CyaSSL Now Compatible with OpenEmbedded and the Yocto Project

wolfSSL has developed two products for use within OpenEmbedded and the Yocto Project. These products include a CyaSSL lightweight, embedded SSL library recipe and a cURL with CyaSSL bbappend file. Both of these tools were tested on the MinnowBoard using the Yocto Project's Poky distribution, the base for developing custom Linux systems, and the Minnowboard board support package (BSP), meta-minnow.

Why CyaSSL with OE and the Yocto Project

CyaSSL is a lightweight, open source SSL library specifically designed for embedded systems. Developers building custom Linux with OpenEmbedded and/or the YoctoProject will benefit from using CyaSSL due to its ease of use, lightweight design, and low runtime memory. Specifications of CyaSSL include:

- Up to TLS 1.2 and DTLS 1.2
- Small Size: 20-100kB
- Runtime Memory: 1-36kB
- 20X smaller than OpenSSL

cURL with CyaSSL

cURL is a command line utility developed for sending and receiving files through URL syntax. In order to include cURL with CyaSSL in a custom Linux build with the YoctoProject/OE, the CyaSSL recipe and the meta-wolfssl layer must be included. Once both of these files have been added to a bitbake image (the custom Linux build created using Poky), any cURL commands entered using **--ssl** will be transferred with CyaSSL encrypting the data.

See the next section, **CyaSSL Bitbake Recipe,** for instructions on implementing the CyaSSL library into a custom Yocto Project image.

CyaSSL Bitbake Recipe

The CyaSSL bitbake recipe is located in **meta-oe/meta-networking/recipes-connectivity/cyassl/.** To use this recipe, meta-oe must be cloned and included in the bblayers.conf file under the **BBLAYERS = "** section. To build an image with CyaSSL, the image must be customized by adding the line **IMAGE_INSTALL = "cyassl"** to the image file. To test if CyaSSL is properly installed, a bitbake command may be run on the file by entering **bitbake cyassl** within the build directory. The output should look similar to this:

```
~/poky/build$ bitbake cyassl
Loading cache: 100%
|#########################################| ETA:  00:00:00
Loaded 1270 entries from dependency cache.
Parsing recipes: 100%
|#########################################| Time: 00:00:00
Parsing of 902 .bb files complete (901 cached, 1 parsed). 1270 targets, 28
skipped, 0 masked, 0 errors.
NOTE: Resolving any missing task queue dependencies

Build Configuration:
BB_VERSION        = "1.23.1"
BUILD_SYS         = "x86_64-linux"
NATIVELSBSTRING   = "Ubuntu-14.04"
TARGET_SYS        = "i586-poky-linux"
MACHINE           = "minnow"
DISTRO            = "poky"
DISTRO_VERSION    = "1.6+snapshot-20140813"
TUNE_FEATURES     = "m32 core2"
TARGET_FPU        = ""
meta
meta-yocto
meta-yocto-bsp    =
"master:7c1a975a1c2fd884aa9f6f4736656d854a6c5edb"
meta-intel        = "master:6aa0c6a6a75f6a4c2fda8e59be1212464307c69a"
meta-minnow       =
"master:7bdcd1140b729598bae6246a4bbc21c3950aadd8"
meta-wolfssl      =
"master:84158b515206003eb217f2f99c07030890e8aaa4"

NOTE: Preparing runqueue
NOTE: Executing SetScene Tasks
NOTE: Executing RunQueue Tasks
NOTE: Tasks Summary: Attempted 395 tasks of which 383 didn't need to
be rerun and all succeeded.
```

Learn More

For more information about the CyaSSL OpenEmbedded and YoctoProject components, please contact us at info@wolfssl.com, or visit our website www.wolfssl.com.