

AN14000

Methods of removing GPLv3 Packages from rootfs

Rev. 1 — 20 July 2023

Application note

Document Information

| Information | Content |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Keywords | License; GPLv3; GPLv2; Yocto |
| Abstract | This document aims to help users remove GPLv3 packages from their rootfs. It summarizes methods to remove GPLv3 packages and gives suggestions on how to resolve issues that might happen during the procedure. |



5. List only names of GPLv3 packages used in rootfs:

```
awk -F ':' '{if (NR%5==0) {print} else printf "%s\t",
$NF;}' ./tmp/deploy/licenses/$YOURSPECIFICBUILD_${TIMESTAMP}/li-
cense.manifest | grep " GPL-3.0" | awk '{print $1;}'
```

3 Methods and procedure

In this chapter, we describe ways to remove or replace GPLv3 packages.

They are the methods summarized based on our current experience. In reality, there are more approaches available.

3.1 General description

Four methods and their procedures are described:

1. Generate GPLv3 package list and remove useless packages.
2. Use recipes provided by meta-gplv2 but remove host tools' recipes.
3. For dual-licensed packages, keep GPLv2 or LGPL license, but remove GPLv3 artifacts in Yocto bb file.
4. Remove GPLv3 packages that customers do not need from Yocto.

3.2 Generating GPLv3 package list and removing useless packages

1. Use the command to generate the package list.

```
awk -F ':' '{if (NR%5==0) {print} else printf "%s\t",
$NF;}' ./tmp/deploy/licenses/$YOURSPECIFICBUILD_${TIMESTAMP}/li-
cense.manifest | grep " GPL-3.0" > gplv3_pkgs.txt
```

2. Check all packages in the list and remove unused packages from Yocto, for example, cpp, g++, gcc. Example patch to remove a GPLv3 package libtasn1 from Yocto:

```
diff --git a/sources/meta-imx/tools/imx-setup-release.sh
b/sources/meta-imx/tools/imx-setup-release.sh
index 52334389..70237ca0 100755
--- a/sources/meta-imx/tools/imx-setup-release.sh
+++ b/sources/meta-imx/tools/imx-setup-release.sh
@@ -158,6 +158,7 @@
 echo "# Switch to Debian packaging and include package-management in
the image" >> conf/local.conf
 echo "PACKAGE_CLASSES = \"package_deb\"" >> conf/local.conf
 echo "EXTRA_IMAGE_FEATURES += \"package-management\"" >> conf/lo
-cal.conf
+echo "IMAGE_INSTALL:remove += \" libtasn1 \"" >> conf/local.conf"

if [ ! -e $BUILD_DIR/conf/bblayers.conf.org ]; then
    cp $BUILD_DIR/conf/bblayers.conf $BUILD_DIR/conf/bblay
-ers.conf.org
```

Note: Some library packages might have dependencies with other Yocto modules. The Yocto build fails when dependencies in Yocto build are detected. In this case, consider removing all related packages. For example, for GPLv3 package *gnutls*, *apt* must also be removed as *apt* has the dependency on *gnutls*. Patch to remove *apt*:

```
diff --git a/sources/meta-imx/tools/imx-setup-release.sh
b/sources/meta-imx/tools/imx-setup-release.sh
index 52334389..914a87d7 100755
```

```

--- a/sources/meta-imx/tools/imx-setup-release.sh
+++ b/sources/meta-imx/tools/imx-setup-release.sh
@@ -156,8 +156,8 @@

    echo >> conf/local.conf
    echo "# Switch to Debian packaging and include package-management in
the image" >> conf/local.conf
-echo "PACKAGE_CLASSES = \"package_deb\"" >> conf/local.conf
-echo "EXTRA_IMAGE_FEATURES += \"package-management\"" >> conf/lo
-cal.conf
+echo "PACKAGE_CLASSES = \"package_deb\"" >> conf/local.conf
+echo "EXTRA_IMAGE_FEATURES += \"package-management\"" >> conf/lo
-cal.conf

    if [ ! -e $BUILD_DIR/conf/bblayers.conf.org ]; then
        cp $BUILD_DIR/conf/bblayers.conf $BUILD_DIR/conf/bblay
-ers.conf.org

```

3.3 Using recipes provided by meta-gplv2 and removing host tools' recipes

This section gives detailed information on how to apply meta-gplv2 to Yocto and remove recipes of host tools.

3.3.1 Steps to apply meta-gplv2 to Yocto

1. Go to <yocto_build_dir>/source, clone meta-gplv2 repo, for kirkstone, the command is:

```
git clone git://git.yoctoproject.org/meta-gplv2 -b kirkstone
```

2. Add meta-gplv2 to bblayers. An example patch is shown below:

```

diff --git a/sources/meta-imx/tools/imx-setup-release.sh
b/sources/meta-imx/tools/imx-setup-release.sh
index 07acbd55..52334389 100755
--- a/sources/meta-imx/tools/imx-setup-release.sh
+++ b/sources/meta-imx/tools/imx-setup-release.sh
@@ -184,6 +184,7 @@
    echo "BBLAYERS += \"\${BSPDIR}/sources/meta-openembedded/meta-
filesystems\"" >> $BUILD_DIR/conf/bblayers.conf

    echo "BBLAYERS += \"\${BSPDIR}/sources/meta-qt6\"" >>
$BUILD_DIR/conf/bblayers.conf
+echo "BBLAYERS += \"\${BSPDIR}/sources/meta-gplv2\"" >>
$BUILD_DIR/conf/bblayers.conf

    # Enable docker for mx8 machines
    echo "BBLAYERS += \"\${BSPDIR}/sources/meta-virtualization\"" >>
conf/bblayers.conf

```

3. Change meta-gplv2 layer priority to 9.

```

diff --git a/sources/meta-gplv2/conf/layer.conf b/sources/meta-
gplv2/conf/layer.conf
index 48fc58f1..37ac19d9 100644
--- a/sources/meta-gplv2/conf/layer.conf
+++ b/sources/meta-gplv2/conf/layer.conf
@@ -6,7 +6,7 @@ BBFILES += "${LAYERDIR}/recipes-*/*/*.bb"

BBFILE_COLLECTIONS += "gplv2"
BBFILE_PATTERN_gplv2 = "^${LAYERDIR}/"
-BBFILE_PRIORITY_gplv2 = "1"

```

```
+BBFILE_PRIORITY_gplv2 = "9"

# This should only be incremented on significant changes that will
# cause compatibility issues with other layers
```

4. Check meta-gplv2 layer. Check the layers that compose the BSP using the following command:

```
bitbake-layers show-layers
```

```
nxa08304@slv11258:/opt/samba/nxa08304/SWUpdate/fsl-release-bsp-imx6ull-5.15.32/build-xwayland-swupdate-imx6ull14x14evk$ bitbake-layers show-layers
/usr/lib/python3/dist-packages/html5lib/_trie/_base.py:3: DeprecationWarning: Using or importing the ABCs from 'collections' instead of from 'coll
will stop working
from collections import Mapping
NOTE: Starting bitbake server...
layer          path          priority
-----
meta           /opt/samba/nxa08304/SWUpdate/fsl-release-bsp-imx6ull-5.15.32/sources/poky/meta 5
meta-poky     /opt/samba/nxa08304/SWUpdate/fsl-release-bsp-imx6ull-5.15.32/sources/poky/meta-poky 5
meta-oe      /opt/samba/nxa08304/SWUpdate/fsl-release-bsp-imx6ull-5.15.32/sources/meta-openembedded/meta-oe 5
meta-multimedia /opt/samba/nxa08304/SWUpdate/fsl-release-bsp-imx6ull-5.15.32/sources/meta-openembedded/meta-multimedia 5
meta-python  /opt/samba/nxa08304/SWUpdate/fsl-release-bsp-imx6ull-5.15.32/sources/meta-openembedded/meta-python 5
meta-freescale /opt/samba/nxa08304/SWUpdate/fsl-release-bsp-imx6ull-5.15.32/sources/meta-freescale 5
meta-freescale-3rdparty /opt/samba/nxa08304/SWUpdate/fsl-release-bsp-imx6ull-5.15.32/sources/meta-freescale-3rdparty 4
meta-freescale-distro /opt/samba/nxa08304/SWUpdate/fsl-release-bsp-imx6ull-5.15.32/sources/meta-freescale-distro 4
meta-bsp     /opt/samba/nxa08304/SWUpdate/fsl-release-bsp-imx6ull-5.15.32/sources/meta-imx/meta-bsp 8
meta-sdk     /opt/samba/nxa08304/SWUpdate/fsl-release-bsp-imx6ull-5.15.32/sources/meta-imx/meta-sdk 8
meta-ml     /opt/samba/nxa08304/SWUpdate/fsl-release-bsp-imx6ull-5.15.32/sources/meta-imx/meta-ml 8
meta-v2x    /opt/samba/nxa08304/SWUpdate/fsl-release-bsp-imx6ull-5.15.32/sources/meta-imx/meta-v2x 9
meta-nxp-demo-experience /opt/samba/nxa08304/SWUpdate/fsl-release-bsp-imx6ull-5.15.32/sources/meta-nxp-demo-experience 7
meta-chromium /opt/samba/nxa08304/SWUpdate/fsl-release-bsp-imx6ull-5.15.32/sources/meta-browser/meta-chromium 7
meta-clang  /opt/samba/nxa08304/SWUpdate/fsl-release-bsp-imx6ull-5.15.32/sources/meta-clang 7
meta-gnome  /opt/samba/nxa08304/SWUpdate/fsl-release-bsp-imx6ull-5.15.32/sources/meta-openembedded/meta-gnome 5
meta-networking /opt/samba/nxa08304/SWUpdate/fsl-release-bsp-imx6ull-5.15.32/sources/meta-openembedded/meta-networking 5
meta-fileystems /opt/samba/nxa08304/SWUpdate/fsl-release-bsp-imx6ull-5.15.32/sources/meta-openembedded/meta-fileystems 5
meta-qt6    /opt/samba/nxa08304/SWUpdate/fsl-release-bsp-imx6ull-5.15.32/sources/meta-qt6 5
meta-swupdate /opt/samba/nxa08304/SWUpdate/fsl-release-bsp-imx6ull-5.15.32/sources/meta-swupdate 6
meta-swupdate-imx /opt/samba/nxa08304/SWUpdate/fsl-release-bsp-imx6ull-5.15.32/sources/meta-swupdate-imx 7
meta-samsung-hub-env /opt/samba/nxa08304/SWUpdate/fsl-release-bsp-imx6ull-5.15.32/sources/meta-samsung-hub-env 8
meta-gplv2  /opt/samba/nxa08304/SWUpdate/fsl-release-bsp-imx6ull-5.15.32/sources/meta-gplv2 9
meta-virtualization /opt/samba/nxa08304/SWUpdate/fsl-release-bsp-imx6ull-5.15.32/sources/meta-virtualization 8
```

Figure 3. Example code

As meta-gplv2 covers other bb files, use a higher priority 9 for it.

5. Check if all GPLv3 packages are covered by meta-gplv2. If some GPLv3 packages do not have GPLv2 licensed version, check if these packages can be removed.

3.3.2 Remove host tools' recipes from meta-gplv2

As some host tools' packages might not be built into rootfs, those packages' recipes must not be overridden by old versions in meta-gplv2 layer. Moreover, using old versions of host tools might cause errors in Yocto building, so remove host tools' recipes from meta-gplv2.

1. Generate the GPLv3 package list that will be built into rootfs:

```
awk -F ':' '{if (NR%5==0) {print} else printf "%s\t",
$NF;}' ./tmp/deploy/licenses/$YOURSPECIFICBUILD_$TIMESTAMP/li-
cense.manifest | grep " GPL-3.0" | awk '{print $1;} ' >
gplv3_pkgs.txt
```

2. One by one, check if there are any GPLv3 packages in native package list, but not in the built-in package list.
3. Remove those packages from meta-gplv2. For example, elfutils, gmp, gettext.

```
rm -rf sources/meta-gplv2/recipes-devtools/elfutils
rm -rf source/meta-gplv2/recipes-support/gmp
rm -rf sources/meta-gplv2/recipes-core/gettext
```

3.4 Information for dual-licensed packages

For dual-licensed packages, try to keep the GPLv2 or LGPL license, but remove GPLv3 artifacts in Yocto bb file.

Read the license statement carefully and make sure you can keep GPLv2 or LGPL licensed artifacts.

For example, libidn2, is licensed under GPLv2 and GPLv3.

The license statement is:

Libidn2 COPYING -- Licensing information. *- outline *-Copyright (C) 2011-2016 Simon JosefssonSee the end for copying conditions. The source code for the C library (libidn2.a or libidn.so) is licensed under the terms of either the GNU General Public License version 2.0 or later (see the file COPYINGv2) or the GNU Lesser General Public License version 3.0 or later (see the file COPYING.LESSERv3), or both in parallel as here. The command-line tool, self-tests, examples, and other auxiliary files, are licensed under the GNU General Public License version 3.0or later.

In libidn2, libraries are in GPLv2 license and executive applications are in GPLv3 license. So in function do_install:append in bb file, remove executive binaries from rootfs. Patch:

```
diff --git a/meta/recipes-extended/libidn/libidn2_2.3.2.bb
b/meta/recipes-extended/libidn/libidn2_2.3.2.bb
index e1b25b4b8c..8540492f7e 100644
--- a/meta/recipes-extended/libidn/libidn2_2.3.2.bb
+++ b/meta/recipes-extended/libidn/libidn2_2.3.2.bb
@@ -24,6 +24,9 @@ EXTRA_OECONF += "--disable-rpath \
do_install:append() {
    # Need to remove any duplicate whitespace too for
    reproducibility
    sed -i -e 's|-L${STAGING_LIBDIR}||' -e 's/ */ /g'
    ${D}${libdir}/pkgconfig/libidn2.pc
+ # Remove binary as it is GPLv3.
+ rm -rf ${D}/usr/bin
+ rm -f ${D}/share/man/man1/idn2.1
}
```

4 Revision history

[Table 1](#) summarizes the changes since the initial release.

Table 1. Revision history

| Revision number | Date | Substantive changes |
|-----------------|--------------|---------------------|
| 1 | 20 July 2023 | Initial release |

5 Note about the source code in the document

Example code shown in this document has the following copyright and BSD-3-Clause license:

Copyright 2023 NXP Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials must be provided with the distribution.
3. Neither the name of the copyright holder nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

6 Legal information

6.1 Definitions

Draft — A draft status on a document indicates that the content is still under internal review and subject to formal approval, which may result in modifications or additions. NXP Semiconductors does not give any representations or warranties as to the accuracy or completeness of information included in a draft version of a document and shall have no liability for the consequences of use of such information.

6.2 Disclaimers

Limited warranty and liability — Information in this document is believed to be accurate and reliable. However, NXP Semiconductors does not give any representations or warranties, expressed or implied, as to the accuracy or completeness of such information and shall have no liability for the consequences of use of such information. NXP Semiconductors takes no responsibility for the content in this document if provided by an information source outside of NXP Semiconductors.

In no event shall NXP Semiconductors be liable for any indirect, incidental, punitive, special or consequential damages (including - without limitation - lost profits, lost savings, business interruption, costs related to the removal or replacement of any products or rework charges) whether or not such damages are based on tort (including negligence), warranty, breach of contract or any other legal theory.

Notwithstanding any damages that customer might incur for any reason whatsoever, NXP Semiconductors' aggregate and cumulative liability towards customer for the products described herein shall be limited in accordance with the Terms and conditions of commercial sale of NXP Semiconductors.

Right to make changes — NXP Semiconductors reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice. This document supersedes and replaces all information supplied prior to the publication hereof.

Suitability for use — NXP Semiconductors products are not designed, authorized or warranted to be suitable for use in life support, life-critical or safety-critical systems or equipment, nor in applications where failure or malfunction of an NXP Semiconductors product can reasonably be expected to result in personal injury, death or severe property or environmental damage. NXP Semiconductors and its suppliers accept no liability for inclusion and/or use of NXP Semiconductors products in such equipment or applications and therefore such inclusion and/or use is at the customer's own risk.

Applications — Applications that are described herein for any of these products are for illustrative purposes only. NXP Semiconductors makes no representation or warranty that such applications will be suitable for the specified use without further testing or modification.

Customers are responsible for the design and operation of their applications and products using NXP Semiconductors products, and NXP Semiconductors accepts no liability for any assistance with applications or customer product design. It is customer's sole responsibility to determine whether the NXP Semiconductors product is suitable and fit for the customer's applications and products planned, as well as for the planned application and use of customer's third party customer(s). Customers should provide appropriate design and operating safeguards to minimize the risks associated with their applications and products.

NXP Semiconductors does not accept any liability related to any default, damage, costs or problem which is based on any weakness or default in the customer's applications or products, or the application or use by customer's third party customer(s). Customer is responsible for doing all necessary testing for the customer's applications and products using NXP Semiconductors products in order to avoid a default of the applications and the products or of the application or use by customer's third party customer(s). NXP does not accept any liability in this respect.

Terms and conditions of commercial sale — NXP Semiconductors products are sold subject to the general terms and conditions of commercial sale, as published at <http://www.nxp.com/profile/terms>, unless otherwise agreed in a valid written individual agreement. In case an individual agreement is concluded only the terms and conditions of the respective agreement shall apply. NXP Semiconductors hereby expressly objects to applying the customer's general terms and conditions with regard to the purchase of NXP Semiconductors products by customer.

Export control — This document as well as the item(s) described herein may be subject to export control regulations. Export might require a prior authorization from competent authorities.

Suitability for use in non-automotive qualified products — Unless this data sheet expressly states that this specific NXP Semiconductors product is automotive qualified, the product is not suitable for automotive use. It is neither qualified nor tested in accordance with automotive testing or application requirements. NXP Semiconductors accepts no liability for inclusion and/or use of non-automotive qualified products in automotive equipment or applications.

In the event that customer uses the product for design-in and use in automotive applications to automotive specifications and standards, customer (a) shall use the product without NXP Semiconductors' warranty of the product for such automotive applications, use and specifications, and (b) whenever customer uses the product for automotive applications beyond NXP Semiconductors' specifications such use shall be solely at customer's own risk, and (c) customer fully indemnifies NXP Semiconductors for any liability, damages or failed product claims resulting from customer design and use of the product for automotive applications beyond NXP Semiconductors' standard warranty and NXP Semiconductors' product specifications.

Translations — A non-English (translated) version of a document, including the legal information in that document, is for reference only. The English version shall prevail in case of any discrepancy between the translated and English versions.

Security — Customer understands that all NXP products may be subject to unidentified vulnerabilities or may support established security standards or specifications with known limitations. Customer is responsible for the design and operation of its applications and products throughout their lifecycles to reduce the effect of these vulnerabilities on customer's applications and products. Customer's responsibility also extends to other open and/or proprietary technologies supported by NXP products for use in customer's applications. NXP accepts no liability for any vulnerability. Customer should regularly check security updates from NXP and follow up appropriately. Customer shall select products with security features that best meet rules, regulations, and standards of the intended application and make the ultimate design decisions regarding its products and is solely responsible for compliance with all legal, regulatory, and security related requirements concerning its products, regardless of any information or support that may be provided by NXP.

NXP has a Product Security Incident Response Team (PSIRT) (reachable at PSIRT@nxp.com) that manages the investigation, reporting, and solution release to security vulnerabilities of NXP products.

NXP B.V. - NXP B.V. is not an operating company and it does not distribute or sell products.

6.3 Trademarks

Notice: All referenced brands, product names, service names, and trademarks are the property of their respective owners.

NXP — wordmark and logo are trademarks of NXP B.V.

Contents

| | | |
|----------|--------------------------------------------------------------------------------|----------|
| 1 | Introduction | 2 |
| 2 | Useful Yocto commands | 2 |
| 3 | Methods and procedure | 3 |
| 3.1 | General description | 3 |
| 3.2 | Generating GPLv3 package list and removing useless packages | 3 |
| 3.3 | Using recipes provided by meta-gplv2 and removing host tools' recipes | 4 |
| 3.3.1 | Steps to apply meta-gplv2 to Yocto | 4 |
| 3.3.2 | Remove host tools' recipes from meta- gplv2 | 5 |
| 3.4 | Information for dual-licensed packages | 5 |
| 4 | Revision history | 6 |
| 5 | Note about the source code in the document | 6 |
| 6 | Legal information | 8 |

Please be aware that important notices concerning this document and the product(s) described herein, have been included in section 'Legal information'.

© 2023 NXP B.V.

All rights reserved.

For more information, please visit: <http://www.nxp.com>

Date of release: 20 July 2023
Document identifier: AN14000