![Intel logo]

UGW SDK

Connected Home Division

Agenda

- **Prerequisites**

- **Getting Started UGW SDK**

- **Native OpenWrt Command**

- **CD Structure**

- **How To**

- **References**

Prerequisites

The prerequisites for CD compilation :

- Linux PC
- Dependent packages
    - Host C and C++ compilers (gcc, g++) ≥ 3.2.3
    - glibc version ≥ 2.3.2
    - automake ≥ 1.7.2
    - autoconf ≥ 2.57
    - bison
    - gawk
    - git
    - flex
    - zip, unzip
    - bzip2, bunzip2
    - gzip, gunzip
    - zlib
    - patch
    - perl
    - wget
    - tar
    - libncurses
    - texinfo
    - python ≥ 2.6.5 and python-lxml

Installing the CD
- **Basic SW CD**
  - Unzip UGW-<Release-Version>-SW-CD
  - `cd UGW-<Release-Version>-SW-CD`
  - `chmod +x install.sh`
  - `./install.sh`
- **Add on CDs (optional)**
  - Unzip the Add-on CD into a folder (Example: under /home/guest/)
  - `cd UGW-<Release-Version>-SW-CD/Software/Sources/`
  - `Example:-/home/guest/new/<addon-CD-name>/install.sh`

Result
- You should be able to view the software contents under UGW folder

STEP 1

Install the CD

Selecting your Model
- `Cd UGW-<Release-Version>-SW-CD/Software/Sources/UGW-<Release-Version>`
- `./ugw/ugw-prepapre-all.sh`
- `./scripts/ltq_change_environment.sh switch`
- Choose the model

Result
- Build preparation is complete
- Rock n Roll !!

STEP 2

Select the model

Starting the Build
- make

STEP 3

Make

Result
The list of images which are built and placed under ./bin/lantiq/<model-name>:
- uImage – The Kernel
- rootfs.img – Root file system
- firmware.img – DSL Firmware
- fullimage.img – Kernel + root file system + DSL firmware
- gphyfirmware.img – GPHY firmware
- u-boot-nand.bin
- u-boot.ltq

For a faster compilation, please use "make –j16"

Native OpenWrt Commands

- **Prepare**: Prepares the source code (extracts tar ball from ./dl folder or copies the source from feed folder to the ./build_dir folder). In case of kernel, also prepares the kernel .config.

- **Compile**: Compiles the source code. In case of kernel, compiles the kernel modules

- **Install**: Copies the compiled binaries to root file system folder.

    - Also copies any root file system scripts to root file system. Please check individual package feed Makefile install section for more details

Examples:

- make package/feeds/open_applications/busybox/compile V=99

- make package/feeds/open_applications/dnrd/{clean,install} V=99

- make target/linux/{clean,compile} V=99

- make target/linux/prepare V=99

CD structure

➔ Clear segregation of open source, Intel and Third-party components

➔ Changes are maintained in patches, makes it easy for customers to know what has changed

   o Simple script provided to view the fully patched kernel sources(For those who are comfortable to see the diff between versions)

➔ We ensure that no GPLv3 components are packaged for any components going on target

Continued ..,
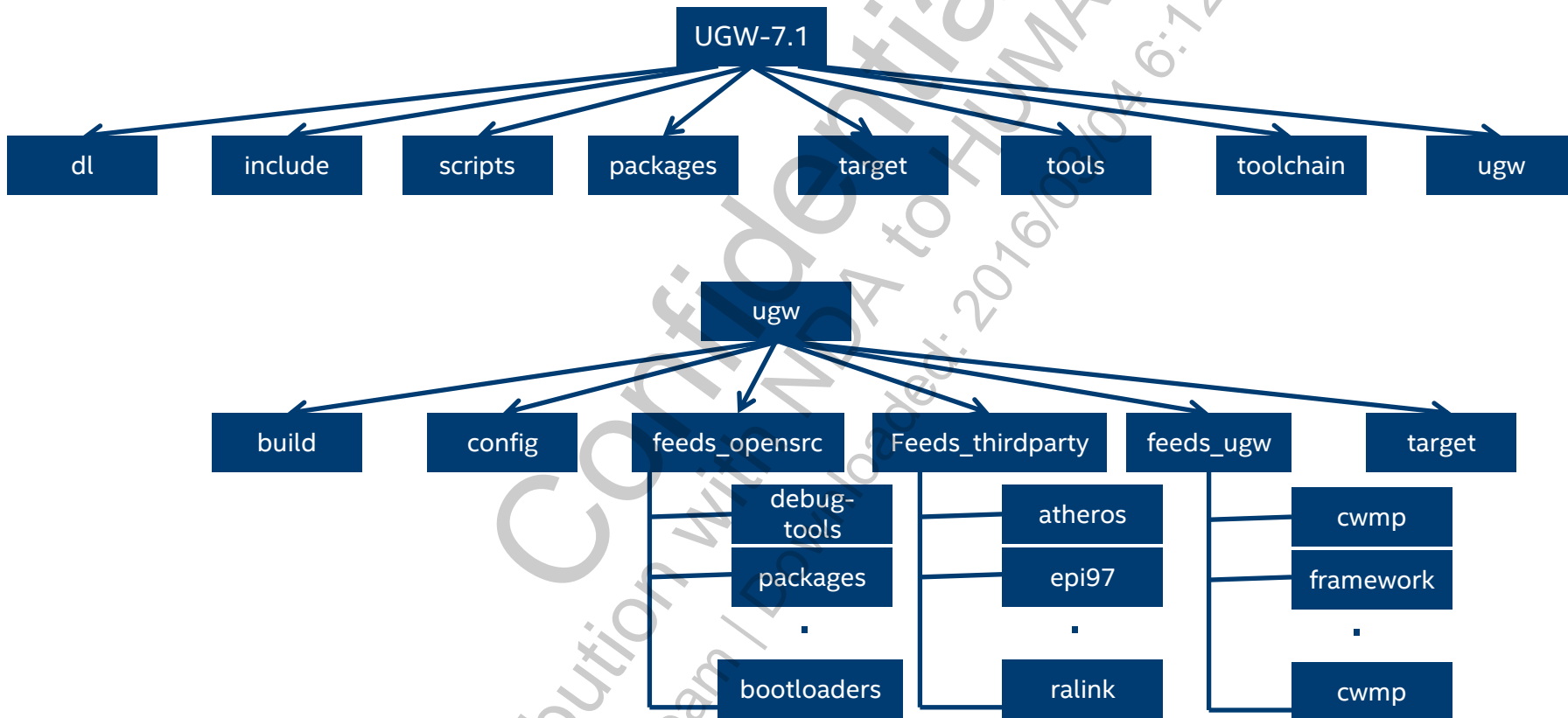
How To

How to create new model

- Run "./scripts/ltq_change_environment.sh new config/<New_Model_name>"
    1. This command will ask:- Do you want to clone the current environment? (Y/N):
    2. Enter 'Y'. Now the new model will be created as under config/<New_Model_name>

How to view complete kernel source

- Execute `./script-kernel-source.sh` from the top level of CD folder.

    - Will be availabe in W8 release. Either extract dl/linux-patched-source-3.10.12.tar.bz2 or go to build_dir/target*/linux*/linux-3.10.12

    - This script creates a linux-<linux-version> folder which contains Linux kernel fully patched with Lantiq drivers/patches.

How to Generate Docs

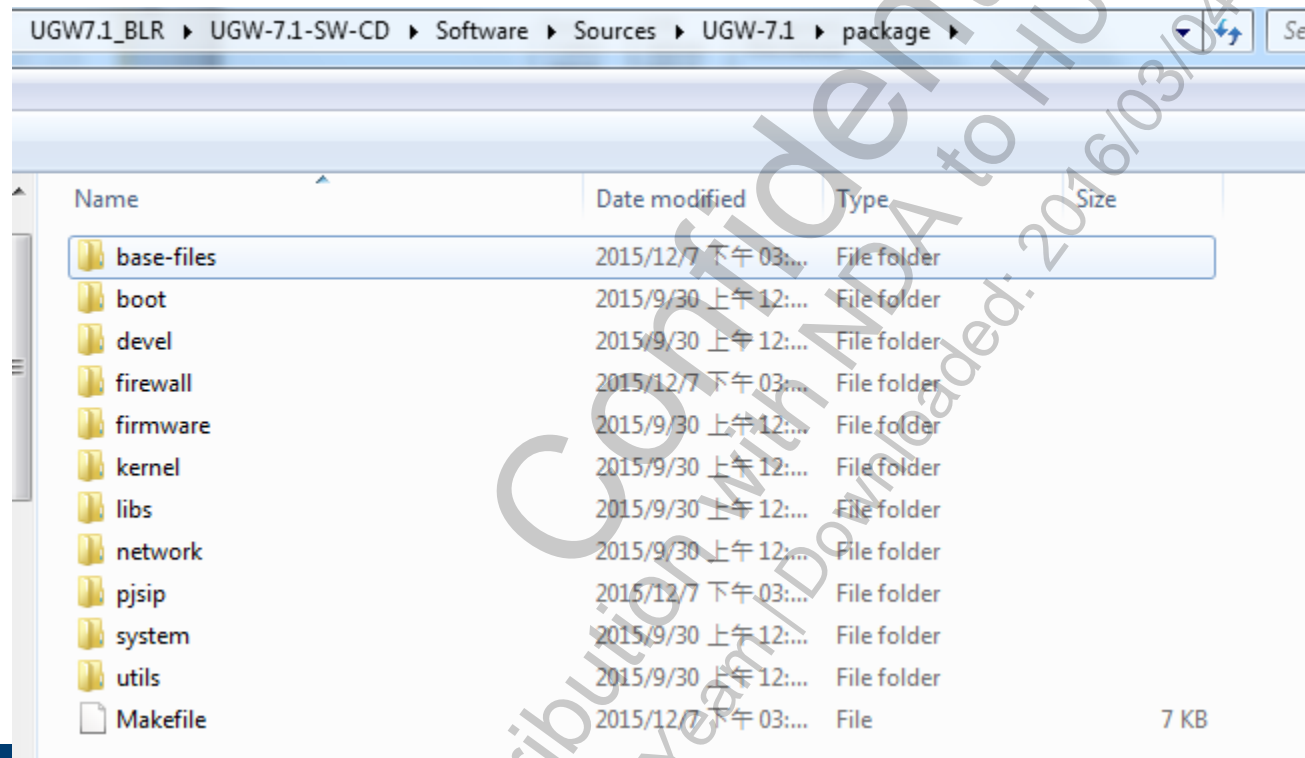- ./ugw/gendocs.sh – Generate html docs under ./docs/ugw folder -> Available in W8 release
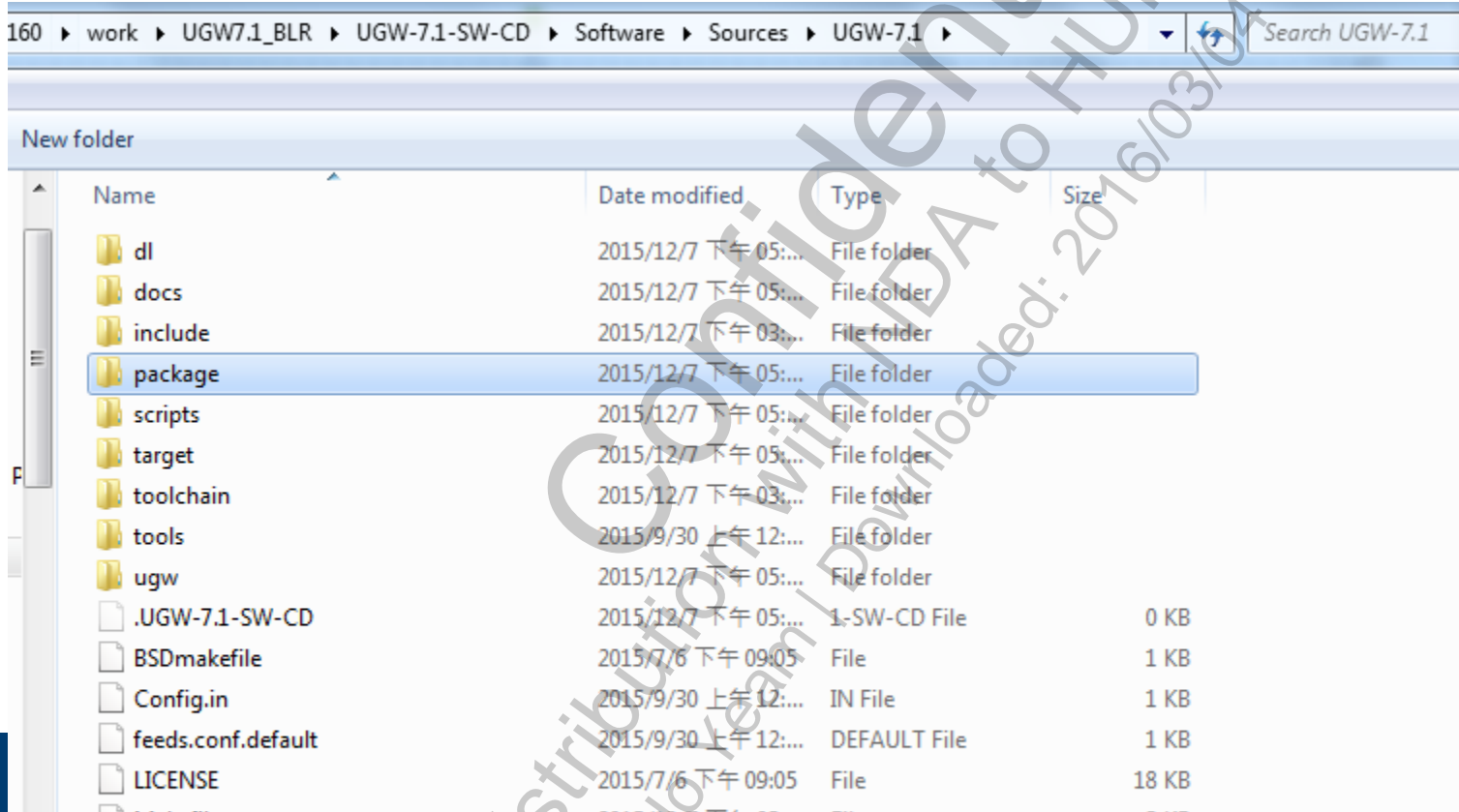
References

Getting started Doc:

UGW_7 1_GS_Rev1 0.pdf

There is no feeds folder before you apply the prepare script

UGW7.1_BLR ▸ UGW-7.1-SW-CD ▸ Software ▸ Sources ▸ UGW-7.1 ▸ package ▸

Name	Date modified	Type	Size
base-files	2015/12/7 下午 03:...	File folder	
boot	2015/9/30 上午 12:...	File folder	
devel	2015/9/30 上午 12:...	File folder	
firewall	2015/12/7 下午 03:...	File folder	
firmware	2015/9/30 上午 12:...	File folder	
kernel	2015/9/30 上午 12:...	File folder	
libs	2015/9/30 上午 12:...	File folder	
network	2015/9/30 上午 12:...	File folder	
pjsip	2015/12/7 下午 03:...	File folder	
system	2015/9/30 上午 12:...	File folder	
utils	2015/9/30 上午 12:...	File folder	
Makefile	2015/12/7 下午 03:...	File	7 KB

Staging folder was only created after the prepare script.

Q&A

1. what is the role of ugw-prepare-all.sh script

    • Make symbolink of ugw/feeds to pakcage/feeds

2. End

Tricks(1)

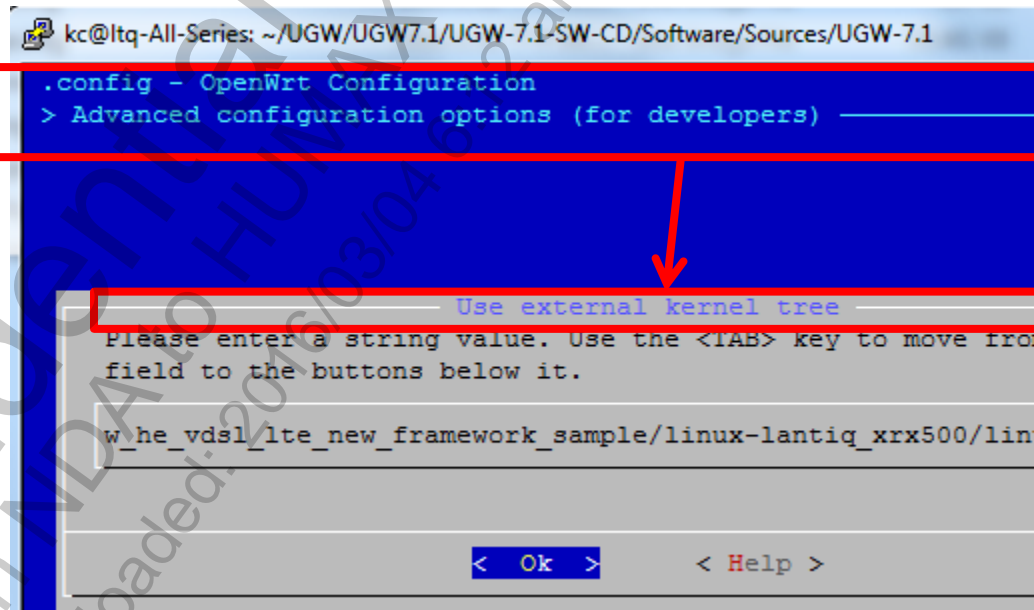1. How to compile CD with pre-compiled toolchain ?

- make menuconfig -> Advanced configuration options (for developers) -> use external toolchain

    - Toolchain root from /opt/cross/mips-unknown-linux-gnu to /home/kc/UGW/UGW7.1_BLR_training_New/UGW-7.1-SW-CD/Software/Sources/UGW-7.1/staging_dir/toolchain-mips_mips32_gcc-4.8-linaro_uClibc-0.9.33.2
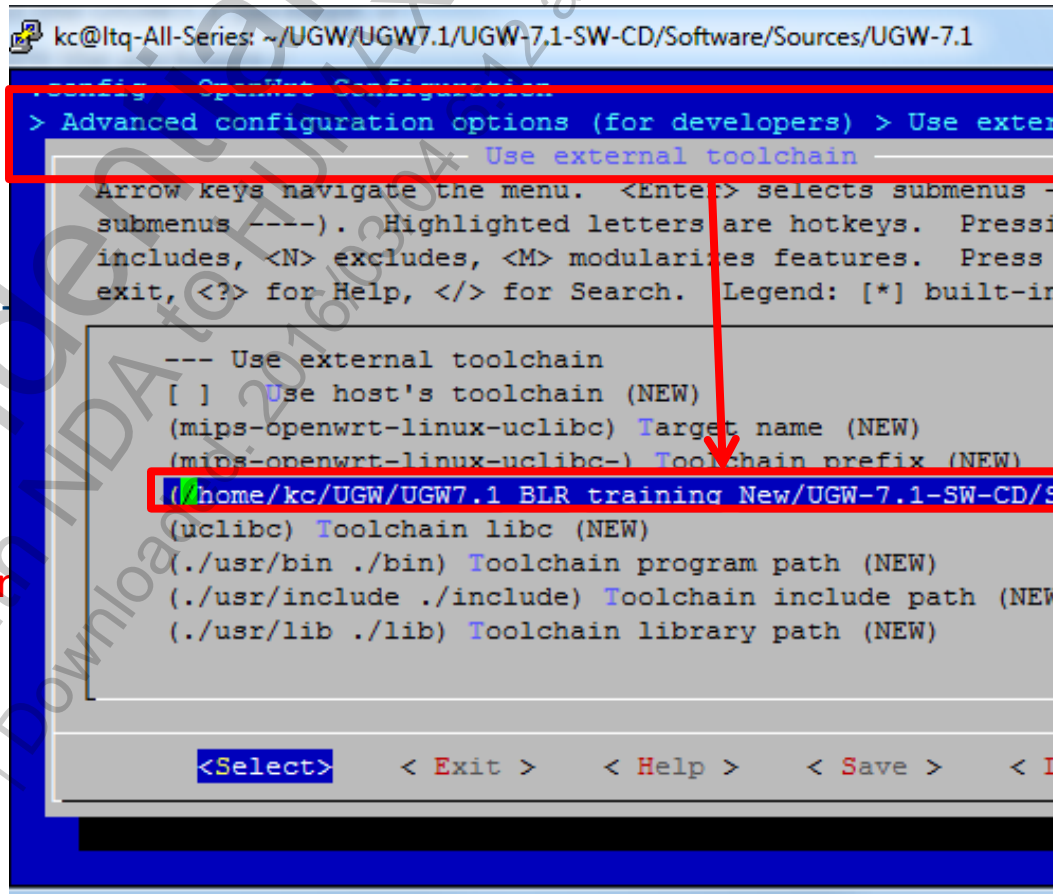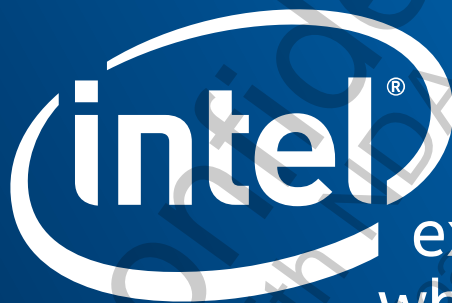
Tricks(2)

1. How to specify External Kernel Tree?

   • make menuconfig -> Advanced configuration options (for developers) -> use external kernel tree

2. End

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