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* by Mark Gates <mgates@nlanr.net>
* and Ajay Tirumalla <tirumala@ncsa.uiuc.edu>
* -----------------------------------------------------------------
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* input and output numbers, converting with kilo, mega, giga
* ---------------------------------------------------------------------- */

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USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH
DAMAGE.
--------------------------------------------------------------------------
```

libpwquality 1.4.4

GPL-2.0-only

Home page: https://github.com/libpwquality/libpwquality

Download:
https://github.com/libpwquality/libpwquality/releases/download/libpwquality-1.4.4/libpwquality-1.4.4.tar.bz2

A copy of GPL-2.0 license is appended to the end of this document for reference.

License text:

```
Unless otherwise *explicitly* stated the following text describes the
licensed conditions under which the contents of this libpwquality release
may be distributed:

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```

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The full text of the GNU GENERAL PUBLIC LICENSE Version 2 is included below.

libseccomp 2.5.3

LGPL-2.1-only

Home page: https://github.com/seccomp/libseccomp

Download: git://github.com/seccomp/libseccomp.git;branch=release-2.5;protocol=https

A copy of LGPL-2.1 license is appended to the end of this document for reference.

libubootenv 0.3.2

LGPL-2.1-only

Home page: https://github.com/sbabic/libubootenv

Download: git://github.com/sbabic/libubootenv;protocol=https;branch=master

A copy of LGPL-2.1 license is appended to the end of this document for reference.

linux-imx 5.15.71

GPL-2.0-only

Home page: https://github.com/nxp-imx/linux-imx

Download: https://github.com/nxp-imx/linux-imx.git

License text:

```
The Linux Kernel is provided under:

    SPDX-License-Identifier: GPL-2.0 WITH Linux-syscall-note

Being under the terms of the GNU General Public License version 2 only,
according with:

    LICENSES/preferred/GPL-2.0

With an explicit syscall exception, as stated at:

    LICENSES/exceptions/Linux-syscall-note

In addition, other licenses may also apply. Please see:

    Documentation/process/license-rules.rst

for more details.

All contributions to the Linux Kernel are subject to this COPYING file.
```

LICENSES/exceptions/Linux-syscall-note:

```
SPDX-Exception-Identifier: Linux-syscall-note
SPDX-URL: https://spdx.org/licenses/Linux-syscall-note.html
SPDX-Licenses: GPL-2.0, GPL-2.0+, GPL-1.0+, LGPL-2.0, LGPL-2.0+, LGPL-2.1, LGPL-2.1+, GPL-
2.0-only, GPL-2.0-or-later
Usage-Guide:
This exception is used together with one of the above SPDX-Licenses
to mark user space API (uapi) header files so they can be included
into non GPL compliant user space application code.
To use this exception add it with the keyword WITH to one of the
identifiers in the SPDX-Licenses tag:
SPDX-License-Identifier: <SPDX-License> WITH Linux-syscall-note License-
Text:

NOTE! This copyright does *not* cover user programs that use kernel
services by normal system calls - this is merely considered normal use
of the kernel, and does *not* fall under the heading of "derived work".
Also note that the GPL below is copyrighted by the Free Software
Foundation, but the instance of code that it refers to (the Linux
kernel) is copyrighted by me and others who actually wrote it.

Also note that the only valid version of the GPL as far as the kernel
is concerned is _this_ particular version of the license (ie v2, not
v2.2 or v3.x or whatever), unless explicitly otherwise stated.

Linus Torvalds
```

Documentation/process/license-rules.rst:

```
.. SPDX-License-Identifier: GPL-2.0

.. _kernel_licensing:

Linux kernel licensing rules
============================

The Linux Kernel is provided under the terms of the GNU General Public
License version 2 only (GPL-2.0), as provided in LICENSES/preferred/GPL-2.0,
with an explicit syscall exception described in
LICENSES/exceptions/Linux-syscall-note, as described in the COPYING file.

This documentation file provides a description of how each source file
should be annotated to make its license clear and unambiguous. It
doesn't replace the Kernel's license.

The license described in the COPYING file applies to the kernel source
as a whole, though individual source files can have a different license
which is required to be compatible with the GPL-2.0::

GPL-1.0+ : GNU General Public License v1.0 or later
GPL-2.0+ : GNU General Public License v2.0 or later
LGPL-2.0 : GNU Library General Public License v2 only
LGPL-2.0+ : GNU Library General Public License v2 or later
LGPL-2.1 : GNU Lesser General Public License v2.1 only
LGPL-2.1+ : GNU Lesser General Public License v2.1 or later

Aside from that, individual files can be provided under a dual license,
e.g. one of the compatible GPL variants and alternatively under a
permissive license like BSD, MIT etc.

The User-space API (UAPI) header files, which describe the interface of
user-space programs to the kernel are a special case. According to the note
in the kernel COPYING file, the syscall interface is a clear boundary,
which does not extend the GPL requirements to any software which uses it to
communicate with the kernel. Because the UAPI headers must be includable
into any source files which create an executable running on the Linux
kernel, the exception must be documented by a special license expression.

The common way of expressing the license of a source file is to add the
matching boilerplate text into the top comment of the file. Due to
formatting, typos etc. these "boilerplates" are hard to validate for
tools which are used in the context of license compliance.

An alternative to boilerplate text is the use of Software Package Data
Exchange (SPDX) license identifiers in each source file. SPDX license
identifiers are machine parsable and precise shorthands for the license under
which the content of the file is contributed. SPDX license identifiers are
managed by the SPDX Workgroup at the Linux Foundation and have been agreed on by
partners throughout the industry, tool vendors, and legal teams. For further
information see https://spdx.org/

The Linux kernel requires the precise SPDX identifier in all source files.
The valid identifiers used in the kernel are explained in the section
`License identifiers`_ and have been retrieved from the official SPDX
license list at https://spdx.org/licenses/ along with the license texts.

License identifier syntax
-------------------------

1. Placement:

The SPDX license identifier in kernel files shall be added at the first
possible line in a file which can contain a comment. For the majority
of files this is the first line, except for scripts which require the
```

'#!PATH_TO_INTERPRETER' in the first line. For those scripts the SPDX identifier goes into the second line.

|

2. Style:

The SPDX license identifier is added in form of a comment. The comment style depends on the file type::

C source: // SPDX-License-Identifier: <SPDX License Expression>
C header: /* SPDX-License-Identifier: <SPDX License Expression> */
ASM: /* SPDX-License-Identifier: <SPDX License Expression> */
scripts: # SPDX-License-Identifier: <SPDX License Expression> .rst: .. SPDX-License-Identifier: <SPDX License Expression>
.dts{i}: // SPDX-License-Identifier: <SPDX License Expression>

If a specific tool cannot handle the standard comment style, then the appropriate comment mechanism which the tool accepts shall be used. This is the reason for having the "/* */" style comment in C header files. There was build breakage observed with generated .lds files where 'ld' failed to parse the C++ comment. This has been fixed by now, but there are still older assembler tools which cannot handle C++ style comments.

|

3. Syntax:

A <SPDX License Expression> is either an SPDX short form license identifier found on the SPDX License List, or the combination of two SPDX short form license identifiers separated by "WITH" when a license exception applies. When multiple licenses apply, an expression consists of keywords "AND", "OR" separating sub-expressions and surrounded by "(", ")" .

License identifiers for licenses like [L]GPL with the 'or later' option are constructed by using a "+" for indicating the 'or later' option.::

// SPDX-License-Identifier: GPL-2.0+
// SPDX-License-Identifier: LGPL-2.1+

WITH should be used when there is a modifier to a license needed. For example, the linux kernel UAPI files use the expression::

// SPDX-License-Identifier: GPL-2.0 WITH Linux-syscall-note
// SPDX-License-Identifier: GPL-2.0+ WITH Linux-syscall-note

Other examples using WITH exceptions found in the kernel are:: //

SPDX-License-Identifier: GPL-2.0 WITH mif-exception

// SPDX-License-Identifier: GPL-2.0+ WITH GCC-exception-2.0

Exceptions can only be used with particular License identifiers. The valid License identifiers are listed in the tags of the exception text file. For details see the point `Exceptions`_ in the chapter `License identifiers`_.

OR should be used if the file is dual licensed and only one license is to be selected. For example, some dtsi files are available under dual licenses::

// SPDX-License-Identifier: GPL-2.0 OR BSD-3-Clause

Examples from the kernel for license expressions in dual licensed files::

```
// SPDX-License-Identifier: GPL-2.0 OR MIT
// SPDX-License-Identifier: GPL-2.0 OR BSD-2-Clause
// SPDX-License-Identifier: GPL-2.0 OR Apache-2.0
// SPDX-License-Identifier: GPL-2.0 OR MPL-1.1
// SPDX-License-Identifier: (GPL-2.0 WITH Linux-syscall-note) OR MIT
// SPDX-License-Identifier: GPL-1.0+ OR BSD-3-Clause OR OpenSSL
```

AND should be used if the file has multiple licenses whose terms all apply to use the file. For example, if code is inherited from another project and permission has been given to put it in the kernel, but the original license terms need to remain in effect::

```
// SPDX-License-Identifier: (GPL-2.0 WITH Linux-syscall-note) AND MIT
```

Another other example where both sets of license terms need to be adhered to is::

```
// SPDX-License-Identifier: GPL-1.0+ AND LGPL-2.1+
```

License identifiers

The licenses currently used, as well as the licenses for code added to the kernel, can be broken down into:

1. _`Preferred licenses`:

Whenever possible these licenses should be used as they are known to be fully compatible and widely used. These licenses are available from the directory:: LICENSES/preferred/ in the kernel source tree.

The files in this directory contain the full license text and `Metatags`_. The file names are identical to the SPDX license identifier which shall be used for the license in source files.

Examples::

LICENSES/preferred/GPL-2.0

Contains the GPL version 2 license text and the required metatags::

LICENSES/preferred/MIT

Contains the MIT license text and the required metatags

_`Metatags`:
The following meta tags must be available in a license file:

- Valid-License-Identifier:

One or more lines which declare which License Identifiers are valid inside the project to reference this particular license text. Usually this is a single valid identifier, but e.g. for licenses with the 'or later' options two identifiers are valid.

- SPDX-URL:

The URL of the SPDX page which contains additional information related to the license.

- Usage-Guidance:

Freeform text for usage advice. The text must include correct examples for the SPDX license identifiers as they should be put into source

files according to the `License identifier syntax`_ guidelines. -
License-Text:

All text after this tag is treated as the original license text

File format examples::

Valid-License-Identifier: GPL-2.0
Valid-License-Identifier: GPL-2.0+
SPDX-URL: https://spdx.org/licenses/GPL-2.0.html
Usage-Guide:
To use this license in source code, put one of the following SPDX
tag/value pairs into a comment according to the placement
guidelines in the licensing rules documentation. For 'GNU General
Public License (GPL) version 2 only' use:
SPDX-License-Identifier: GPL-2.0
For 'GNU General Public License (GPL) version 2 or any later version' use: SPDX-License-
Identifier: GPL-2.0+
License-Text:
Full license text

::

SPDX-License-Identifier: MIT
SPDX-URL: https://spdx.org/licenses/MIT.html
Usage-Guide:
To use this license in source code, put the following SPDX
tag/value pair into a comment according to the placement
guidelines in the licensing rules documentation. SPDX-License-
Identifier: MIT
License-Text:
Full license text

|

2. Deprecated licenses:

These licenses should only be used for existing code or for importing
code from a different project. These licenses are available from the
directory:: LICENSES/deprecated/ in the kernel source tree.

The files in this directory contain the full license text and
`Metatags`_. The file names are identical to the SPDX license identifier
which shall be used for the license in source files.

Examples::

LICENSES/deprecated/ISC

Contains the Internet Systems Consortium license text and the required
metatags::

LICENSES/deprecated/GPL-1.0

Contains the GPL version 1 license text and the required metatags.

Metatags:

The metatag requirements for 'other' licenses are identical to the
requirements of the `Preferred licenses`_.

File format example::

Valid-License-Identifier: ISC
SPDX-URL: https://spdx.org/licenses/ISC.html

Usage-Guide:
Usage of this license in the kernel for new code is discouraged
and it should solely be used for importing code from an already
existing project.
To use this license in source code, put the following SPDX
tag/value pair into a comment according to the placement
guidelines in the licensing rules documentation. SPDX-License-
Identifier: ISC
License-Text:
Full license text

|

3. Dual Licensing Only

These licenses should only be used to dual license code with another license in addition to a preferred license. These licenses are available from the directory:: LICENSES/dual/ in the kernel source tree.

The files in this directory contain the full license text and
`Metatags`_. The file names are identical to the SPDX license
identifier which shall be used for the license in source files.

Examples::

LICENSES/dual/MPL-1.1

Contains the Mozilla Public License version 1.1 license text and the
required metatags::

LICENSES/dual/Apache-2.0

Contains the Apache License version 2.0 license text and the required metatags. Metatags:

The metatag requirements for 'other' licenses are identical to the
requirements of the `Preferred licenses`_.

File format example::
Valid-License-Identifier: MPL-1.1
SPDX-URL: https://spdx.org/licenses/MPL-1.1.html
Usage-Guide:
Do NOT use. The MPL-1.1 is not GPL2 compatible. It may only be used for
dual-licensed files where the other license is GPL2 compatible. If you
end up using this it MUST be used together with a GPL2 compatible
license using "OR".
To use the Mozilla Public License version 1.1 put the following SPDX
tag/value pair into a comment according to the placement guidelines in
the licensing rules documentation: SPDX-License-Identifier: MPL-1.1
License-Text:
Full license text

|

4. _`Exceptions`:

Some licenses can be amended with exceptions which grant certain rights which the original license does not. These exceptions are available from the directory:: LICENSES/exceptions/

in the kernel source tree. The files in this directory contain the full
exception text and the required `Exception Metatags`_.

Examples::

LICENSES/exceptions/Linux-syscall-note

Contains the Linux syscall exception as documented in the COPYING
file of the Linux kernel, which is used for UAPI header files.
e.g. /* SPDX-License-Identifier: GPL-2.0 WITH Linux-syscall-note */::

LICENSES/exceptions/GCC-exception-2.0

Contains the GCC 'linking exception' which allows to link any binary
independent of its license against the compiled version of a file marked
with this exception. This is required for creating runnable executables
from source code which is not compatible with the GPL.

_`Exception Metatags`:

The following meta tags must be available in an exception file:

- SPDX-Exception-Identifier:

One exception identifier which can be used with SPDX license
identifiers.

- SPDX-URL:

The URL of the SPDX page which contains additional information related
to the exception.

- SPDX-Licenses:

A comma separated list of SPDX license identifiers for which the
exception can be used.

- Usage-Guidance:

Freeform text for usage advice. The text must be followed by correct
examples for the SPDX license identifiers as they should be put into
source files according to the `License identifier syntax`_ guidelines. -
Exception-Text:

All text after this tag is treated as the original exception text

File format examples::

SPDX-Exception-Identifier: Linux-syscall-note
SPDX-URL: https://spdx.org/licenses/Linux-syscall-note.html
SPDX-Licenses: GPL-2.0, GPL-2.0+, GPL-1.0+, LGPL-2.0, LGPL-2.0+, LGPL-2.1, LGPL-2.1+
Usage-Guidance:
This exception is used together with one of the above SPDX-Licenses
to mark user-space API (uapi) header files so they can be included
into non GPL compliant user-space application code.
To use this exception add it with the keyword WITH to one of the
identifiers in the SPDX-Licenses tag:
SPDX-License-Identifier: <SPDX-License> WITH Linux-syscall-note
Exception-Text:
Full exception text

::

SPDX-Exception-Identifier: GCC-exception-2.0
SPDX-URL: https://spdx.org/licenses/GCC-exception-2.0.html SPDX-
Licenses: GPL-2.0, GPL-2.0+
Usage-Guidance:
The "GCC Runtime Library exception 2.0" is used together with one
of the above SPDX-Licenses for code imported from the GCC runtime
library.

To use this exception add it with the keyword WITH to one of the
identifiers in the SPDX-Licenses tag:
SPDX-License-Identifier: <SPDX-License> WITH GCC-exception-2.0
Exception-Text:
Full exception text

All SPDX license identifiers and exceptions must have a corresponding file
in the LICENSES subdirectories. This is required to allow tool verification
(e.g. checkpatch.pl) and to have the licenses ready to read and extract
right from the source, which is recommended by various FOSS organizations,
e.g. the `FSFE REUSE initiative <https://reuse.software/>`_.

_`MODULE_LICENSE`

Loadable kernel modules also require a MODULE_LICENSE() tag. This tag is
neither a replacement for proper source code license information (SPDX-
License-Identifier) nor in any way relevant for expressing or determining
the exact license under which the source code of the module is provided.

The sole purpose of this tag is to provide sufficient information
whether the module is free software or proprietary for the kernel
module loader and for user space tools.

The valid license strings for MODULE_LICENSE() are:

============================ ==
"GPL" Module is licensed under GPL version 2. This
does not express any distinction between GPL-2.0-
only or GPL-2.0-or-later. The exact license
information can only be determined via the license
information in the corresponding source files.

"GPL v2" Same as "GPL". It exists for historic
reasons.
"GPL and additional rights" Historical variant of expressing that the
module source is dual licensed under a
GPL v2 variant and MIT license. Please do
not use in new code.

"Dual MIT/GPL" The correct way of expressing that the
module is dual licensed under a GPL v2 variant or MIT
license choice.

"Dual BSD/GPL" The module is dual licensed under a GPL v2
variant or BSD license choice. The exact variant of the
BSD license can only be determined via the license
information in the corresponding source files.

"Dual MPL/GPL" The module is dual licensed under a GPL v2
variant or Mozilla Public License (MPL) choice. The exact
variant of the MPL license can only be determined via the
license information in the corresponding source files.

"Proprietary" The module is under a proprietary license.
This string is solely for proprietary third party
modules and cannot be used for modules which have their
source code in the kernel tree. Modules tagged that way
are tainting the kernel with the 'P' flag when loaded
and the kernel module loader refuses to link such
modules against symbols which are exported with
EXPORT_SYMBOL_GPL().
============================ ==

lpwr-int 0.1

GPLv2

Home page: NOASSERTION

Download: NOASSERTION

A copy of GPL-2.0 license is appended to the end of this document for reference.

lrzsz 0. 12.20

GPL-2.0-or-later

Home page: http://www.ohse.de/uwe/software/lrzsz.html

Download: http://www.ohse.de/uwe/releases/lrzsz-0.12.20.tar.gz

A copy of the GPL-2.0 license is appended to the end of this document for reference.

lsof 4.94.0

Spencer-94

Home page: http://people.freebsd.org/~abe/

Download: git://github.com/lsof-org/lsof;branch=master;protocol=https

License text:

```
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   being the original software. Since few users ever read sources, credits must appear in
   the documentation.

4. This notice may not be removed or altered.


Lsof has no license.  Its use and distribution are subject to these
terms and conditions, found in each lsof source file.  (The copyright
year in or format of the notice may vary slightly.)
```

```
/*
   *    Copyright 2002 Purdue Research Foundation, West Lafayette,
   *    Indiana 47907.  All rights reserved.
 *
   *    Written by Victor A. Abell
 *
   *    This software is not subject to any license of the American     * Telephone
        and Telegraph Company or the Regents of the
   *    University of California.
 *
   *    Permission is granted to anyone to use this software for
   *    any purpose on any computer system, and to alter it and     * redistribute it
        freely, subject to the following
   *    restrictions:
 *
   *    1. Neither the authors nor Purdue University are responsible
   *    for any consequences of the use of this software.
 *
   *    2. The origin of this software must not be misrepresented,
   *    either by explicit claim or by omission.  Credit to the     *    authors and
        Purdue University must appear in documentation
   *    and sources.
 *
   *    3. Altered versions must be plainly marked as such, and must
   *    not be misrepresented as being the original software.
 *
   *    4. This notice may not be removed or altered.
 */
```

memtester 4.5.1

GPL-2.0-only

Home page: http://pyropus.ca/software/memtester/

Download: http://pyropus.ca/software/memtester/old-versions/memtester-4.5.1.tar.gz

A copy of GPL-2.0 license is appended to the end of this document for reference.

mmc-utils 0.1

GPL-2.0-only

Home page: http://git.kernel.org/cgit/linux/kernel/git/cjb/mmc-utils.git/

Download: git://git.kernel.org/pub/scm/linux/kernel/git/cjb/mmcutils.git;branch=master

A copy of GPL-2.0 license is appended to the end of this document for reference.

License text:

```
* This program is free software; you can redistribute it and/or
* modify it under the terms of the GNU General Public* License v2 as published by the Free
  Software Foundation.
```

```
*
* This program is distributed in the hope that it will be useful,
* but WITHOUT ANY WARRANTY; without even the implied warranty of* MERCHANTABILITY or
  FITNESS FOR A PARTICULAR PURPOSE. See the GNU * General Public License for more details.
*
* You should have received a copy of the GNU General Public
* License along with this program; if not, write to the
* Free Software Foundation, Inc., 59 Temple Place - Suite 330,* Boston, MA 021110-1307,
  USA.
*
* Modified to add field firmware update support,
* those modifications are Copyright (c) 2016 SanDisk Corp.*
* (This code is based on btrfs-progs/btrfs.c.)
```

mtd-utils 2.1.4

GPL-2.0-or-later

Home page: http://www.linux-mtd.infradead.org/

Download: git://git.infradead.org/mtd-utils.git;branch=master

A copy of GPL-2.0 license is appended to the end of this document for reference.

License text:

```
* Copyright (c) Artem Bityutskiy, 2007, 2008
*
* This program is free software; you can redistribute it and/or modify
* it under the terms of the GNU General Public License as published by* the Free Software
  Foundation; either version 2 of the License, or * (at your option) any later version.
*
* This program is distributed in the hope that it will be useful,
* but WITHOUT ANY WARRANTY; without even the implied warranty of* MERCHANTABILITY or
  FITNESS FOR A PARTICULAR PURPOSE. See * the GNU General Public License for more details.
*
* You should have received a copy of the GNU General Public License* along with this
  program; if not, write to the Free Software
* Foundation, Inc., 675 Mass Ave, Cambridge, MA 02139, USA.
```

nano 6.2

GPL-3.0-only

Home page: http://www.nano-editor.org/

Download: https://nano-editor.org/dist/v6/nano-6.2.tar.xz

A copy of GPL-3.0 license is appended to the end of this document for reference.

ncurses 6.3.20220423

MIT

Home page: http://www.gnu.org/software/ncurses/ncurses.html

Download:
git://salsa.debian.org/debian/ncurses.git;protocol=https;branch=master

License text:

```
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```

net-snmp 5.9.3

BSD-3-Clause & MIT

Home page: http://www.net-snmp.org/

Download: https://downloads.sourceforge.net/net-snmp/net-snmp-5.9.3.tar.gz

A copy of BSD-3-Clause & MIT licenses are appended to the end of this document for reference.

License text:

```
Various copyrights apply to this package, listed in various separate
parts below. Please make sure that you read all the parts. ---- Part
1: CMU/UCD copyright notice: (BSD like) ----Copyright 1989, 1991,
1992 by Carnegie Mellon University
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openssl 3.0. 8

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pps-tools 1.0.3

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python3 3.10.7

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In 1995, Guido continued his work on Python at the Corporation for National Research Initiatives (CNRI, see http://www.cnri.reston.va.us) in Reston, Virginia where he released several versions of the software.

In May 2000, Guido and the Python core development team moved to BeOpen.com to form the BeOpen PythonLabs team. In October of the same year, the PythonLabs team moved to Digital Creations, which became Zope Corporation. In 2001, the Python Software Foundation (PSF, see https://www.python.org/psf/) was formed, a non-profit organization created specifically to own Python-related Intellectual Property. Zope Corporation was a sponsoring member of the PSF.

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rpcbind 1.2.6

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