

Building and maintaining Linux systems involves more than compiling a Linux kernel and writing an application. Linux systems commonly consist of millions of additional lines of code contained in tens or hundreds of open source software packages. This additional software needs to be carefully selected, configured, compiled and installed. Helix is a set of software packages, utilities and compilers providing an easy way to configure, build and maintain embedded Linux systems.

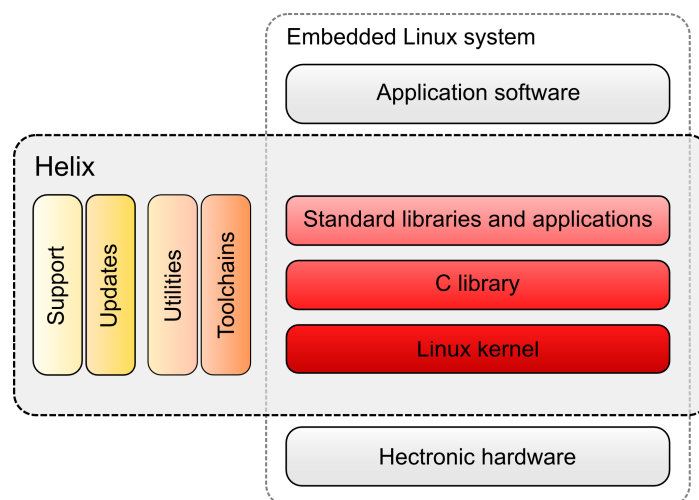
## Overview

Helix provides an environment for prototyping, development and maintenance of embedded Linux system based on hardware from Hectronic. The embedded Linux distribution is stable, lean and flexible. Standard, open source software components are carefully selected to work together. Compilers, debuggers and utilities are part of Helix and are used in the conversion to a binary image ready to boot.

## Structure

The infrastructure of a complete embedded Linux system may consist of additional drivers, tens to hundreds of libraries and applications. Developing and testing such a system involves building the complete system many times, changing bits and pieces of the system every time. Helix provides methods and tools for doing this while continuously maintaining complete control of what goes into each build.

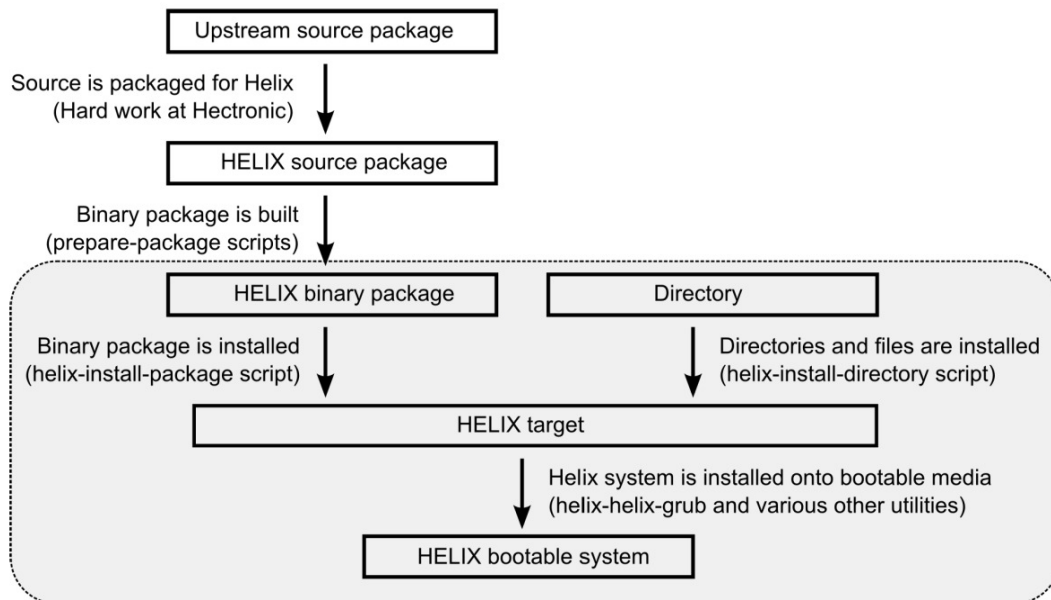
Typically an embedded Linux system is based on a kernel, a C library, additional libraries and helper applications in addition to one or more main applications. Helix is the foundation of that embedded Linux system, along with support and updates.



## Workflow

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At its core, Helix includes a few scripts to assemble an embedded Linux system in a few stages. Based on freely available software contained in Helix, packages are created. A configuration file describes which packages and revisions of packages that should go into your system. The configuration file may also contain pointers to you own libraries, configurations and applications for inclusion in the system. From the root file system assembly, other scripts are used to create the binary file system image ready to boot.



Helix can create several types of root file systems including cramfs, ext2/ext3, cpio, jffs2 and squashfs. NFS-root, network boot and network debugging is supported if the platform allows it.

Helix is usable together with integrated development environments such as Eclipse or KDevelop or stand-alone with a terminal and a text editor.

## Deliverables

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Helix is delivered as an ISO image or a CDROM/DVD containing:

- **Board Support Package (BSP)** - Kernel and driver support for specific Hectronic hardware platform
- **Tool chains** - Compilers and tools to build applications, BSP and packages targeted at the selected hardware platform
- **Documentation** - User manual, application notes and examples
- **Packages**

Base - Basic filesystem structure and configuration files for the embedded Linux system  
Glibc – C library that is basis for the user-space software  
Devices - Device nodes for the system's peripherals  
Busybox - Contains essential UNIX shells, utilities and commands  
Dropbear - SSH client and server for easy and secure access to the system via network  
X11 - Graphical environment

Source code is provided for all included software components.