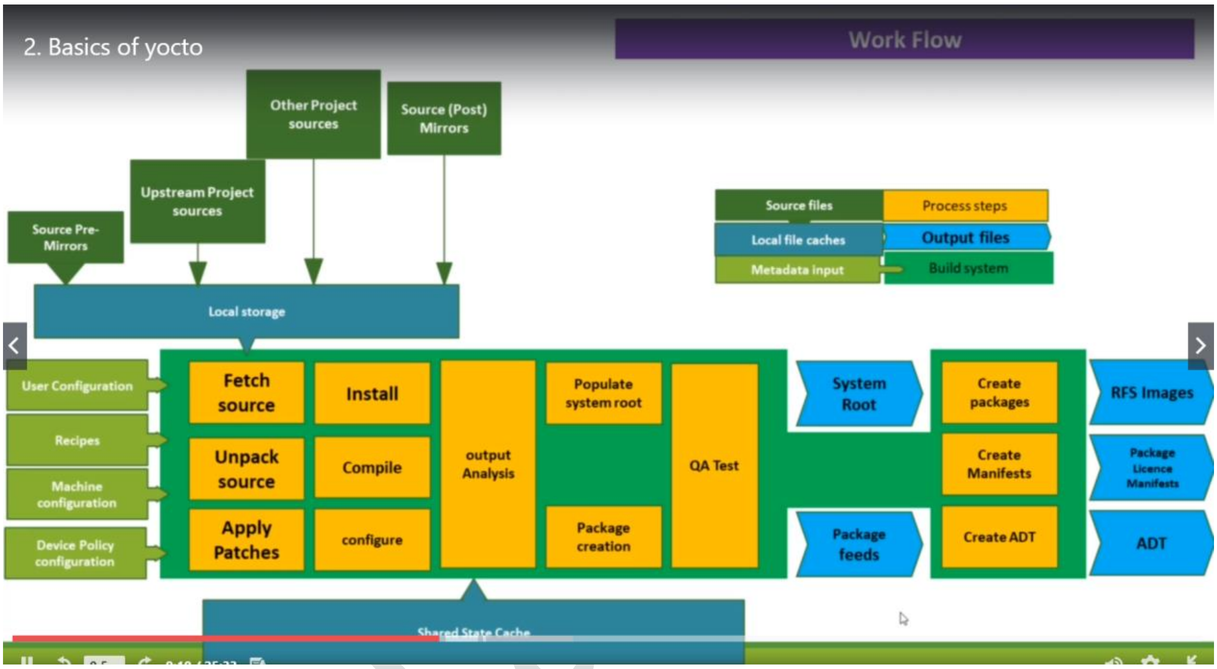
Examples of Yocto Classes:

cmake.bbclass - Handles cmake in recipes

kernel.bbclass - Handles building kernels. Contains code to build all kernel trees

module.bbclass - Provides support for building out-of-tree Linux Kernel Modules

Layer: A collection of related recipes. Layers allow you to consolidate related metadata to customize your build. Layers also isolate information used when building for multiple architectures. Layers are hierarchical in their ability to override previous specifications. You can include any number of available layers from the Yocto Project and customize the build by adding your layers after them. You can search the Layer Index for layers used within Yocto Project.



2. Basics of yocto

Work Flow

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Reference: The Yocto Project Overview and Concepts Manual