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Aleksey Gurtovoy (agurtovoy@meta-comm.com)

Andrei Alexandrescu (andrewalex - at - hotmail.com) (See Boost list message of August 12, 2004 11:06:58 AM EST)

Andrew Lumsdaine ()

Anthony Williams (anthony -at- justsoftwaresolutions.co.uk)

Beman Dawes (bdawes@acm.org)

Brad King (brad.king -at- kitware.com) (See Boost list message of Wed, 21 Jul 2004 11:15:46 -0400)

Brian Osman (osman -at- vvisions.com) (See CVS log)

Bruce Barr (schmoost -at- yahoo.com) (See Boost list of Mon, 16 Aug 2004 15:06:43 -0500)

Bruno da Silva de Oliveira (bruno - at - esss.com.br)

Christain Engstrom (christian.engstrom -at- glindra.org) (See Boost list message of Mon, 30 Aug 2004 14:31:49 +0200)

Cromwell D Enage (sponage -at- yahoo.com) (See Boost list message of August 12, 2004 11:49:13 AM EST)

Dan Gohman (djg -at- cray.com) (See Boost list message of Sat, 21 Aug 2004 10:54:59 +0100)

Dan Nuffer (dan -at- nuffer.name)

Daniel Frey (d.frey -at- gmx.de, daniel.frey -at- aixigo.de)

Daniel Nuffer (dan -at- nuffer.name)

Darin Adler (darin -at- bentspoon.com) (Email to Andreas Huber, see change log)

Daryle Walker (darylew - at - hotmail.com)

Dave Abrahams (dave@boost-consulting.com)

Dave Moore (dmoore -at- viefinancial.com) (See Boost list message of 18 Dec 2003 15:35:50 -0500)

David Abrahams (dave@boost-consulting.com)

Dietmar Kuehl (dietmar_kuehl -at- yahoo.com) (Email to Andreas Huber, see change log)

Douglas Gregor (gregod -at- cs.rpi.edu, dgregor -at- cs.indiana.edu, doug.gregor -at- gmail.com)

Dr John Maddock (john - at - johnmaddock.co.uk)

Edward D. Brey (brey -at- ductape.net) (Email to Andreas Huber, see change log)

Eric Ford (un5o6n902 -at- sneakemail.com) (See Boost list message of Sun, 15 Aug 2004 10:29:13 +0100)

Eric Friedman (ebf@users.sourceforge.net)

Eric Niebler (eric@boost-consulting.com)

Fernando Cacciola (fernando_cacciola@ciudad.com.ar)

Fernando Luis Cacciola Carballal (fernando_cacciola@ciudad.com.ar)

Francois Faure (Francois.Faure -at- imag.fr) (See CVS log)

Gary Powell (powellg - at - amazon.com) (See Boost list message of 10 Feb 2004 14:22:46 -0800)

Gennadiy Rozental (rogeeff -at- mail.com) (Email to Andreas Huber, see change log)

Gottfried Ganssaue (Gottfried.Ganssaue -at- HAUFE.DE) (See Boost List message of Mon, 16 Aug 2004 10:09:19 +0200)

Gottfried Ganauge (Gottfried.Ganssaue -at- HAUFE.DE) (Alternative spelling of Gottfried Ganssaue)

Greg Colvin (gregory.colvin -at- oracle.com) (See Boost list message of Sat, 14 Aug 2004 10:57:00 +0100)

Gregory Colvin (gregory.colvin -at- oracle.com) (See Boost list message of Sat, 14 Aug 2004 10:57:00 +0100)

Gunter Winkler (gunter.winkler -at- unibw-muenchen.de) (See Boost List message of Mon, 16 Aug 2004 10:24:17 +0200)

Hartmut Kaiser (hartmut.kaiser -at- gmail.com)

Herve Bronnimann (hbr -at- poly.edu)

Herv Brnnimann (hbr -at- poly.edu)

Housemarque Oy (Ilari Kuittinen ilari.kuittinen -at- housemarque.fi)

Howard Hinnant (hinnant -at- twcnv.rr.com) (See Boost list message of July 25, 2004 3:44:49 PM EST)

Hubert Holin (hubert_holin -at- users.sourceforge.net)

Indiana University ()

Itay Maman (imaman -at- users.sourceforge.net)

Jaakko Jrv (jajarvi -at- osl.iu.edu)

Jaap Suter (j.suter -at- student.utwente.nl) (See Boost list message of Thu, 16 Sep 2004 09:32:43 -0700)

Jeff Garland (jeff - at - crystalclearsoftware.com) (see Boost list post of July 25, 2004 19:31:09 -0700)

Jens Maurer (Jens.Maurer@gmx.net)

Jeremy G Siek (jsiek@osl.iu.edu)

Jeremy Siek (jsiek@osl.iu.edu)

Joel de Guzman (joel -at- boost-consulting.com) (See Boost list message of July 25, 2004 8:32:00 PM EST)

John Bandela (jbandela-at-ufl.edu)

John Maddock (john - at - johnmaddock.co.uk)

John R Bandela (jbandela-at-ufl.edu)

Jonathan Turkanis (turkanis -at- coderage dot com)

Juergen Hunold (hunold -at- ive.uni-hannover.de) (See Boost List Message of Fri, 13 Aug 2004 19:39:55 +0200)

Kevlin Henney (kevin -at- curbralan.com) (See Boost list message of Wed, 15 Sep 2004 18:15:17 +0200)

Kresimir Fresl (fresl -at- master.grad.hr) (See Boost List message of August 16, 2004 8:23:35 AM EST)

Lars Gullik Bjnnes (larsbj -at- lyx.org) (See Boost list message of Tue, 17 Aug 2004 15:49:02 +0100)

Lie-Quan Lee (liequan - at - slac.stanford.edu, llee - at - cs.indiana.edu)

Maarten Keijzer (mkeijzer -at- cs.vu.nl) (See Boost list message of Wed, 18 Aug 2004 21:43:18 +0100)

Mac Murrett (mmurrett -at- mac.com)

Marc Wintermantel (wintermantel -at- imes.mavt.ethz.ch, wintermantel -at- even-ag.ch) (See CVS log)

Michael Glassford (glassfordm - at - hotmail.com)

Michael Stevens (Michael.Stevens - at - epost.de)

Multi Media Ltd. (pdimov@mmltd.net)

Nicolai M Josuttis (solutions -at- josuttis.com) (See Boost list message of Mon, 30 Aug 2004 10:52:00 +0100)

Nikolay Mladenov (nickm -at- sitius.com) (See Boost list message of Tue, 17 Aug 2004 15:45:33 +0100)

Paul Mensoides (pmenso57 -at- comcast.net) (See Boost list message of July 21, 2004 1:12:21 AM EST)

Pavol Droba (droba -at- topmail.sk)

Peter Dimov (pdimov@mmltd.net)

R W Grosse-Kunstleve (RWGrosse-Kunstleve@lbl.gov)

Ralf W. Grosse-Kunstleve (RWGrosse-Kunstleve@lbl.gov)

Rational Discovery LLC (Greg Landrum Landrum -at- RationalDiscovery.com) (See Boost list post of Tue, 17 Aug 2004 10:35:36 +0100)

Rene Rivera (grafik/redshift-software.com, rrivera/acm.org)

Robert Ramey (ramey@www.rrsd.com)

Roland Richter (roland -at- flll.jku.at) (See Boost list post of Mon, 16 Aug 2004 22:16:55 +0200)
Roland Schwarz (roland.schwarz -at- chello.at)
Ronald Garcia (garcia -at- cs.indiana.edu) (Email to Andreas Huber, see change log)
Samuel Krempp (krempp -at- crans.ens-cachan.fr) (See Boost list message of Mon, 27 Sep 2004 13:18:36 +0200)
Stefan Seefeld (seefeld -at- sympatico.ca)
Stephen Cleary (sclarey -at- jerviswebb.com) (See Boost list message of Tue, 28 Sep 2004 13:11:46 +0100)
Steve Cleary (Variant of Stephen Cleary)
Sylvain Pion (Sylvain.Pion - at - sophia.inria.fr)
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Thomas Witt (witt - at - ive.uni-hannover.de, witt - at - acm.org, witt - at - styleadvisor.com)
Thorsten Jrgen Ottosen (nesotto - at - cs.auc.dk)
Thorsten Ottosen (nesotto - at - cs.auc.dk)
Toon Knapen (toon dot knapen - at - fft.be)
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Mathias Koch (mkoch - at - idesis.de 7 : email to boost-owner@lists.boost.org Sep 2007 13:20:09 +0200)

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<?xml version="1.0" encoding="UTF-8"?>

<!DOCTYPE article PUBLIC "-//Boost//DTD BoostBook XML V1.0//EN"

"http://www.boost.org/tools/boostbook/dtd/boostbook.dtd">

<article id="copyright_test" last-revision="DEBUG MODE Date: 2000/12/20 12:00:00 \$"

```

xmlns:xi="http://www.w3.org/2001/XInclude">
<title>Copyright Test</title>
<articleinfo>
  <copyright>
    <year>1963</year> <year>1964</year> <year>1965</year> <holder>Jane Doe</holder>
  </copyright>
  <copyright>
    <year>2018</year> <holder>Joe Blow, John Coe</holder>
  </copyright>
  <copyright>
    <year>1977</year> <year>1985</year> <holder>Someone else</holder>
  </copyright>
</articleinfo>
</article>

```

```

[article Copyright Test
[quickbook 1.5]
[copyright 1963-1965 Jane Doe, 2018 Joe Blow, John Coe]
[copyright 1977,1985 Someone else]
]

```

```

[article Invalid copyright
[quickbook 1.5]
[copyright No year]
]

```

Maybe this should pass?

```

[article Invalid copyright years
[quickbook 1.5]
[copyright 2010-2001 Timequake man]
]

```

```

/*
*
* Copyright (c) 2003 Dr John Maddock
* Use, modification and distribution is subject to the
* Boost Software License, Version 1.0. (See accompanying file
* LICENSE_1_0.txt or copy at http://www.boost.org/LICENSE_1_0.txt)
*
*/

```

```

#include "licence_info.hpp"
#include "bcp_imp.hpp"
#include "fileview.hpp"
#include <fstream>
#include <iomanip>
#include <cstring>
#include <stdexcept>
#include <boost/lexical_cast.hpp>
#include <boost/filesystem/operations.hpp>
#include <boost/throw_exception.hpp>

```

```

//
// split_path is a small helper for outputting a path name,
// complete with a link to that path:
//
struct split_path
{
    const fs::path& root;
    const fs::path& file;
    split_path(const fs::path& r, const fs::path& f)
        : root(r), file(f){}
private:
    split_path& operator=(const split_path&);
};

std::ostream& operator << (std::ostream& os, const split_path& p)
{
    os << "<a href=\"\" << (p.root / p.file).string() << "\">" << p.file.string() << "</a>";
    return os;
}

std::string make_link_target(const std::string& s)
{
    // convert an arbitrary string into something suitable
    // for an <a> name:
    std::string result;
    for(unsigned i = 0; i < s.size(); ++i)
    {
        result.append(1, static_cast<std::string::value_type>(std::isalnum(s[i]) ? s[i] : '_'));
    }
    return result;
}

void bcp_implementation::output_license_info()
{
    std::pair<const license_info*, int> licenses = get_licenses();

    std::map<int, license_data>::const_iterator i, j;
    i = m_license_data.begin();
    j = m_license_data.end();

    std::ofstream os(m_dest_path.string().c_str());
    if(!os)
    {
        std::string msg("Error opening ");
        msg += m_dest_path.string();
        msg += " for output.";
    }
}

```

```

std::runtime_error e(msg);
boost::throw_exception(e);
}
os <<
"<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN">\n"
"<html>\n"
"<head>\n"
"<title>Boost Licence Dependency Information";
if(m_module_list.size() == 1)
{
os << " for " << *(m_module_list.begin());
}
os <<
"</title>\n"
"</head>\n"
"<body>\n"
"<H1>Boost Licence Dependency Information";
if(m_module_list.size() == 1)
{
os << " for " << *(m_module_list.begin());
}
os <<
"</H1>\n"
"<H2>Contents</h2>\n"
"<pre><a href=\"#input\">Input Information</a>\n";
if(!m_bsl_summary_mode)
os << "<a href=\"#summary\">Licence Summary</a>\n";
os << "<a href=\"#details\">Licence Details</a>\n";

while(i != j)
{
// title:
os << " <A href=\"#\" << make_link_target(licenses.first[i->first].license_name)
<< "\"> << licenses.first[i->first].license_name << "</a>\n";
++i;
}

os << "<a href=\"#files\">Files with no recognised license</a>\n"
"<a href=\"#authors\">Files with no recognised copyright holder</a>\n";
if(!m_bsl_summary_mode)
{
os <<
"Moving to the Boost Software License...\n"
" <a href=\"#bsl-converted\">Files that can be automatically converted to the Boost Software License</a>\n"
" <a href=\"#to-bsl\">Files that can be manually converted to the Boost Software License</a>\n"
" <a href=\"#not-to-bsl\">Files that can <b>NOT</b> be moved to the Boost Software License</a>\n"
" <a href=\"#need-bsl-authors\">Authors we need to move to the Boost Software License</a>\n"
"<a href=\"#copyright\">Copyright Holder Information</a>\n";
}

```

```

}
os <<
  "<a href=\"#depend\">File Dependency Information</a>\n"
  "</pre>";

//
// input Information:
//
os << "<a name=\"input\"></a><h2>Input Information</h2>\n";
if(m_scan_mode)
  os << "<P>The following files were scanned for boost dependencies:<BR>";
else
  os << "<P>The following Boost modules were checked:<BR>";

std::list<std::string>::const_iterator si = m_module_list.begin();
std::list<std::string>::const_iterator sj = m_module_list.end();
while(si != sj)
{
  os << *si << "<BR>";
  ++si;
}
os << "<p><p>The Boost path was: <code>" << m_boost_path.string() << "</code></P>";
//
// extract the boost version number from the boost directory tree,
// not from this app (which may have been built from a previous
// version):
//
fileview version_file(m_boost_path / "boost/version.hpp");
static const boost::regex version_regex(
  "^[[:blank:]]*#[[:blank:]]*define[[:blank:]]+BOOST_VERSION[[:blank:]]+(\d+)");
boost::cmatch what;
if(boost::regex_search(version_file.begin(), version_file.end(), what, version_regex))
{
  int version = boost::lexical_cast<int>(what.str(1));
  os << "<p>The Boost version is: " << version / 100000 << "." << version / 100 % 1000 << "." << version % 100
  << "</P>\n";
}

//
// output each license:
//
i = m_license_data.begin();
j = m_license_data.end();
if(!m_bsl_summary_mode)
{
  //
  // start with the summary:
  //

```



```

os << "<a name=\"summary\"></a><h2>Licence Summary</h2>\n";
while(i != j)
{
    // title:
    os <<
        "<H3>" << licenses.first[i->first].license_name << "</H3>\n";
    // license text:
    os << "<BLOCKQUOTE>" << licenses.first[i->first].license_text << "</BLOCKQUOTE>";
    // Copyright holders:
    os << "<P>This license is used by " << i->second.authors.size()
        << " authors and " << i->second.files.size()
        << " files <a href=\"#\" << make_link_target(licenses.first[i->first].license_name) << "\">(see details)</a>";
    os << "</P></BLOCKQUOTE>\n";
    ++i;
}
}
//
// and now the details:
//
i = m_license_data.begin();
j = m_license_data.end();
int license_index = 0;
os << "<a name=\"details\"></a><h2>Licence Details</h2>\n";
while(i != j)
{
    // title:
    os <<
        "<H3><A name=\"\" << make_link_target(licenses.first[i->first].license_name)
        << "\"></a>" << licenses.first[i->first].license_name << "</H3>\n";
    // license text:
    os << "<BLOCKQUOTE>" << licenses.first[i->first].license_text << "</BLOCKQUOTE>";
    if(!m_bsl_summary_mode || (license_index >= 3))
    {
        // Copyright holders:
        os << "<P>This license is used by the following " << i->second.authors.size() << " copyright
holders:</P>\n<BLOCKQUOTE><P>";
        std::set<std::string>::const_iterator x, y;
        x = i->second.authors.begin();
        y = i->second.authors.end();
        while(x != y)
        {
            os << *x << "<BR>\n";
            ++x;
        }
        os << "</P></BLOCKQUOTE>\n";
        // Files using this license:
        os << "<P>This license applies to the following " << i->second.files.size() << "
files:</P>\n<BLOCKQUOTE><P>";
    }
}

```

```

std::set<fs::path, path_less>::const_iterator m, n;
m = i->second.files.begin();
n = i->second.files.end();
while(m != n)
{
    os << split_path(m_boost_path, *m) << "<br>\n";
    ++m;
}
os << "</P></BLOCKQUOTE>\n";
}
else
{
    os << "<P>This license is used by " << i->second.authors.size() << " authors (list omitted for brevity).</P>\n";
    os << "<P>This license applies to " << i->second.files.size() << " files (list omitted for brevity).</P>\n";
}
++license_index;
++i;
}
//
// Output list of files not found to be under license control:
//
os << "<h2><a name=\"files\"></a>Files With No Recognisable Licence</h2>\n"
    "<P>The following " << m_unknown_licenses.size() << " files had no recognisable license
information:</P></BLOCKQUOTE><P>\n";
std::set<fs::path, path_less>::const_iterator i2, j2;
i2 = m_unknown_licenses.begin();
j2 = m_unknown_licenses.end();
while(i2 != j2)
{
    os << split_path(m_boost_path, *i2) << "<br>\n";
    ++i2;
}
os << "</p></BLOCKQUOTE>";
//
// Output list of files with no found copyright holder:
//
os << "<h2><a name=\"authors\"></a>Files With No Recognisable Copyright Holder</h2>\n"
    "<P>The following " << m_unknown_authors.size() << " files had no recognisable copyright
holder:</P>\n</BLOCKQUOTE><P>";
i2 = m_unknown_authors.begin();
j2 = m_unknown_authors.end();
while(i2 != j2)
{
    os << split_path(m_boost_path, *i2) << "<br>\n";
    ++i2;
}
os << "</p></BLOCKQUOTE>";
if(!m_bsl_summary_mode)

```

```

{
//
// Output list of files that have been moved over to the Boost
// Software License, along with enough information for human
// verification.
//
os << "<h2><a name=\"bsl-converted\"></a>Files that can be automatically converted to the Boost Software
License</h2>\n"
    << "<P>The following " << m_converted_to_bsl.size() << " files can be automatically converted to the Boost
Software License, but require manual verification before they can be committed to CVS:</P>\n";
if (!m_converted_to_bsl.empty())
{
    typedef std::map<fs::path, std::pair<std::string, std::string>, path_less>
        ::const_iterator conv_iterator;
    conv_iterator i = m_converted_to_bsl.begin(),
        ie = m_converted_to_bsl.end();
    int file_num = 1;
    while (i != ie)
    {
        os << "<P>[" << file_num << "] File: <tt>" << split_path(m_boost_path, i->first)
            << "</tt><br>\n<table border=\"1\">\n <tr>\n <td><pre>"
            << i->second.first << "</pre></td>\n <td><pre>"
            << i->second.second << "</pre></td>\n </tr>\n</table>\n";
        ++i;
        ++file_num;
    }
}
//
// Output list of files that could be moved over to the Boost Software License
//
os << "<h2><a name=\"to-bsl\"></a>Files that could be converted to the Boost Software License</h2>\n"
    "<P>The following " << m_can_migrate_to_bsl.size() << " files could be manually converted to the Boost
Software License, but have not yet been:</P>\n<BLOCKQUOTE><P>";
i2 = m_can_migrate_to_bsl.begin();
j2 = m_can_migrate_to_bsl.end();
while(i2 != j2)
{
    os << split_path(m_boost_path, *i2) << "<br>\n";
    ++i2;
}
os << "</p></BLOCKQUOTE>";
//
// Output list of files that can not be moved over to the Boost Software License
//
os << "<h2><a name=\"not-to-bsl\"></a>Files that can NOT be converted to the Boost Software
License</h2>\n"
    "<P>The following " << m_cannot_migrate_to_bsl.size() << " files cannot be converted to the Boost Software
License because we need the permission of more authors:</P>\n<BLOCKQUOTE><P>";

```

```

i2 = m_cannot_migrate_to_bsl.begin();
j2 = m_cannot_migrate_to_bsl.end();
while(i2 != j2)
{
    os << split_path(m_boost_path, *i2) << "<br>\n";
    ++i2;
}
os << "</p></BLOCKQUOTE>";
//
// Output list of authors that we need permission for to move to the BSL
//
os << "<h2><a name=\"need-bsl-authors\"></a>Authors we need for the BSL</h2>\n"
    "<P>Permission of the following authors is needed before we can convert to the Boost Software License. The
list of authors that have given their permission is contained in <code>more/blanket-
permission.txt</code>.</P>\n<BLOCKQUOTE><P>";
std::copy(m_authors_for_bsl_migration.begin(), m_authors_for_bsl_migration.end(),
    std::ostream_iterator<std::string>(os, "<br>\n"));
os << "</p></BLOCKQUOTE>";
//
// output a table of copyright information:
//
os << "<H2><a name=\"copyright\"></a>Copyright Holder Information</H2><table border=\"1\">\n";
std::map<std::string, std::set<fs::path, path_less>>::const_iterator ad, ead;
ad = m_author_data.begin();
ead = m_author_data.end();
while(ad != ead)
{
    os << "<tr><td>" << ad->first << "</td><td>";
    std::set<fs::path, path_less>::const_iterator fi, efi;
    fi = ad->second.begin();
    efi = ad->second.end();
    while(fi != efi)
    {
        os << split_path(m_boost_path, *fi) << " ";
        ++fi;
    }
    os << "</td></tr>\n";
    ++ad;
}
os << "</table>\n";
}

//
// output file dependency information:
//
os << "<H2><a name=\"depend\"></a>File Dependency Information</H2><BLOCKQUOTE><pre>\n";
std::map<fs::path, fs::path, path_less>::const_iterator dep, last_dep;
std::set<fs::path, path_less>::const_iterator fi, efi;

```

```

fi = m_copy_paths.begin();
efi = m_copy_paths.end();
// if in summary mode, just figure out the "bad" files and print those only:
std::set<fs::path, path_less> bad_paths;
if(m_bsl_summary_mode)
{
    bad_paths.insert(m_unknown_licenses.begin(), m_unknown_licenses.end());
    bad_paths.insert(m_unknown_authors.begin(), m_unknown_authors.end());
    bad_paths.insert(m_can_migrate_to_bsl.begin(), m_can_migrate_to_bsl.end());
    bad_paths.insert(m_cannot_migrate_to_bsl.begin(), m_cannot_migrate_to_bsl.end());
    typedef std::map<fs::path, std::pair<std::string, std::string>, path_less>
        ::const_iterator conv_iterator;
    conv_iterator i = m_converted_to_bsl.begin(),
        ie = m_converted_to_bsl.end();
    while(i != ie)
    {
        bad_paths.insert(i->first);
        ++i;
    }
    fi = bad_paths.begin();
    efi = bad_paths.end();
    os << "<P>For brevity, only files not under the BSL are shown</P>\n";
}
while(fi != efi)
{
    os << split_path(m_boost_path, *fi);
    dep = m_dependencies.find(*fi);
    last_dep = m_dependencies.end();
    std::set<fs::path, path_less> seen_deps;
    if (dep != last_dep)
        while(true)
        {
            os << " -> ";
            if(fs::exists(m_boost_path / dep->second))
                os << split_path(m_boost_path, dep->second);
            else if(fs::exists(dep->second))
                os << split_path(fs::path(), dep->second);
            else
                os << dep->second.string();
            if(seen_deps.find(dep->second) != seen_deps.end())
            {
                os << " <I>(Circular dependency!)</I>";
                break; // circular dependency!!!
            }
            seen_deps.insert(dep->second);
            last_dep = dep;
            dep = m_dependencies.find(dep->second);
            if((dep == m_dependencies.end()) || (0 == compare_paths(dep->second, last_dep->second)))

```

```

        break;
    }
    os << "\n";
    ++fi;
}
os << "</pre></BLOCKQUOTE>\n";

os << "</body></html>\n";

if(!os)
{
    std::string msg("Error writing to ");
    msg += m_dest_path.string();
    msg += ".";
    std::runtime_error e(msg);
    boost::throw_exception(e);
}
}

```

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This package was debianized by Vladimir Prus <ghost@cs.msu.su> on Wed, 17 July 2002, 19:27:00 +0400.

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```
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```

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This is an attempt to acknowledge early contributions to the garbage collector. Later contributions should instead be mentioned in README.changes.

HISTORY -

Early versions of this collector were developed as a part of research projects supported in part by the National Science Foundation and the Defense Advance Research Projects Agency.

The garbage collector originated as part of the run-time system for the Russell programming language implementation. The first version of the garbage collector was written primarily by Al Demers. It was then refined and mostly rewritten, primarily by Hans-J. Boehm, at Cornell U., the University of Washington, Rice University (where it was first used for C and assembly code), Xerox PARC, SGI, and HP Labs. However, significant contributions have also been made by many others.

Some other contributors:

More recent contributors are mentioned in the modification history in README.changes. My apologies for any omissions.

The SPARC specific code was originally contributed by Mark Weiser.

The Encore Multimax modifications were supplied by

Kevin Kenny (kenny@m.cs.uiuc.edu). The adaptation to the IBM PC/RT is largely due to Vernon Lee, on machines made available to Rice by IBM.

Much of the HP specific code and a number of good suggestions for improving the generic code are due to Walter Underwood.

Robert Brazile (brazile@diamond.bbn.com) originally supplied the ULTRIX code.

Al Dosser (dosser@src.dec.com) and Regis Cridlig (Regis.Cridlig@cl.cam.ac.uk) subsequently provided updates and information on variation between ULTRIX systems. Parag Patel (parag@netcom.com) supplied the A/UX code.

Jesper Peterson (jep@mtiame.mtia.oz.au), Michel Schinz, and

Martin Tauchmann (martintauchmann@bigfoot.com) supplied the Amiga port.

Thomas Funke (thf@zelator.in-berlin.de?) and

Brian D. Carlstrom (bdc@clark.lcs.mit.edu) supplied the NeXT ports.

Douglas Steel (doug@wg.icl.co.uk) provided ICL DRS6000 code.

Bill Janssen (janssen@parc.xerox.com) supplied the SunOS dynamic loader

specific code. Manuel Serrano (serrano@cornas.inria.fr) supplied linux and

Sony News specific code. Al Dosser provided Alpha/OSF/1 code. He and

Dave Detlefs (detlefs@src.dec.com) also provided several generic bug fixes.

Alistair G. Crooks(agc@uts.amdahl.com) supplied the NetBSD and 386BSD ports.

Jeffrey Hsu (hsu@soda.berkeley.edu) provided the FreeBSD port.

Brent Benson (brent@jade.ssd.csd.harris.com) ported the collector to a Motorola 88K processor running CX/UX (Harris NightHawk).

Ari Huttunen (Ari.Huttunen@hut.fi) generalized the OS/2 port to nonIBM development environments (a nontrivial task).

Patrick Beard (beard@cs.ucdavis.edu) provided the initial MacOS port.

David Chase, then at Olivetti Research, suggested several improvements.

Scott Schwartz (schwartz@groucho.cse.psu.edu) supplied some of the code to save and print call stacks for leak detection on a SPARC.

Jesse Hull and John Ellis supplied the C++ interface code.

Zhong Shao performed much of the experimentation that led to the current typed allocation facility. (His dynamic type inference code hasn't made it into the released version of the collector, yet.)

```
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```

```
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```

```
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```

```
#include <boost/mpl/push_back.hpp>
```

```
#include <boost/mpl/quote.hpp>
```

```
#include <boost/mpl/transform.hpp>
```

```
#include <boost/mpl/vector.hpp>
```

```
template <typename X>
```

```
struct f { using type = X; };
```

```
template <int i>
```

```
struct t { };
```

```
using vector = <%= mpl_vector((1..input_size).to_a.map { |n| "t<#{n}>" }) %>;
```

```
using result = boost::mpl::transform<vector, boost::mpl::quote1<f>>::type;
```

```
int main() { }
```

```
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```

```
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```
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```

```
#include <boost/mpl/push_back.hpp>
```

```
#include <boost/mpl/vector.hpp>
```

```
template <int i>
```

```
struct t { };
```

```
using vector = <%= mpl_vector((1..input_size).to_a.map { |n| "t<#{n}>" }) %>;
```

```

int main() { }
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#include <boost/mpl/fold.hpp>
#include <boost/mpl/push_back.hpp>
#include <boost/mpl/quote.hpp>
#include <boost/mpl/vector.hpp>

template <typename State, typename X>
struct f { using type = X; };

struct state { };

template <int i>
struct t { };

using vector = <%= mpl_vector((1..input_size).to_a.map { |n| "t<#{n}>" }) %>;

using result = boost::mpl::fold<vector, state, boost::mpl::quote2<f>>::type;

```

```

int main() { }
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```

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-->

<!-- boost-no-inspect -->

<!-- HTML header for doxygen 1.8.9.1-->

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"

"<http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd>">

<html xmlns="<http://www.w3.org/1999/xhtml>">

<head>

<meta http-equiv="Content-Type" content="text/xhtml; charset=UTF-8"/>

<meta http-equiv="X-UA-Compatible" content="IE=9"/>

<meta name="generator" content="Doxygen 1.8.11"/>

<title>Boost.Hana: Boost.MPL adapters</title>

<link href="tabs.css" rel="stylesheet" type="text/css"/>

<script type="text/javascript" src="jquery.js"></script>

<script type="text/javascript" src="dynsections.js"></script>

<link href="navtree.css" rel="stylesheet" type="text/css"/>

<script type="text/javascript" src="resize.js"></script>

<script type="text/javascript" src="navtreedata.js"></script>

<script type="text/javascript" src="navtree.js"></script>

<script type="text/javascript">

\$(document).ready(initResizable);

\$(window).load(resizeHeight);

</script>

<link href="search/search.css" rel="stylesheet" type="text/css"/>

<script type="text/javascript" src="search/searchdata.js"></script>

<script type="text/javascript" src="search/search.js"></script>

<script type="text/javascript">

\$(document).ready(function() { init_search(); });

</script>

<script type="text/x-mathjax-config">

MathJax.Hub.Config({

 extensions: ["tex2jax.js"],

 jax: ["input/TeX", "output/HTML-CSS"],

});

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MathJax.Hub.Config({

 "HTML-CSS": {

 linebreaks: {

 automatic: true,

 width: "75% container"

```

    }
  }
});
</script><script type="text/javascript" src="https://cdn.mathjax.org/mathjax/latest/MathJax.js"></script>
<link href="doxygen.css" rel="stylesheet" type="text/css" />
<!-- Additional javascript for drawing charts. -->
<script type="text/javascript" src="highcharts.js"></script>
<script type="text/javascript" src="highcharts-data.js"></script>
<script type="text/javascript" src="highcharts-exporting.js"></script>
<script type="text/javascript" src="chart.js"></script>
<script type="text/javascript" src="hana.js"></script>
</head>
<body>
<div id="top"><!-- do not remove this div, it is closed by doxygen! -->
<div id="titlearea">
<table cellpadding="0" cellspacing="0">
<tbody>
<tr style="height: 56px;">
<td id="projectlogo"></td>
<td style="padding-left: 0.5em;">
<div id="projectname">Boost.Hana
&#160;<span id="projectnumber">1.2.0</span>
</div>
<div id="projectbrief">Your standard library for metaprogramming</div>
</td>
<td>
<div id="MSearchBox" class="MSearchBoxInactive">
<span class="left">

<input type="text" id="MSearchField" value="Search" accesskey="S"
onfocus="searchBox.OnSearchFieldFocus(true)"
onblur="searchBox.OnSearchFieldFocus(false)"
onkeyup="searchBox.OnSearchFieldChange(event)"/>
</span><span class="right">
<a id="MSearchClose" href="javascript:searchBox.CloseResultsWindow()"></a>
</span>
</div>
</td>
</tr>
</tbody>
</table>
</div>
<!-- end header part -->
<!-- Generated by Doxygen 1.8.11 -->
<script type="text/javascript">

```

```

var searchBox = new SearchBox("searchBox", "search",false,'Search');
</script>
</div><!-- top -->
<div id="side-nav" class="ui-resizable side-nav-resizable">
  <div id="nav-tree">
    <div id="nav-tree-contents">
      <div id="nav-sync" class="sync"></div>
    </div>
  </div>
  <div id="splitbar" style="-moz-user-select:none;"
    class="ui-resizable-handle">
  </div>
</div>
<script type="text/javascript">
$(document).ready(function(){initNavTree('group__group-ext-mpl.html',");});
</script>
<div id="doc-content">
<!-- window showing the filter options -->
<div id="MSearchSelectWindow"
  onmouseover="return searchBox.OnSearchSelectShow()"
  onmouseout="return searchBox.OnSearchSelectHide()"
  onkeydown="return searchBox.OnSearchSelectKey(event)">
</div>

<!-- iframe showing the search results (closed by default) -->
<div id="MSearchResultsWindow">
<iframe src="javascript:void(0)" frameborder="0"
  name="MSearchResults" id="MSearchResults">
</iframe>
</div>

<div class="header">
  <div class="summary">
<a href="#nested-classes">Classes</a> </div>
  <div class="headertitle">
<div class="title">Boost.MPL adapters<div class="ingroups"><a class="el" href="group__group-
ext.html">External adapters</a></div></div> </div>
</div><!--header-->
<div class="contents">
<a name="details" id="details"></a><h2 class="groupheader">Description</h2>
<p>Adapters for Boost.MPL containers. </p>
<table class="memberdecls">
<tr class="heading"><td colspan="2"><h2 class="groupheader"><a name="nested-classes"></a>
Classes</h2></td></tr>
<tr class="memitem:"><td class="memItemLeft" align="right" valign="top">struct &#160;</td><td
class="memItemRight" valign="bottom"><a class="el"
href="structboost_1_1mpl_1_1integral_c.html">boost::mpl::integral_c< T, v ></a></td></tr>
<tr class="memdesc:"><td class="mdescLeft">&#160;</td><td class="mdescRight">Adapter for IntegralConstants

```

```

from the Boost.MPL. <a href="structboost_1_1mpl_1_1integral__c.html#details">More...</a><br /></td></tr>
<tr class="separator:"><td class="memSeparator" colspan="2">&#160;</td></tr>
<tr class="memitem:"><td class="memItemLeft" align="right" valign="top">struct &#160;</td><td
class="memItemRight" valign="bottom"><a class="el" href="structboost_1_1mpl_1_1list.html">boost::mpl::list< T
></a></td></tr>
<tr class="memdesc:"><td class="mdescLeft">&#160;</td><td class="mdescRight">Adapter for Boost.MPL lists.
<a href="structboost_1_1mpl_1_1list.html#details">More...</a><br /></td></tr>
<tr class="separator:"><td class="memSeparator" colspan="2">&#160;</td></tr>
<tr class="memitem:"><td class="memItemLeft" align="right" valign="top">struct &#160;</td><td
class="memItemRight" valign="bottom"><a class="el"
href="structboost_1_1mpl_1_1vector.html">boost::mpl::vector< T ></a></td></tr>
<tr class="memdesc:"><td class="mdescLeft">&#160;</td><td class="mdescRight">Adapter for Boost.MPL
vectors. <a href="structboost_1_1mpl_1_1vector.html#details">More...</a><br /></td></tr>
<tr class="separator:"><td class="memSeparator" colspan="2">&#160;</td></tr>
</table>

```

```
</div><!-- contents -->
```

```
</div><!-- doc-content -->
```

```
<!--
```

```
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```

```
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```

```
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```

```
-->
```

```
<!-- boost-no-inspect -->
```

```
<!-- HTML footer for doxygen 1.8.9.1-->
```

```
<!-- start footer part -->
```

```
<div id="nav-path" class="navpath"><!-- id is needed for treeview function! -->
```

```
<ul>
```

```
</ul>
```

```
</div>
```

```
</body>
```

```
</html>
```

```
var group__group_ext_mpl =
```

```
[
```

```
  [ "integral_c", "structboost_1_1mpl_1_1integral__c.html", null ],
```

```
  [ "list", "structboost_1_1mpl_1_1list.html", null ],
```

```
  [ "vector", "structboost_1_1mpl_1_1vector.html", null ]
```

```
];
```

```
#!/usr/bin/env python
```

```
from subprocess import check_output as run
```

```
from datetime import datetime
```

```
from itertools import groupby
```

```
from operator import itemgetter
```

```
import re
```

```
import magic
```

```
def authors(filename):
```

```
    log = run(['git', 'log', '--follow',
```

```
              '--date=short', '--format=%aN%x09%ad', filename],
```

```

        universal_newlines=True)
for line in log.splitlines():
    author, date = line.split('\t')
    if author != 'fix-copyright.py':
        yield author, datetime.strptime(date, '%Y-%m-%d')

def new_copyright(filename, previous):
    def f():
        au = list(authors(filename))
        alldates = map(itemgetter(1), au)
        aup = sorted(au + map(lambda a: (a, None), previous), key=itemgetter(0))
        for author, records in groupby(aup, itemgetter(0)):
            dates = filter(None, map(itemgetter(1), records))
            if not dates: dates = alldates
            start = min(dates)
            end = max(dates)
            fmt = '{0}' if start.year == end.year else '{0}-{1}'
            line = 'Copyright ' + fmt.format(start.year, end.year) + ' ' + author
            key = (start, author)
            yield key, line
    return map(itemgetter(1), sorted(f()))

def fix_copyright(filename):
    # Find copyright block in original file
    prefix = set()
    names = []
    lines = []
    with open(filename, 'r') as f:
        content = list(f)
    for i, line in enumerate(content[:15]):
        m = re.match(r'^((?P<prefix>\W*)(\((c\))?\s*?copyright\s*(\((c\))?)\s+\d{4}(\s*-\s*\d{4})?)\s+(?P<name>.\+?)\s*$',
line, re.IGNORECASE)
        if m:
            d = m.groupdict()
            prefix.add(d['prefix'])
            lines.append(i)
            names.append(d['name'].strip())
    if len(prefix) != 1:
        print 'Not found:', filename
        return
    prefix = list(prefix)[0]

    print filename
    new = iter(new_copyright(filename, names))
    with open(filename, 'w') as f:
        for i, line in enumerate(content):
            if i in lines:
                for repl in new:

```

```

        print >>f, prefix + repl
    else:
        print >>f, line,
    pass

def all_files():
    ls = run(['git', 'ls-files'], universal_newlines=True)
    for filename in ls.splitlines():
        if magic.from_file(filename, mime=True).split('/')[0] == 'text':
            yield filename

for f in all_files():
    fix_copyright(f)
[/=====
Boost.Geometry (aka GGL, Generic Geometry Library)

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Copyright (c) 2008-2013 Bruno Lalande, Paris, France.
Copyright (c) 2009-2013 Mateusz Loskot, London, UK.

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=====

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```


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The default copyright note for C++ source files reads:

```
// Boost.Geometry (aka GGL, Generic Geometry Library)
```

```
// Copyright (c) 2007-2011 Barend Gehrels, Amsterdam, the Netherlands.
```

```
// Copyright (c) 2008-2011 Bruno Lalande, Paris, France.
```

```
// Copyright (c) 2009-2011 Mateusz Loskot, London, UK.
```

```
// Parts of Boost.Geometry are redesigned from Geodan's Geographic Library
```

```
// (geolib/GGL), copyright (c) 1995-2010 Geodan, Amsterdam, the Netherlands.
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```

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- 2) Exclusive work of one author including design -> might take sole copyright

Examples:

- adapted geometry types e.g. array, Boost.Polygon
- implemented file-format e.g. WKB
- implemented specific strategy or algorithm e.g. intersections

- 3) Examples -> might take sole copyright
- 4) Tests -> might take sole copyright
- 5) Docs -> might take sole copyright
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```
<?xml version="1.0" encoding="utf-8"?>
```

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```

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```

```
(See accompanying file LICENSE_1_0.txt or http://www.boost.org/LICENSE_1_0.txt)
```

```
-->
```

```
<section id="date_time.license">
```

```
<title>Boost Date-Time Library License</title>
```

```
<bridgehead renderas="sect2">Boost Date-Time Library License</bridgehead>
```

```
<!--
```

```
<ulink url="../../index.htm">
```

```
<imagedata align="left"
```

```
format="GIF"
```

```
fileref="../../boost.png"
```

```
alt="C++ Boost" />
```

```
</ulink>-->
```

```
<!--hr /-->
```

```
<para>
```

The following is the overall license for the boost date_time library. This notice is found in all source files related to the library.

```
</para>
```

```
<para>
```

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```
</para>
```

```
<para>
```

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</para>

<!--hr / -->

<ulink url="mailto:jeff@crystalclearsoftware.com">Jeff Garland</ulink>
© 2000-2002

</section>

[/

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]

[section:mpl MPL Interoperability]

All the value based traits in this library conform to MPL's requirements for an [[@../.../libs/mpl/doc/refmanual/integral-constant.html](http://www.boost.org/libs/mpl/doc/refmanual/integral-constant.html) Integral Constant type].

Please note that these types no longer inherit from `mpl::true_`` or `mpl::false_`` etc, and the library will no longer implicitly include any MPL header. However there is an implicit conversion from `integral_constant`` to the corresponding MPL types, therefore tag-dispatching that uses MPL types in function overloads will still work as before.

[endsect]

<html>

<head>

<meta http-equiv="Content-Type" content="text/html; charset=US-ASCII">

<title>MPL Interoperability</title>

<link rel="stylesheet" href="http://www.boost.org/doc/src/boostbook.css" type="text/css">

<meta name="generator" content="DocBook XSL Stylesheets V1.79.1">

<link rel="home" href="http://www.boost.org/index.html" title="Chapter 1: Boost.TypeTraits">

<link rel="up" href="http://www.boost.org/index.html" title="Chapter 1: Boost.TypeTraits">

<link rel="prev" href="http://www.boost.org/intrinsics.html" title="Support for Compiler Intrinsics">

<link rel="next" href="http://www.boost.org/examples.html" title="Examples">

</head>

<body bgcolor="white" text="black" link="#0000FF" vlink="#840084" alink="#0000FF">

<table cellpadding="2" width="100%"><tr>

<td valign="top"></td>

<td align="center">Home</td>

<td align="center">Libraries</td>

<td align="center">People</td>

```

<td align="center"><a href="http://www.boost.org/users/faq.html">FAQ</a></td>
<td align="center"><a href="http://www.boost.org/users/faq.html">More</a></td>
</tr></table>
<hr>
<div class="spirit-nav">
<a accesskey="p" href="intrinsic.html"></a><a
accesskey="u" href="index.html"></a><a accesskey="h"
href="index.html"></a><a accesskey="n"
href="examples.html"></a>
</div>
<div class="section">
<div class="titlepage"><div><div><h2 class="title" style="clear: both">
<a name="boost_typed_traits_mpl"></a><a class="link" href="mpl.html" title="MPL Interoperability">MPL
Interoperability</a>
</h2></div></div></div>
<p>
All the value based traits in this library conform to MPL's requirements for
an <a href="http://www.boost.org/libs/mpl/doc/refmanual/integral-constant.html" target="_top">Integral
Constant type</a>.
</p>
<p>
Please note that these types no longer inherit from <code class="computeroutput"><span
class="identifier">mpl</span><span class="special">::</span><span class="identifier">true_</span></code> or
<code class="computeroutput"><span class="identifier">mpl</span><span class="special">::</span><span
class="identifier">false_</span></code> etc, and the library will no longer
implicitly include any MPL header. However there is an implicit conversion
from <code class="computeroutput"><span class="identifier">integral_constant</span></code> to the
corresponding MPL types, therefore tag-dispatching that uses MPL types in function
overloads will still work as before.
</p>
</div>
<table xmlns:rev="http://www.cs.rpi.edu/~gregod/boost/tools/doc/revision" width="100%"><tr>
<td align="left"></td>
<td align="right"><div class="copyright-footer">Copyright © 2000, 2011 Adobe Systems Inc, David
Abrahams,
Frederic Bron, Steve Cleary, Beman Dawes, Aleksey Gurtovoy, Howard Hinnant,
Jesse Jones, Mat Marcus, Itay Maman, John Maddock, Alexander Nasonov, Thorsten
Ottosen, Roman Perepelitsa, Robert Ramey, Jeremy Siek, Robert Stewart and Steven
Watanabe<p>
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target="_top">http://www.boost.org/LICENSE_1_0.txt</a>)
</p>
</div></td>
</tr></table>
<hr>
<div class="spirit-nav">
<a accesskey="p" href="intrinsic.html"></a><a

```

```
accesskey="u" href="../index.html"></a><a accesskey="h"
href="../index.html"></a><a accesskey="n"
href="examples.html"></a>
</div>
</body>
</html>
```

```
[/
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```

```
]
/////////////////////////////////////////////////////////////////
//
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// http://www.boost.org/LICENSE_1_0.txt)
//
// See http://www.boost.org/libs/container for documentation.
//
/////////////////////////////////////////////////////////////////
```

```
#ifndef BOOST_CONTAINER_CONTAINER_DETAIL_MPL_HPP
#define BOOST_CONTAINER_CONTAINER_DETAIL_MPL_HPP
```

```
#ifndef BOOST_CONFIG_HPP
# include <boost/config.hpp>
#endif
```

```
#if defined(BOOST_HAS_PRAGMA_ONCE)
# pragma once
#endif
```

```
#include <boost/container/detail/config_begin.hpp>
#include <boost/container/detail/workaround.hpp>
#include <boost/move/detail/type_traits.hpp>
#include <boost/intrusive/detail/mpl.hpp>
```

```
#include <cstddef>
```

```
namespace boost {
namespace container {
namespace container_detail {
```

```
using boost::move_detail::integral_constant;
using boost::move_detail::true_type;
```

```

using boost::move_detail::false_type;
using boost::move_detail::enable_if_c;
using boost::move_detail::enable_if;
using boost::move_detail::enable_if_convertible;
using boost::move_detail::disable_if_c;
using boost::move_detail::disable_if;
using boost::move_detail::disable_if_convertible;
using boost::move_detail::is_convertible;
using boost::move_detail::if_c;
using boost::move_detail::if_;
using boost::move_detail::identity;
using boost::move_detail::bool_;
using boost::move_detail::true_;
using boost::move_detail::false_;
using boost::move_detail::yes_type;
using boost::move_detail::no_type;
using boost::move_detail::bool_;
using boost::move_detail::true_;
using boost::move_detail::false_;
using boost::move_detail::unvoid_ref;
using boost::move_detail::and_;
using boost::move_detail::or_;
using boost::move_detail::not_;
using boost::move_detail::enable_if_and;
using boost::move_detail::disable_if_and;
using boost::move_detail::enable_if_or;
using boost::move_detail::disable_if_or;

```

```

template <class FirstType>
struct select1st
{
    typedef FirstType type;

    template<class T>
    const type& operator()(const T& x) const
    { return x.first; }

    template<class T>
    type& operator()(T& x)
    { return const_cast<type&>(x.first); }
};

} //namespace container_detail {
} //namespace container {
} //namespace boost {

#include <boost/container/detail/config_end.hpp>

```

```

#endif // #ifndef BOOST_CONTAINER_CONTAINER_DETAIL_MPL_HPP
////////////////////////////////////////////////////////////////
//
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// http://www.boost.org/LICENSE_1_0.txt)
//
// See http://www.boost.org/libs/interprocess for documentation.
//
////////////////////////////////////////////////////////////////

#ifndef BOOST_INTERPROCESS_DETAIL_MPL_HPP
#define BOOST_INTERPROCESS_DETAIL_MPL_HPP

#ifndef BOOST_CONFIG_HPP
# include <boost/config.hpp>
#endif
#
#if defined(BOOST_HAS_PRAGMA_ONCE)
# pragma once
#endif

#include <cstddef>

namespace boost {
namespace interprocess {
namespace ipcdetail {

template <class T, T val>
struct integral_constant
{
    static const T value = val;
    typedef integral_constant<T, val> type;
};

template< bool C_ >
struct bool_ : integral_constant<bool, C_>
{
    static const bool value = C_;
};

typedef bool_<true>    true_;
typedef bool_<false>  false_;

typedef true_ true_type;
typedef false_ false_type;

```

```

typedef char yes_type;
struct no_type
{
    char padding[8];
};

template <bool B, class T = void>
struct enable_if_c {
    typedef T type;
};

template <class T>
struct enable_if_c<false, T> {};

template <class Cond, class T = void>
struct enable_if : public enable_if_c<Cond::value, T> {};

template <class Cond, class T = void>
struct disable_if : public enable_if_c<!Cond::value, T> {};

template<
    bool C
    , typename T1
    , typename T2
>
struct if_c
{
    typedef T1 type;
};

template<
    typename T1
    , typename T2
>
struct if_c<false,T1,T2>
{
    typedef T2 type;
};

template<
    typename T1
    , typename T2
    , typename T3
>
struct if_
{
    typedef typename if_c<0 != T1::value, T2, T3>::type type;
};

```



```

};

template<std::size_t S>
struct ls_zeros
{
    static const std::size_t value = (S & std::size_t(1)) ? 0 : (1u + ls_zeros<(S >> 1u)>::value);
};

template<>
struct ls_zeros<0>
{
    static const std::size_t value = 0;
};

template<>
struct ls_zeros<1>
{
    static const std::size_t value = 0;
};

} //namespace ipcdetail {
} //namespace interprocess {
} //namespace boost {

#ifdef BOOST_INTERPROCESS_DETAIL_MPL_HPP
////////////////////////////////////
//
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// (C) Copyright Microsoft Corporation 2014
//
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// http://www.boost.org/LICENSE_1_0.txt)
//
// See http://www.boost.org/libs/intrusive for documentation.
//
////////////////////////////////////

#ifndef BOOST_INTRUSIVE_DETAIL_MPL_HPP
#define BOOST_INTRUSIVE_DETAIL_MPL_HPP

#ifndef BOOST_CONFIG_HPP
# include <boost/config.hpp>
#endif

#ifdef BOOST_HAS_PRAGMA_ONCE
# pragma once

```

```

#endif

#include <boost/intrusive/detail/config_begin.hpp>
#include <boost/move/detail/type_traits.hpp>
#include <cstddef>

namespace boost {
namespace intrusive {
namespace detail {

using boost::move_detail::is_same;
using boost::move_detail::add_const;
using boost::move_detail::remove_const;
using boost::move_detail::remove_cv;
using boost::move_detail::remove_reference;
using boost::move_detail::add_reference;
using boost::move_detail::remove_pointer;
using boost::move_detail::add_pointer;
using boost::move_detail::true_type;
using boost::move_detail::false_type;
using boost::move_detail::enable_if_c;
using boost::move_detail::enable_if;
using boost::move_detail::disable_if_c;
using boost::move_detail::disable_if;
using boost::move_detail::is_convertible;
using boost::move_detail::if_c;
using boost::move_detail::if_;
using boost::move_detail::is_const;
using boost::move_detail::identity;
using boost::move_detail::alignment_of;
using boost::move_detail::is_empty;
using boost::move_detail::addressof;
using boost::move_detail::integral_constant;
using boost::move_detail::enable_if_convertible;
using boost::move_detail::disable_if_convertible;
using boost::move_detail::bool_;
using boost::move_detail::true_;
using boost::move_detail::false_;
using boost::move_detail::yes_type;
using boost::move_detail::no_type;
using boost::move_detail::apply;
using boost::move_detail::eval_if_c;
using boost::move_detail::eval_if;
using boost::move_detail::unvoid_ref;
using boost::move_detail::add_const_if_c;

template<std::size_t S>
struct ls_zeros

```

```

{
    static const std::size_t value = (S & std::size_t(1)) ? 0 : (1 + ls_zeros<(S>>1u)>::value);
};

template<>
struct ls_zeros<0>
{
    static const std::size_t value = 0;
};

template<>
struct ls_zeros<1>
{
    static const std::size_t value = 0;
};

// Infrastructure for providing a default type for T::TNAME if absent.
#define BOOST_INTRUSIVE_INSTANTIATE_DEFAULT_TYPE_TMPLT(TNAME) \
    template <typename T, typename DefaultType> \
    struct boost_intrusive_default_type_ ## TNAME \
    { \
        template <typename X> \
        static char test(int, typename X::TNAME*); \
        \
        template <typename X> \
        static int test(...); \
        \
        struct DefaultWrap { typedef DefaultType TNAME; }; \
        \
        static const bool value = (1 == sizeof(test<T>(0, 0))); \
        \
        typedef typename \
            ::boost::intrusive::detail::if_c \
            <value, T, DefaultWrap>::type::TNAME type; \
    }; \
    //

#define BOOST_INTRUSIVE_OBTAIN_TYPE_WITH_DEFAULT(INSTANTIATION_NS_PREFIX, T, \
TNAME, TIMPL) \
    typename INSTANTIATION_NS_PREFIX \
    boost_intrusive_default_type_ ## TNAME< T, TIMPL >::type \
    //

#define BOOST_INTRUSIVE_INSTANTIATE_EVAL_DEFAULT_TYPE_TMPLT(TNAME)\
    template <typename T, typename DefaultType> \
    struct boost_intrusive_eval_default_type_ ## TNAME \
    { \
        template <typename X> \

```

```

static char test(int, typename X::TNAME*); \

template <typename X> \
static int test(...); \

struct DefaultWrap \
{ typedef typename DefaultType::type TNAME; }; \

static const bool value = (1 == sizeof(test<T>(0, 0))); \

typedef typename \
::boost::intrusive::detail::eval_if_c \
< value \
, ::boost::intrusive::detail::identity<T> \
, ::boost::intrusive::detail::identity<DefaultWrap> \
>::type::TNAME type; \
}; \
//

#define BOOST_INTRUSIVE_OBTAIN_TYPE_WITH_EVAL_DEFAULT(INSTANTIATION_NS_PREFIX, T, \
TNAME, TIMPL) \
    typename INSTANTIATION_NS_PREFIX \
    boost_intrusive_eval_default_type_ ## TNAME< T, TIMPL >::type \
//

#define BOOST_INTRUSIVE_INTERNAL_STATIC_BOOL_IS_TRUE(TRAITS_PREFIX, \
TYPEDEF_TO_FIND) \
template <class T> \
struct TRAITS_PREFIX##_bool \
{ \
    template<bool Add> \
    struct two_or_three {yes_type _[2 + Add];}; \
    template <class U> static yes_type test(...); \
    template <class U> static two_or_three<U::TYPEDEF_TO_FIND> test (int); \
    static const std::size_t value = sizeof(test<T>(0)); \
}; \
\
template <class T> \
struct TRAITS_PREFIX##_bool_is_true \
{ \
    static const bool value = TRAITS_PREFIX##_bool<T>::value > sizeof(yes_type)*2; \
}; \
//

#define BOOST_INTRUSIVE_HAS_STATIC_MEMBER_FUNC_SIGNATURE(TRAITS_NAME, \
FUNC_NAME) \
template <typename U, typename Signature> \
class TRAITS_NAME \

```

```

{ \
private: \
template<Signature> struct helper;\
template<typename T> \
static ::boost::intrusive::detail::yes_type test(helper<&T::FUNC_NAME>*); \
template<typename T> static ::boost::intrusive::detail::no_type test(...); \
public: \
static const bool value = sizeof(test<U>(0)) == sizeof(::boost::intrusive::detail::yes_type); \
}; \
//

#define BOOST_INTRUSIVE_HAS_MEMBER_FUNC_CALLED(TRAIT_NAME, FUNC_NAME) \
template <typename Type> \
struct TRAIT_NAME \
{ \
struct BaseMixin \
{ \
void FUNC_NAME(); \
}; \
struct Base : public Type, public BaseMixin { Base(); }; \
template <typename T, T t> class Helper{}; \
template <typename U> \
static ::boost::intrusive::detail::no_type test(U*, Helper<void (BaseMixin::*)(), &U::FUNC_NAME>* = 0); \
static ::boost::intrusive::detail::yes_type test(...); \
static const bool value = sizeof(::boost::intrusive::detail::yes_type) == sizeof(test((Base*)(0))); \
}; \
//

#define BOOST_INTRUSIVE_HAS_MEMBER_FUNC_CALLED_IGNORE_SIGNATURE(TRAIT_NAME, \
FUNC_NAME) \
BOOST_INTRUSIVE_HAS_MEMBER_FUNC_CALLED(TRAIT_NAME##_ignore_signature, FUNC_NAME) \
\
\
template <typename Type, class> \
struct TRAIT_NAME \
: public TRAIT_NAME##_ignore_signature<Type> \
{ }; \
//

} //namespace detail
} //namespace intrusive
} //namespace boost

#include <boost/intrusive/detail/config_end.hpp>

#endif //BOOST_INTRUSIVE_DETAIL_MPL_HPP

```

1.4 ccard 1.0

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Upstream-Name: cjose

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1.6 cmark 0.25

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1.7 cpprest 2.9.1

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List of Contributors

=====

Microsoft Corporation

Brian Wengert (bwengert79)

Leslie Brody (Les1966)

Michael M (M1xa)

Matt Peterson (MattPeterson1)

Dmitry Kolomiets (kolomiets)

rdeterre

DeCarabas

luisfelio

intercommiura

halex2005

simonlep

jracle

gandziej

adish

LeonidCSIT

kreuzerkrieg

evanc

Abinsula s.r.l.

Gianfranco Costamagna (LocutusOfBorg)

AutoDesk Inc.
Cyrille Fauvel (cyrillef)

Illumina Inc.
Gery Vessere (gery@vessere.com)

Cisco Systems
Gergely Lukacsy (glukacsy)
Chris Deering (deeringc)

Ocedo GmbH
Henning Pfeiffer (megaposer)

thomasschaub

Trimble
Tim Boundy (gigaplex)

Rami Abughazaleh (icnocop)
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/* CMU libsasl

* Tim Martin

* Rob Earhart

* Rob Siemborski

*/

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1.9 e2fsprogs-lib-uuid 1.41.8

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1.11 glib 2.27.1

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```

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That's all there is to it!
This package was debianized by Ben Gertzfield <che@debian.org>
on Tue, 17 Nov 1998 00:16:10 -0800

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End

1.12 gstreamer 0.10.35.1

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Version 2, June 1991

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(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

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However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it

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If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

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to use the modified definitions.)

b) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

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Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the library, if necessary. Here is a sample; alter the names:

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<signature of Ty Coon>, 1 April 1990
Ty Coon, President of Vice

That's all there is to it!

<sect1 id="chapter-legal">

<title id="title-legal">GStreamer Legal Issues</title>

<para>

This part of the FAQ is based on a series of questions we asked the FSF to understand how the GPL works and how patents affects the GPL. These questions were answered by the <ulink url="http://www.fsf.org/">FSF lawyers</ulink>, so we view them as the final interpretation on how the GPL and LGPL interact with patents in our opinion. This consultancy was paid for by <ulink url="http://www.fluendo.com/">Fluendo</ulink> in order to obtain clear and quotable answers. These answers were certified by the FSF lawyer team and verified by FSF lawyer and law professor Eben Moglen.

</para>

<qandaset defaultlabel="qanda">

<qandaentry>

<question id="legal-distribute-three">

<para>

Can someone distribute the combination of

<itemizedlist>

<listitem><para>GStreamer, the LGPL library</para></listitem>

<listitem><para>MyPlayer, a GPL playback application</para></listitem>

<listitem><para>The binary-only Sorenson decoder</para></listitem>

</itemizedlist>

together in one distribution/operating system ? If not, what needs to be changed to make this possible ?

</para>

</question>

<answer>

<para>

This would be a problem, because the GStreamer and MyPlayer licenses would forbid it. In order to link GStreamer to MyPlayer, you need to use section 3 of the LGPL to convert GStreamer to GPL. The GPL version of GStreamer forbids linking to the Sorenson decoder. Anyway, the MyPlayer GPL license forbids this.

</para>

<para>

If the authors of MyPlayer want to permit this, we have an

exception for them: the controlled interface exception from the FAQ.
The idea of this is that you can't get around the GPL just by including a LGPL bit in the middle.

</para>

<para>

Note: MyPlayer is a completely fictitious application at the time of writing.

</para>

</answer>

</qandaentry>

<qandaentry>

<question id="legal-binary-plugin">

<para>

Suppose Apple wants to write a binary-only proprietary plugin for GStreamer to decode Sorenson video, which will be shipped stand-alone, not part of a package like in the question above.

Can Apple distribute this binary-only plugin ?

</para>

</question>

<answer>

<para>

Yes, modulo certain reverse engineering requirements in section 6 of the LGPL.

</para>

</answer>

</qandaentry>

<qandaentry>

<question id="legal-gpl-program">

<para>

If a program released under the GPL uses a library that is LGPL, and this library can dlopen plug-ins at runtime, what are the requirements for the license of the plug-in ?

</para>

</question>

<answer>

<para>

You may not distribute the plug-in with the GPL application.

Distributing the plug-in alone, with the knowledge that it will be used primarily by GPL software is a bit of an edge case. We will not advise you that it would be safe to do so, but we also will not advise you that it would be absolutely forbidden.

</para>

</answer>

</qandaentry>

<qandaentry>

<question id="legal-safe-countries">

<para>

Can someone in a country that does not have software patents distribute code covered by US patents under the GPL to people in, for example, Norway ? If he/she visits the US, can he/she be arrested ?

</para>

</question>

<answer>

<para>

Yes, he can.

No, there are no criminal penalties for patent infringement in the US.

</para>

</answer>

</qandaentry>

<qandaentry>

<question id="legal-unsafe-countries">

<para>

Can someone from the US distribute software covered by US patents under the GPL to people in Norway ? To people in the US ?

</para>

</question>

<answer>

<para>

This might infringe some patents, but the GPL would not forbid it absent some actual restriction, such as a court judgement or agreement. The US government is empowered to refuse importation of patent infringing devices, including software.

</para>

</answer>

</qandaentry>

<qandaentry>

<question id="legal-gpl-library-patents">

<para>

There are a lot of GPL- or LGPL-licensed libraries that handle media codecs which have patents. Take mad, an mp3 decoding library, as an example. It is licensed under the GPL. In countries where patents are valid, does this invalidate the GPL license for this project ?

</para>

</question>

<answer>

<para>

The mere existence of a patent which might read on the program does not change anything. However, if a court judgement or other agreement prevents you from distributing libmad under GPL terms, you can not distribute it at all.

</para>

<para>

The GPL and LGPL say (sections 7 and 11):

<quote>If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all.</quote>

</para>

</answer>

</qandaentry>

<qandaentry>

<question id="legal-gpl-court-judgment">

<para>

So let's say there is a court judgement. Does this mean that the GPL license is invalid for the project everywhere, or only in the countries where it conflicts with the applicable patents ?

</para>

</question>

<answer>

<para>

The GPL operates on a per-action, not per-program basis. That is, if you are in a country which has software patents, and a court tells you that you cannot distribute (say) libmad in source code form, then you cannot distribute libmad at all. This doesn't affect anyone else.

</para>

</answer>

</qandaentry>

<qandaentry>

<question id="legal-gpl-and-binary">

<para>

Patented decoding can be implemented in GStreamer either by having a binary-only plugin do the decoding, or by writing a plugin (with any applicable license) that links to a binary-only library. Does this affect the licensing issues involved in regards to GPL/LGPL?

</para>

</question>

<answer>

<para>

No.

</para>
</answer>
</qandaentry>

<qandaentry>
<question id="legal-gpl-patent-distribution">

<para>
Is it correct that you cannot distribute the GPL mad library to
decode mp3's, *even* in the case where you have obtained a valid license
for decoding mp3 ?

</para>
</question>

<answer>
<para>
The only GPL-compatible patent licenses are those which are open to
all parties possessing copies of GPL software which practices the
teachings of the patent.

</para>

<para>
If you take a license which doesn't allow others to distribute
original or modified versions of libmad practicing the same patent
claims as the version you distribute, then you may not distribute at
all.

</para>
</answer>
</qandaentry>
</qandaset>
</sect1>

/* GStreamer

* Copyright (C) <1999> Erik Walthinsen <omega@cse.ogi.edu>

*

* This library is free software; you can redistribute it and/or
* modify it under the terms of the GNU Library General Public
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* version 2 of the License, or (at your option) any later version.

*

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* Library General Public License for more details.

*

* You should have received a copy of the GNU Library General Public
* License along with this library; if not, write to the
* Free Software Foundation, Inc., 59 Temple Place - Suite 330,
* Boston, MA 02111-1307, USA.

*/

```

/* GStreamer
 * Copyright (C) 1999,2000 Erik Walthinsen <omega@cse.ogi.edu>
 *      2000 Wim Taymans <wtay@chello.be>
 *
 * gstpadtemplate.c: Templates for pad creation
 *
 * This library is free software; you can redistribute it and/or
 * modify it under the terms of the GNU Library General Public
 * License as published by the Free Software Foundation; either
 * version 2 of the License, or (at your option) any later version.
 *
 * This library 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
 * Library General Public License for more details.
 *
 * You should have received a copy of the GNU Library General Public
 * License along with this library; if not, write to the
 * Free Software Foundation, Inc., 59 Temple Place - Suite 330,
 * Boston, MA 02111-1307, USA.
 */

/**
 * SECTION:gstpadtemplate
 * @short_description: Describe the media type of a pad.
 * @see_also: #GstPad, #GstElementFactory
 *
 * Padtemplates describe the possible media types a pad or an elementfactory can
 * handle. This allows for both inspection of handled types before loading the
 * element plugin as well as identifying pads on elements that are not yet
 * created (request or sometimes pads).
 *
 * Pad and PadTemplates have #GstCaps attached to it to describe the media type
 * they are capable of dealing with. gst_pad_template_get_caps() or
 * GST_PAD_TEMPLATE_CAPS() are used to get the caps of a padtemplate. It's not
 * possible to modify the caps of a padtemplate after creation.
 *
 * PadTemplates have a #GstPadPresence property which identifies the lifetime
 * of the pad and that can be retrieved with GST_PAD_TEMPLATE_PRESENCE(). Also
 * the direction of the pad can be retrieved from the #GstPadTemplate with
 * GST_PAD_TEMPLATE_DIRECTION().
 *
 * The GST_PAD_TEMPLATE_NAME_TEMPLATE () is important for GST_PAD_REQUEST pads
 * because it has to be used as the name in the gst_element_get_request_pad()
 * call to instantiate a pad from this template.
 *
 * Padtemplates can be created with gst_pad_template_new() or with
 * gst_static_pad_template_get (), which creates a #GstPadTemplate from a

```

```

* #GstStaticPadTemplate that can be filled with the
* convenient GST_STATIC_PAD_TEMPLATE() macro.
*
* A padtemplate can be used to create a pad (see gst_pad_new_from_template()
* or gst_pad_new_from_static_template ()) or to add to an element class
* (see gst_element_class_add_pad_template ()).
*
* The following code example shows the code to create a pad from a padtemplate.
* <example>
* <title>Create a pad from a padtemplate</title>
* <programlisting>
* GstStaticPadTemplate my_template =
* GST_STATIC_PAD_TEMPLATE (
* "sink", // the name of the pad
* GST_PAD_SINK, // the direction of the pad
* GST_PAD_ALWAYS, // when this pad will be present
* GST_STATIC_CAPS ( // the capabilities of the padtemplate
* "audio/x-raw-int, "
* "channels = (int) [ 1, 6 ]"
* )
* );
* void
* my_method (void)
* {
* GstPad *pad;
* pad = gst_pad_new_from_static_template (&my_template, "sink");
* ...
* }
* </programlisting>
* </example>
*
* The following example shows you how to add the padtemplate to an
* element class, this is usually done in the base_init of the class:
* <informalexample>
* <programlisting>
* static void
* my_element_base_init (gpointer g_class)
* {
* GstElementClass *gstelement_class = GST_ELEMENT_CLASS (g_class);
*
* gst_element_class_add_pad_template (gstelement_class,
* gst_static_pad_template_get (&my_template));
* }
* </programlisting>
* </informalexample>
*
* Last reviewed on 2006-02-14 (0.10.3)
*/

```

```

#include "gst_private.h"

#include "gstpad.h"
#include "gstpadtemplate.h"
#include "gstenumtypes.h"
#include "gstmarshal.h"
#include "gstutils.h"
#include "gstinfo.h"
#include "gsterror.h"
#include "gstvalue.h"

#define GST_CAT_DEFAULT GST_CAT_PADS

enum
{
    PROP_NAME_TEMPLATE = 1,
    PROP_DIRECTION,
    PROP_PRESENCE,
    PROP_CAPS
};

enum
{
    TEMPL_PAD_CREATED,
    /* FILL ME */
    LAST_SIGNAL
};

static GObject *parent_class = NULL;
static guint gst_pad_template_signals[LAST_SIGNAL] = { 0 };

static void gst_pad_template_dispose (GObject * object);
static void gst_pad_template_set_property (GObject * object, guint prop_id,
    const GValue * value, GParamSpec * pspec);
static void gst_pad_template_get_property (GObject * object, guint prop_id,
    GValue * value, GParamSpec * pspec);

G_DEFINE_TYPE (GstPadTemplate, gst_pad_template, GST_TYPE_OBJECT);

static void
gst_pad_template_class_init (GstPadTemplateClass * klass)
{
    GObjectClass *gobject_class;
    GstObjectClass *gstobject_class;

    gobject_class = (GObjectClass *) klass;
    gstobject_class = (GstObjectClass *) klass;

```

```

parent_class = g_type_class_peek_parent (klass);

/**
 * GstPadTemplate::pad-created:
 * @pad_template: the object which received the signal.
 * @pad: the pad that was created.
 *
 * This signal is fired when an element creates a pad from this template.
 */
gst_pad_template_signals[TEMPL_PAD_CREATED] =
    g_signal_new ("pad-created", G_TYPE_FROM_CLASS (klass), G_SIGNAL_RUN_LAST,
        G_STRUCT_OFFSET (GstPadTemplateClass, pad_created),
        NULL, NULL, gst_marshall_VOID__OBJECT, G_TYPE_NONE, 1, GST_TYPE_PAD);

gobject_class->dispose = gst_pad_template_dispose;

gobject_class->get_property = gst_pad_template_get_property;
gobject_class->set_property = gst_pad_template_set_property;

/**
 * GstPadTemplate:name-template
 *
 * The name template of the pad template.
 *
 * Since: 0.10.21
 */
g_object_class_install_property (gobject_class, PROP_NAME_TEMPLATE,
    g_param_spec_string ("name-template", "Name template",
        "The name template of the pad template", NULL,
        G_PARAM_READWRITE | G_PARAM_CONSTRUCT_ONLY | G_PARAM_STATIC_STRINGS));

/**
 * GstPadTemplate:direction
 *
 * The direction of the pad described by the pad template.
 *
 * Since: 0.10.21
 */
g_object_class_install_property (gobject_class, PROP_DIRECTION,
    g_param_spec_enum ("direction", "Direction",
        "The direction of the pad described by the pad template",
        GST_TYPE_PAD_DIRECTION, GST_PAD_UNKNOWN,
        G_PARAM_READWRITE | G_PARAM_CONSTRUCT_ONLY | G_PARAM_STATIC_STRINGS));

/**
 * GstPadTemplate:presence
 *

```

```

* When the pad described by the pad template will become available.
*
* Since: 0.10.21
*/
g_object_class_install_property (gobject_class, PROP_PRESENCE,
    g_param_spec_enum ("presence", "Presence",
        "When the pad described by the pad template will become available",
        GST_TYPE_PAD_PRESENCE, GST_PAD_ALWAYS,
        G_PARAM_READWRITE | G_PARAM_CONSTRUCT_ONLY | G_PARAM_STATIC_STRINGS));

/**
 * GstPadTemplate:caps
 *
 * The capabilities of the pad described by the pad template.
 *
 * Since: 0.10.21
 */
g_object_class_install_property (gobject_class, PROP_CAPS,
    g_param_spec_boxed ("caps", "Caps",
        "The capabilities of the pad described by the pad template",
        GST_TYPE_CAPS,
        G_PARAM_READWRITE | G_PARAM_CONSTRUCT_ONLY | G_PARAM_STATIC_STRINGS));

gstobject_class->path_string_separator = "*";
}

static void
gst_pad_template_init (GstPadTemplate * templ)
{
    /* FIXME 0.11: Does anybody remember why this is here? If not, let's
     * change it for 0.11 and let gst_element_class_add_pad_template() for
     * example ref/sink the pad templates.
     */
    /* We ensure that the pad template we're creating has a sunken reference.
     * Inconsistencies in pad templates being floating or sunken has caused
     * problems in the past with leaks, etc.
     */
    /* For consistency, then, we only produce them with sunken references
     * owned by the creator of the object
     */
    if (GST_OBJECT_IS_FLOATING (templ)) {
        gst_object_ref_sink (templ);
    }
}

static void
gst_pad_template_dispose (GObject * object)
{

```



```

GstPadTemplate *templ = GST_PAD_TEMPLATE (object);

g_free (GST_PAD_TEMPLATE_NAME_TEMPLATE (templ));
if (GST_PAD_TEMPLATE_CAPS (templ)) {
    gst_caps_unref (GST_PAD_TEMPLATE_CAPS (templ));
}

G_OBJECT_CLASS (parent_class)->dispose (object);
}

/* ALWAYS padtemplates cannot have conversion specifications (like src_%d),
 * since it doesn't make sense.
 * SOMETIMES padtemplates can do whatever they want, they are provided by the
 * element.
 * REQUEST padtemplates can be reverse-parsed (the user asks for 'sink1', the
 * 'sink%d' template is automatically selected), so we need to restrict their
 * naming.
 */
static gboolean
name_is_valid (const gchar * name, GstPadPresence presence)
{
    const gchar *str;

    if (presence == GST_PAD_ALWAYS) {
        if (strchr (name, '%')) {
            g_warning ("invalid name template %s: conversion specifications are not"
                " allowed for GST_PAD_ALWAYS padtemplates", name);
            return FALSE;
        }
    } else if (presence == GST_PAD_REQUEST) {
        if ((str = strchr (name, '%')) && strchr (str + 1, '%')) {
            g_warning ("invalid name template %s: only one conversion specification"
                " allowed in GST_PAD_REQUEST padtemplate", name);
            return FALSE;
        }
        if (str && (*(str + 1) != 's' && *(str + 1) != 'd' && *(str + 1) != 'u')) {
            g_warning ("invalid name template %s: conversion specification must be of"
                " type '%d', '%u' or '%s' for GST_PAD_REQUEST padtemplate", name);
            return FALSE;
        }
        if (str && *(str + 2) != '\0') {
            g_warning ("invalid name template %s: conversion specification must"
                " appear at the end of the GST_PAD_REQUEST padtemplate name", name);
            return FALSE;
        }
    }

    return TRUE;
}

```

```

}

GType
gst_static_pad_template_get_type (void)
{
    static GType staticpadtemplate_type = 0;

    if (G_UNLIKELY (staticpadtemplate_type == 0)) {
        staticpadtemplate_type =
            g_pointer_type_register_static ("GstStaticPadTemplate");
    }
    return staticpadtemplate_type;
}

/**
 * gst_static_pad_template_get:
 * @pad_template: the static pad template
 *
 * Converts a #GstStaticPadTemplate into a #GstPadTemplate.
 *
 * Returns: (transfer full): a new #GstPadTemplate.
 */
/* FIXME0.11: rename to gst_pad_template_new_from_static_pad_template() */
GstPadTemplate *
gst_static_pad_template_get (GstStaticPadTemplate * pad_template)
{
    GstPadTemplate *new;
    GstCaps *caps;

    if (!name_is_valid (pad_template->name_template, pad_template->presence))
        return NULL;

    caps = gst_static_caps_get (&pad_template->static_caps);

    new = g_object_new (gst_pad_template_get_type (),
        "name", pad_template->name_template,
        "name-template", pad_template->name_template,
        "direction", pad_template->direction,
        "presence", pad_template->presence, "caps", caps, NULL);

    gst_caps_unref (caps);

    return new;
}

/**
 * gst_pad_template_new:
 * @name_template: the name template.

```

```

* @direction: the #GstPadDirection of the template.
* @presence: the #GstPadPresence of the pad.
* @caps: (transfer full): a #GstCaps set for the template. The caps are
*   taken ownership of.
*
* Creates a new pad template with a name according to the given template
* and with the given arguments. This functions takes ownership of the provided
* caps, so be sure to not use them afterwards.
*
* Returns: (transfer full): a new #GstPadTemplate.
*/
GstPadTemplate *
gst_pad_template_new (const gchar * name_template,
    GstPadDirection direction, GstPadPresence presence, GstCaps * caps)
{
    GstPadTemplate *new;

    g_return_val_if_fail (name_template != NULL, NULL);
    g_return_val_if_fail (caps != NULL, NULL);
    g_return_val_if_fail (direction == GST_PAD_SRC
        || direction == GST_PAD_SINK, NULL);
    g_return_val_if_fail (presence == GST_PAD_ALWAYS
        || presence == GST_PAD_SOMETIMES || presence == GST_PAD_REQUEST, NULL);

    if (!name_is_valid (name_template, presence)) {
        gst_caps_unref (caps);
        return NULL;
    }

    new = g_object_new (gst_pad_template_get_type (),
        "name", name_template, "name-template", name_template,
        "direction", direction, "presence", presence, "caps", caps, NULL);

    gst_caps_unref (caps);

    return new;
}

/**
* gst_static_pad_template_get_caps:
* @templ: a #GstStaticPadTemplate to get capabilities of.
*
* Gets the capabilities of the static pad template.
*
* Returns: (transfer full): the #GstCaps of the static pad template.
* Unref after usage. Since the core holds an additional
* ref to the returned caps, use gst_caps_make_writable()
* on the returned caps to modify it.

```

```

*/
GstCaps *
gst_static_pad_template_get_caps (GstStaticPadTemplate * templ)
{
    g_return_val_if_fail (templ, NULL);

    return (GstCaps *) gst_static_caps_get (&templ->static_caps);
}

/**
 * gst_pad_template_get_caps:
 * @templ: a #GstPadTemplate to get capabilities of.
 *
 * Gets the capabilities of the pad template.
 *
 * Returns: (transfer none): the #GstCaps of the pad template. If you need to
 * keep a reference to the caps, take a ref (see gst_caps_ref ()).
 */
GstCaps *
gst_pad_template_get_caps (GstPadTemplate * templ)
{
    g_return_val_if_fail (GST_IS_PAD_TEMPLATE (templ), NULL);

    return GST_PAD_TEMPLATE_CAPS (templ);
}

/**
 * gst_pad_template_pad_created:
 * @templ: a #GstPadTemplate that has been created
 * @pad: the #GstPad that created it
 *
 * Emit the pad-created signal for this template when created by this pad.
 */
void
gst_pad_template_pad_created (GstPadTemplate * templ, GstPad * pad)
{
    g_signal_emit (templ, gst_pad_template_signals[TEMPL_PAD_CREATED], 0, pad);
}

static void
gst_pad_template_set_property (GObject * object, guint prop_id,
    const GValue * value, GParamSpec * pspec)
{
    /* these properties are all construct-only */
    switch (prop_id) {
        case PROP_NAME_TEMPLATE:
            GST_PAD_TEMPLATE_NAME_TEMPLATE (object) = g_value_dup_string (value);
            break;
    }
}

```

```

case PROP_DIRECTION:
    GST_PAD_TEMPLATE_DIRECTION (object) =
        (GstPadDirection) g_value_get_enum (value);
    break;
case PROP_PRESENCE:
    GST_PAD_TEMPLATE_PRESENCE (object) =
        (GstPadPresence) g_value_get_enum (value);
    break;
case PROP_CAPS:
    /* allow caps == NULL for backwards compatibility (ie. g_object_new()
     * called without any of the new properties) (FIXME 0.11) */
    if (g_value_get_boxed (value) != NULL) {
        GST_PAD_TEMPLATE_CAPS (object) =
            gst_caps_copy (g_value_get_boxed (value));
    }
    break;
default:
    G_OBJECT_WARN_INVALID_PROPERTY_ID (object, prop_id, pspec);
    break;
}
}

static void
gst_pad_template_get_property (GObject * object, guint prop_id, GValue * value,
    GParamSpec * pspec)
{
    /* these properties are all construct-only */
    switch (prop_id) {
    case PROP_NAME_TEMPLATE:
        g_value_set_string (value, GST_PAD_TEMPLATE_NAME_TEMPLATE (object));
        break;
    case PROP_DIRECTION:
        g_value_set_enum (value, GST_PAD_TEMPLATE_DIRECTION (object));
        break;
    case PROP_PRESENCE:
        g_value_set_enum (value, GST_PAD_TEMPLATE_PRESENCE (object));
        break;
    case PROP_CAPS:
        g_value_set_boxed (value, GST_PAD_TEMPLATE_CAPS (object));
        break;
    default:
        G_OBJECT_WARN_INVALID_PROPERTY_ID (object, prop_id, pspec);
        break;
    }
}

/* GStreamer
 * Copyright (C) 1999,2000 Erik Walthinsen <omega@cse.ogi.edu>
 *      2000 Wim Taymans <wim.taymans@chello.be>

```

```

*
* gstpadtemplate.h: Header for GstPadTemplate object
*
* This library is free software; you can redistribute it and/or
* modify it under the terms of the GNU Library General Public
* License as published by the Free Software Foundation; either
* version 2 of the License, or (at your option) any later version.
*
* This library 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
* Library General Public License for more details.
*
* You should have received a copy of the GNU Library General Public
* License along with this library; if not, write to the
* Free Software Foundation, Inc., 59 Temple Place - Suite 330,
* Boston, MA 02111-1307, USA.
*/

```

```

#ifndef __GST_PAD_TEMPLATE_H__
#define __GST_PAD_TEMPLATE_H__

```

```

#include <gst/gstconfig.h>

```

```

#include <gst/gstobject.h>
#include <gst/gstbuffer.h>
#include <gst/gstcaps.h>
#include <gst/gstevent.h>
#include <gst/gstquery.h>
#include <gst/gsttask.h>

```

```

G_BEGIN_DECLS

```

```

/* FIXME: this awful circular dependency need to be resolved properly (see pad.h) */

```

```

/*typedef struct _GstPadTemplate GstPadTemplate; */

```

```

typedef struct _GstPadTemplateClass GstPadTemplateClass;

```

```

typedef struct _GstStaticPadTemplate GstStaticPadTemplate;

```

```

#define GST_TYPE_STATIC_PAD_TEMPLATE (gst_static_pad_template_get_type ())

```

```

#define GST_TYPE_PAD_TEMPLATE (gst_pad_template_get_type ())

```

```

#define GST_PAD_TEMPLATE(obj) (G_TYPE_CHECK_INSTANCE_CAST ((obj),
GST_TYPE_PAD_TEMPLATE, GstPadTemplate))

```

```

#define GST_PAD_TEMPLATE_CLASS(klass) (G_TYPE_CHECK_CLASS_CAST ((klass),
GST_TYPE_PAD_TEMPLATE, GstPadTemplateClass))

```

```

#define GST_IS_PAD_TEMPLATE(obj) (G_TYPE_CHECK_INSTANCE_TYPE ((obj),
GST_TYPE_PAD_TEMPLATE))

```

```

#define GST_IS_PAD_TEMPLATE_CLASS(klass) (G_TYPE_CHECK_CLASS_TYPE ((klass),
GST_TYPE_PAD_TEMPLATE))

/**
 * GstPadPresence:
 * @GST_PAD_ALWAYS: the pad is always available
 * @GST_PAD_SOMETIMES: the pad will become available depending on the media stream
 * @GST_PAD_REQUEST: the pad is only available on request with
 * gst_element_get_request_pad().
 *
 * Indicates when this pad will become available.
 */
typedef enum {
    GST_PAD_ALWAYS,
    GST_PAD_SOMETIMES,
    GST_PAD_REQUEST
} GstPadPresence;

/**
 * GST_PAD_TEMPLATE_NAME_TEMPLATE:
 * @templ: the template to query
 *
 * Get the nametemplate of the padtemplate.
 */
#define GST_PAD_TEMPLATE_NAME_TEMPLATE(templ) (((GstPadTemplate *) (templ))->name_template)

/**
 * GST_PAD_TEMPLATE_DIRECTION:
 * @templ: the template to query
 *
 * Get the #GstPadDirection of the padtemplate.
 */
#define GST_PAD_TEMPLATE_DIRECTION(templ) (((GstPadTemplate *) (templ))->direction)

/**
 * GST_PAD_TEMPLATE_PRESENCE:
 * @templ: the template to query
 *
 * Get the #GstPadPresence of the padtemplate.
 */
#define GST_PAD_TEMPLATE_PRESENCE(templ) (((GstPadTemplate *) (templ))->presence)

/**
 * GST_PAD_TEMPLATE_CAPS:
 * @templ: the template to query
 *
 * Get a handle to the padtemplate #GstCaps
 */

```

```

#define GST_PAD_TEMPLATE_CAPS(templ) (((GstPadTemplate*)(templ))->caps)

/**
 * GstPadTemplateFlags:
 * @GST_PAD_TEMPLATE_FIXED: the padtemplate has no variable properties
 * @GST_PAD_TEMPLATE_FLAG_LAST: first flag that can be used by subclasses.
 *
 * Flags for the padtemplate
 */
typedef enum {
    /* FIXME0.11: this is not used and the purpose is unclear */
    GST_PAD_TEMPLATE_FIXED    = (GST_OBJECT_FLAG_LAST << 0),
    /* padding */
    GST_PAD_TEMPLATE_FLAG_LAST = (GST_OBJECT_FLAG_LAST << 4)
} GstPadTemplateFlags;

/**
 * GST_PAD_TEMPLATE_IS_FIXED:
 * @templ: the template to query
 *
 * Check if the properties of the padtemplate are fixed
 */
#define GST_PAD_TEMPLATE_IS_FIXED(templ) (GST_OBJECT_FLAG_IS_SET(templ,
GST_PAD_TEMPLATE_FIXED))

/**
 * GstPadTemplate:
 *
 * The padtemplate object.
 */
struct _GstPadTemplate {
    GObject    object;

    gchar      *name_template;
    GstPadDirection direction;
    GstPadPresence presence;
    GstCaps    *caps;

    gpointer _gst_reserved[GST_PADDING];
};

struct _GstPadTemplateClass {
    GObjectClass parent_class;

    /* signal callbacks */
    void (*pad_created) (GstPadTemplate *templ, GstPad *pad);

    gpointer _gst_reserved[GST_PADDING];
};

```



```

};

/**
 * GstStaticPadTemplate:
 * @name_template: the name of the template
 * @direction: the direction of the template
 * @presence: the presence of the template
 * @static_caps: the caps of the template.
 *
 * Structure describing the #GstStaticPadTemplate.
 */
struct _GstStaticPadTemplate {
    const gchar *name_template;
    GstPadDirection direction;
    GstPadPresence presence;
    GstStaticCaps static_caps;
};

/**
 * GST_STATIC_PAD_TEMPLATE:
 * @padname: the name template of the pad
 * @dir: the GstPadDirection of the pad
 * @pres: the GstPadPresence of the pad
 * @caps: the GstStaticCaps of the pad
 *
 * Convenience macro to fill the values of a GstStaticPadTemplate
 * structure.
 */
#define GST_STATIC_PAD_TEMPLATE(padname, dir, pres, caps) \
{ \
    /* name_template */ padname, \
    /* direction */ dir, \
    /* presence */ pres, \
    /* caps */ caps \
}

/* templates and factories */
GType gst_pad_template_get_type (void);
GType gst_static_pad_template_get_type (void);

GstPadTemplate* gst_pad_template_new (const gchar *name_template,
    GstPadDirection direction, GstPadPresence presence,
    GstCaps *caps) G_GNUC_MALLOC;

GstPadTemplate * gst_static_pad_template_get (GstStaticPadTemplate *pad_template);
GstCaps* gst_static_pad_template_get_caps (GstStaticPadTemplate *templ);
GstCaps* gst_pad_template_get_caps (GstPadTemplate *templ);

```

```
void          gst_pad_template_pad_created      (GstPadTemplate * templ, GstPad * pad);
```

```
G_END_DECLS
```

```
#endif /* __GST_PAD_TEMPLATE_H__ */
```

```
/*
```

```
* Check: a unit test framework for C
```

```
* Copyright (C) 2001,2002 Arien Malec
```

```
*
```

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```

```
*/
```

```
#ifndef CHECK_IMPL_H
```

```
#define CHECK_IMPL_H
```

```
/* This header should be included by any module that needs
```

```
to know the implementation details of the check structures
```

```
Include stdio.h & list.h before this header
```

```
*/
```

```
typedef struct TF {
```

```
    TFun fn;
```

```
    int loop_start;
```

```
    int loop_end;
```

```
    const char *name;
```

```
    int signal;
```

```
    unsigned char allowed_exit_value;
```

```
} TF;
```

```
struct Suite {
```

```
    const char *name;
```

```
    List *tclst; /* List of test cases */
```

```
};
```

```

typedef struct Fixture
{
    int ischecked;
    SFun fun;
} Fixture;

struct TCase {
    const char *name;
    int timeout;
    List *tflst; /* list of test functions */
    List *unch_sflst;
    List *unch_tflst;
    List *ch_sflst;
    List *ch_tflst;
};

typedef struct TestStats {
    int n_checked;
    int n_failed;
    int n_errors;
} TestStats;

struct TestResult {
    enum test_result rtype; /* Type of result */
    enum ck_result_ctx ctx; /* When the result occurred */
    char *file; /* File where the test occurred */
    int line; /* Line number where the test occurred */
    int iter; /* The iteration value for looping tests */
    const char *tcname; /* Test case that generated the result */
    const char *name; /* Test that generated the result */
    char *msg; /* Failure message */
};

TestResult *tr_create(void);
void tr_reset(TestResult *tr);

enum cl_event {
    CLINITLOG_SR,
    CLENDLOG_SR,
    CLSTART_SR,
    CLSTART_S,
    CLEND_SR,
    CLEND_S,
    CLSTART_T, /* A test case is about to run */
    CLEND_T
};

typedef void (*LFun) (SRunner *, FILE*, enum print_output,

```

```

    void *, enum cl_event);

typedef struct Log {
    FILE *lfile;
    LFun lfun;
    int close;
    enum print_output mode;
} Log;

struct SRunner {
    List *slst; /* List of Suite objects */
    TestStats *stats; /* Run statistics */
    List *resultlst; /* List of unit test results */
    const char *log_fname; /* name of log file */
    const char *xml_fname; /* name of xml output file */
    List *loglst; /* list of Log objects */
    enum fork_status fstat; /* controls if suites are forked or not
        NOTE: Don't use this value directly,
        instead use srunner_fork_status */
};

void set_fork_status(enum fork_status fstat);
enum fork_status cur_fork_status (void);

#endif /* CHECK_IMPL_H */
/* GStreamer
 * Copyright (C) 1999,2000 Erik Walthinsen <omega@cse.ogi.edu>
 *      2000 Wim Taymans <wtay@chello.be>
 *      2005 Wim Taymans <wim@fluendo.com>
 *      2005 David Schleef <ds@schleef.org>
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 * Boston, MA 02111-1307, USA.
 */
/**

```

```

* SECTION:element-capsfilter
*
* The element does not modify data as such, but can enforce limitations on the
* data format.
*
* <refsect2>
* <title>Example launch line</title>
* ||
* gst-launch videotestsrc ! video/x-raw-gray ! ffmpegcolorspace ! autovideosink
* || Limits acceptable video from videotestsrc to be grayscale.
* </refsect2>
*/

```

```

#ifdef HAVE_CONFIG_H
#include "config.h"
#endif

```

```

#include "../gst/gst-i18n-lib.h"
#include "gstcapsfilter.h"

```

```

enum
{
    PROP_0,
    PROP_FILTER_CAPS
};

```

```

static GstStaticPadTemplate sinktemplate = GST_STATIC_PAD_TEMPLATE ("sink",
    GST_PAD_SINK,
    GST_PAD_ALWAYS,
    GST_STATIC_CAPS_ANY);

```

```

static GstStaticPadTemplate srctemplate = GST_STATIC_PAD_TEMPLATE ("src",
    GST_PAD_SRC,
    GST_PAD_ALWAYS,
    GST_STATIC_CAPS_ANY);

```

```

GST_DEBUG_CATEGORY_STATIC (gst_capsfilter_debug);
#define GST_CAT_DEFAULT gst_capsfilter_debug

```

```

#define _do_init(bla) \
    GST_DEBUG_CATEGORY_INIT (gst_capsfilter_debug, "capsfilter", 0, \
        "capsfilter element");

```

```

GST_BOILERPLATE_FULL (GstCapsFilter, gst_capsfilter, GstBaseTransform,
    GST_TYPE_BASE_TRANSFORM, _do_init);

```

```

static void gst_capsfilter_set_property (GObject * object, guint prop_id,
    const GValue * value, GParamSpec * pspec);
static void gst_capsfilter_get_property (GObject * object, guint prop_id,
    GValue * value, GParamSpec * pspec);
static void gst_capsfilter_dispose (GObject * object);

static GstCaps *gst_capsfilter_transform_caps (GstBaseTransform * base,
    GstPadDirection direction, GstCaps * caps);
static gboolean gst_capsfilter_accept_caps (GstBaseTransform * base,
    GstPadDirection direction, GstCaps * caps);
static GstFlowReturn gst_capsfilter_transform_ip (GstBaseTransform * base,
    GstBuffer * buf);
static GstFlowReturn gst_capsfilter_prepare_buf (GstBaseTransform * trans,
    GstBuffer * input, gint size, GstCaps * caps, GstBuffer ** buf);

static void
gst_capsfilter_base_init (gpointer g_class)
{
    GstElementClass *gstelement_class = GST_ELEMENT_CLASS (g_class);

    gst_element_class_set_details_simple (gstelement_class,
        "CapsFilter",
        "Generic",
        "Pass data without modification, limiting formats",
        "David Schleef <ds@schleef.org>");
    gst_element_class_add_pad_template (gstelement_class,
        gst_static_pad_template_get (&srctemplate));
    gst_element_class_add_pad_template (gstelement_class,
        gst_static_pad_template_get (&sinktemplate));
}

static void
gst_capsfilter_class_init (GstCapsFilterClass * klass)
{
    GObjectClass *gobject_class;
    GstBaseTransformClass *trans_class;

    gobject_class = G_OBJECT_CLASS (klass);
    gobject_class->set_property = gst_capsfilter_set_property;
    gobject_class->get_property = gst_capsfilter_get_property;
    gobject_class->dispose = gst_capsfilter_dispose;

    g_object_class_install_property (gobject_class, PROP_FILTER_CAPS,
        g_param_spec_boxed ("caps", _("Filter caps"),
            _("Restrict the possible allowed capabilities (NULL means ANY). "
                "Setting this property takes a reference to the supplied GstCaps "
                "object."), GST_TYPE_CAPS,

```

```

    G_PARAM_READWRITE | G_PARAM_STATIC_STRINGS));

trans_class = GST_BASE_TRANSFORM_CLASS (klass);
trans_class->transform_caps =
    GST_DEBUG_FUNCPTR (gst_capsfilter_transform_caps);
trans_class->transform_ip = GST_DEBUG_FUNCPTR (gst_capsfilter_transform_ip);
trans_class->accept_caps = GST_DEBUG_FUNCPTR (gst_capsfilter_accept_caps);
trans_class->prepare_output_buffer =
    GST_DEBUG_FUNCPTR (gst_capsfilter_prepare_buf);
}

static void
gst_capsfilter_init (GstCapsFilter * filter, GstCapsFilterClass * g_class)
{
    GstBaseTransform *trans = GST_BASE_TRANSFORM (filter);
    gst_base_transform_set_gap_aware (trans, TRUE);
    filter->filter_caps = gst_caps_new_any ();
}

static gboolean
copy_func (GQuark field_id, const GValue * value, GstStructure * dest)
{
    gst_structure_id_set_value (dest, field_id, value);

    return TRUE;
}

static void
gst_capsfilter_set_property (GObject * object, guint prop_id,
    const GValue * value, GParamSpec * pspec)
{
    GstCapsFilter *capsfilter = GST_CAPSFILTER (object);

    switch (prop_id) {
        case PROP_FILTER_CAPS: {
            GstCaps *new_caps;
            GstCaps *old_caps, *suggest, *nego;
            const GstCaps *new_caps_val = gst_value_get_caps (value);

            if (new_caps_val == NULL) {
                new_caps = gst_caps_new_any ();
            } else {
                new_caps = (GstCaps *) new_caps_val;
                gst_caps_ref (new_caps);
            }

            GST_OBJECT_LOCK (capsfilter);
            old_caps = capsfilter->filter_caps;

```

```

capsfilter->filter_caps = new_caps;
GST_OBJECT_UNLOCK (capsfilter);

gst_caps_unref (old_caps);

GST_DEBUG_OBJECT (capsfilter, "set new caps %" GST_PTR_FORMAT, new_caps);

/* filter the currently negotiated format against the new caps */
GST_OBJECT_LOCK (GST_BASE_TRANSFORM_SINK_PAD (object));
nego = GST_PAD_CAPS (GST_BASE_TRANSFORM_SINK_PAD (object));
if (nego) {
    GST_DEBUG_OBJECT (capsfilter, "we had negotiated caps %" GST_PTR_FORMAT,
        nego);

    if (G_UNLIKELY (gst_caps_is_any (new_caps))) {
        GST_DEBUG_OBJECT (capsfilter, "not settings any suggestion");

        suggest = NULL;
    } else {
        GstStructure *s1, *s2;

        /* first check if the name is the same */
        s1 = gst_caps_get_structure (nego, 0);
        s2 = gst_caps_get_structure (new_caps, 0);

        if (gst_structure_get_name_id (s1) == gst_structure_get_name_id (s2)) {
            /* same name, copy all fields from the new caps into the previously
             * negotiated caps */
            suggest = gst_caps_copy (nego);
            s1 = gst_caps_get_structure (suggest, 0);
            gst_structure_foreach (s2, (GstStructureForeachFunc) copy_func, s1);
            GST_DEBUG_OBJECT (capsfilter, "copied structure fields");
        } else {
            GST_DEBUG_OBJECT (capsfilter, "different structure names");
            /* different names, we can only suggest the complete caps */
            suggest = gst_caps_copy (new_caps);
        }
    }
} else {
    GST_DEBUG_OBJECT (capsfilter, "no negotiated caps");
    /* Suggest the new caps, we can't just rely on _get_caps as this may
     * already be called at this point even though no buffer has been
     * pushed yet */
    suggest = gst_caps_copy (new_caps);
}
GST_OBJECT_UNLOCK (GST_BASE_TRANSFORM_SINK_PAD (object));

GST_DEBUG_OBJECT (capsfilter, "suggesting new caps %" GST_PTR_FORMAT,

```



```

        suggest);
gst_base_transform_suggest (GST_BASE_TRANSFORM (object), suggest, 0);
if (suggest)
    gst_caps_unref (suggest);

    break;
}
default:
    G_OBJECT_WARN_INVALID_PROPERTY_ID (object, prop_id, pspec);
    break;
}
}

static void
gst_capsfilter_get_property (GObject * object, guint prop_id, GValue * value,
    GParamSpec * pspec)
{
    GstCapsFilter *capsfilter = GST_CAPSFILTER (object);

    switch (prop_id) {
        case PROP_FILTER_CAPS:
            GST_OBJECT_LOCK (capsfilter);
            gst_value_set_caps (value, capsfilter->filter_caps);
            GST_OBJECT_UNLOCK (capsfilter);
            break;
        default:
            G_OBJECT_WARN_INVALID_PROPERTY_ID (object, prop_id, pspec);
            break;
    }
}

static void
gst_capsfilter_dispose (GObject * object)
{
    GstCapsFilter *filter = GST_CAPSFILTER (object);

    gst_caps_replace (&filter->filter_caps, NULL);

    G_OBJECT_CLASS (parent_class)->dispose (object);
}

static GstCaps *
gst_capsfilter_transform_caps (GstBaseTransform * base,
    GstPadDirection direction, GstCaps * caps)
{
    GstCapsFilter *capsfilter = GST_CAPSFILTER (base);
    GstCaps *ret, *filter_caps;

```

```

GST_OBJECT_LOCK (capsfilter);
filter_caps = gst_caps_ref (capsfilter->filter_caps);
GST_OBJECT_UNLOCK (capsfilter);

ret = gst_caps_intersect (caps, filter_caps);
GST_DEBUG_OBJECT (capsfilter, "input: %" GST_PTR_FORMAT, caps);
GST_DEBUG_OBJECT (capsfilter, "filter: %" GST_PTR_FORMAT, filter_caps);
GST_DEBUG_OBJECT (capsfilter, "intersect: %" GST_PTR_FORMAT, ret);

gst_caps_unref (filter_caps);

return ret;
}

static gboolean
gst_capsfilter_accept_caps (GstBaseTransform * base,
    GstPadDirection direction, GstCaps * caps)
{
    GstCapsFilter *capsfilter = GST_CAPSFILTER (base);
    GstCaps *filter_caps;
    gboolean ret;

    GST_OBJECT_LOCK (capsfilter);
    filter_caps = gst_caps_ref (capsfilter->filter_caps);
    GST_OBJECT_UNLOCK (capsfilter);

    ret = gst_caps_can_intersect (caps, filter_caps);
    GST_DEBUG_OBJECT (capsfilter, "can intersect: %d", ret);
    if (ret) {
        /* if we can intersect, see if the other end also accepts */
        if (direction == GST_PAD_SRC)
            ret = gst_pad_peer_accept_caps (GST_BASE_TRANSFORM_SINK_PAD (base), caps);
        else
            ret = gst_pad_peer_accept_caps (GST_BASE_TRANSFORM_SRC_PAD (base), caps);
        GST_DEBUG_OBJECT (capsfilter, "peer accept: %d", ret);
    }

    gst_caps_unref (filter_caps);

    return ret;
}

static GstFlowReturn
gst_capsfilter_transform_ip (GstBaseTransform * base, GstBuffer * buf)
{
    /* No actual work here. It's all done in the prepare output buffer
    * func. */
    return GST_FLOW_OK;
}

```

```

}

/* Output buffer preparation... if the buffer has no caps, and
 * our allowed output caps is fixed, then give the caps to the
 * buffer.
 * This ensures that outgoing buffers have caps if we can, so
 * that pipelines like:
 * gst-launch filesrc location=rawsamples.raw !
 *   audio/x-raw-int,width=16,depth=16,rate=48000,channels=2,
 *   endianness=4321,signed=(boolean)'true ! alsasink
 * will work.
 */
static GstFlowReturn
gst_capsfilter_prepare_buf (GstBaseTransform * trans, GstBuffer * input,
    gint size, GstCaps * caps, GstBuffer ** buf)
{
    GstFlowReturn ret = GST_FLOW_OK;

    if (GST_BUFFER_CAPS (input) != NULL) {
        /* Output buffer already has caps */
        GST_LOG_OBJECT (trans, "Input buffer already has caps (implicitly fixed)");
        /* FIXME : Move this behaviour to basetransform. The given caps are the ones
         * of the source pad, therefore our outgoing buffers should always have
         * those caps. */
        if (GST_BUFFER_CAPS (input) != caps) {
            /* caps are different, make a metadata writable output buffer to set
             * caps */
            if (gst_buffer_is_metadata_writable (input)) {
                /* input is writable, just set caps and use this as the output */
                *buf = input;
                gst_buffer_set_caps (*buf, caps);
                gst_buffer_ref (input);
            } else {
                GST_DEBUG_OBJECT (trans, "Creating sub-buffer and setting caps");
                *buf = gst_buffer_create_sub (input, 0, GST_BUFFER_SIZE (input));
                gst_buffer_set_caps (*buf, caps);
            }
        } else {
            /* caps are right, just use a ref of the input as the outbuf */
            *buf = input;
            gst_buffer_ref (input);
        }
    } else {
        /* Buffer has no caps. See if the output pad only supports fixed caps */
        GstCaps *out_caps;

        out_caps = GST_PAD_CAPS (trans->srcpad);
    }
}

```

```

if (out_caps != NULL) {
    gst_caps_ref (out_caps);
} else {
    out_caps = gst_pad_get_allowed_caps (trans->srcpad);
    g_return_val_if_fail (out_caps != NULL, GST_FLOW_ERROR);
}

out_caps = gst_caps_make_writable (out_caps);
gst_caps_do_simplify (out_caps);

if (gst_caps_is_fixed (out_caps) && !gst_caps_is_empty (out_caps)) {
    GST_DEBUG_OBJECT (trans, "Have fixed output caps %"
        GST_PTR_FORMAT " to apply to buffer with no caps", out_caps);
    if (gst_buffer_is_metadata_writable (input)) {
        gst_buffer_ref (input);
        *buf = input;
    } else {
        GST_DEBUG_OBJECT (trans, "Creating sub-buffer and setting caps");
        *buf = gst_buffer_create_sub (input, 0, GST_BUFFER_SIZE (input));
    }
    GST_BUFFER_CAPS (*buf) = out_caps;

    if (GST_PAD_CAPS (trans->srcpad) == NULL)
        gst_pad_set_caps (trans->srcpad, out_caps);
} else {
    gchar *caps_str = gst_caps_to_string (out_caps);

    GST_DEBUG_OBJECT (trans, "Cannot choose caps. Have unfixed output caps %"
        GST_PTR_FORMAT, out_caps);
    gst_caps_unref (out_caps);

    ret = GST_FLOW_ERROR;
    GST_ELEMENT_ERROR (trans, STREAM, FORMAT,
        ("Filter caps do not completely specify the output format"),
        ("Output caps are unfixed: %s", caps_str));
    g_free (caps_str);
}
}

return ret;
}
/* GStreamer
 * Copyright (C) 1999,2000 Erik Walthinsen <omega@cse.ogi.edu>
 *      2000 Wim Taymans <wtay@chello.be>
 *
 * gstidentity.h:
 *
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```

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 * Free Software Foundation, Inc., 59 Temple Place - Suite 330,
 * Boston, MA 02111-1307, USA.
 */

```
#ifndef __GST_CAPSFILTER_H__
#define __GST_CAPSFILTER_H__
```

```
#include <gst/gst.h>
#include <gst/base/gstbasetransform.h>
```

```
G_BEGIN_DECLS
```

```
#define GST_TYPE_CAPSFILTER \
  (gst_capsfilter_get_type())
#define GST_CAPSFILTER(obj) \
  (G_TYPE_CHECK_INSTANCE_CAST((obj),GST_TYPE_CAPSFILTER,GstCapsFilter))
#define GST_CAPSFILTER_CLASS(klass) \
  (G_TYPE_CHECK_CLASS_CAST((klass),GST_TYPE_CAPSFILTER,GstCapsFilterClass))
#define GST_IS_CAPSFILTER(obj) \
  (G_TYPE_CHECK_INSTANCE_TYPE((obj),GST_TYPE_CAPSFILTER))
#define GST_IS_CAPSFILTER_CLASS(klass) \
  (G_TYPE_CHECK_CLASS_TYPE((klass),GST_TYPE_CAPSFILTER))
```

```
typedef struct _GstCapsFilter GstCapsFilter;
typedef struct _GstCapsFilterClass GstCapsFilterClass;
```

```
/**
 * GstCapsFilter:
 *
 * The opaque #GstCapsFilter data structure.
 */
```

```
struct _GstCapsFilter {
  GstBaseTransform trans;

  GstCaps *filter_caps;
```

```

};

struct _GstCapsFilterClass {
    GstBaseTransformClass trans_class;
};

GType gst_capsfilter_get_type (void);

G_END_DECLS

#endif /* __GST_CAPSFILTER_H__ */

```

1.13 gstreamer-plugins-bad 0.10.22.1

1.13.1 Available under license :

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Appendix: How to Apply These Terms to Your New Libraries

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<signature of Ty Coon>, 1 April 1990
Ty Coon, President of Vice

That's all there is to it!

```
/* GStreamer
```

```
* Copyright (C) <1999> Erik Walthinsen <omega@cse.ogi.edu>
```

```
*
```

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```
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```

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```

```
*/
```

Disclaimer: The GStreamer team makes a real effort to make sure that the information in this file is as up-to-date and accurate as possible. However, this file may contain errors and omissions. Some dependant libraries change their licensing from version-to-version and some of the libraries listed here as LGPL were under the GPL license in older releases. Distributions which include GStreamer are responsible for ensuring that plugins are used in accordance with licensing terms and other laws.

GStreamer is developed under the terms of the LGPL (see LICENSE file for details). Some of our plugins however rely on libraries which are available under other licenses. This means that if you are using an application which has a non-GPL compatible license, for instance a closed-source application with GStreamer you have to make sure not to use GPL linked or derived plugins. When using GPL linked plugins GStreamer is for all practical reasons under the GPL itself.

The plugins which use a GPL library are as follows:

a52dec	liba52	(http://liba52.sourceforge.net/)
aasink	aalib	(http://sourceforge.net/projects/aa-project/)
cdparanoia	libcdparanoia	(http://www.xiph.org/paranoia/)
dtsdec	libdts	(http://www.videolan.org/dtsdec.html)
dvdnavsrc	libdvdnav	(http://dvd.sourceforge.net/)
dxr3		(http://dxr3.sourceforge.net/)
icecastsend	libshout	(http://www.icecast.org)
mad	libmad	(http://www.mars.org/home/rob/proj/mpeg/)
mpeg2dec	libmpeg2	(http://libmpeg2.sourceforge.net/)
mpeg2enc	libmpeg2enc	(http://mjpeg.sourceforge.net/)
mplex	libmplex	(http://mjpeg.sourceforge.net/)
siddec	libsidplay 1.36	(http://www.geocities.com/SiliconValley/Lakes/5147/sidplay/ , http://sourceforge.net/projects/sidplay2/)
trm	libmusicbrainz	(http://www.musicbrainz.org/)
xine	libxine	(http://xinehq.de/)
xvid	libxvidcore	(http://www.xvid.org/)

Plugins derived from GPL code are as follows:

dvdreadsrc	libdvdread	(http://www.dtek.chalmers.se/groups/dvd/)
monoscope	None	(Algorithm by Ralph Loader, Joerg Walter, Richard Boulton, and Andy Lo A Foe)
rtjpeg	None	(Erik Walthinsen's algorithm)
rtp	None	(http://www.linphone.org/ortp/)
synaesthesia		(http://www.logarithmic.net/pfh/synaesthesia)
system_encode	None	(Algorithm by Chrisoph Moar, Wim Tayman's and Erik Walthinsen)
vbidec	None	(Algorithm by Billy Biggs, Doug Bell, Erik Walthinsen and David I. Lehn)

Plugins which use a LGPL library are as follows:

alsa	alsa	(http://alsa-project.org/)
artsdsink	aRts	(http://arts-project.org/)
cacasink	libcaca	(http://sam.zoy.org/projects/libcaca/)
colorspaceles	libcolorspace	
dvdec	libdv	(http://libdv.sourceforge.net/)
esdmon,esdsink	libesd	(ftp.gnome.org/pub/GNOME/stable/sources/esound/)

faac libfaac (<http://www.audiocoding.com/modules/mydownloads/>)
fameenc libfame (<http://fame.sourceforge.net/>)
ffmpeg ffmpeg (<http://ffmpeg.sourceforge.net/>)
gdkpixbuf GTK+ (<http://www.gtk.org/>)
gnomevfs gnome-vfs (<ftp.gnome.org/pub/GNOME/stable/sources/gnome-vfs/>)
gst_arts aRts (<http://arts-project.org/>)
gst1394 libraw1394 (<http://www.linux1394.org/>)
gstaf libaudiofile (<http://www.68k.org/~michael/audiofile/>)
gstsf libsndfile (<http://www.mega-nerd.com/libsndfile/>)
hermescolorspace Hermes (<http://www.clanlib.org/hermes/>)
kio KDE (<http://www.kde.org/>)
ladspa (<http://www.ladspa.org/>)
lame libmp3lame (<http://lame.sourceforge.net/>)
libvisual libvisual (<http://libvisual.sourceforge.net/>)
matroska (<http://www.matroska.org/>)
mikmod libmikmod (<http://mikmod.raphnet.net/>)
ossaudio (<http://www.opensound.com/>)
qcamsrc
rfbenc librfb
sdlvideosink libsdl (<http://www.libsdl.org/>)
shout2send libshout2 (<http://www.icecast.org/>)
smoothwave
swfdec (<http://swfdec.sourceforge.net/>)
tarkin (<http://svn.xiph.org/trunk/tarkin/>)
textoverlay pango (<http://www.pango.org/>)
dirac (<http://www.bbc.co.uk/rd/projects/dirac/>)
effectv (Our ports was relicensed)(<http://effectv.sourceforge.net/>)
musepack (<http://www.musepack.net/>)
kate libtiger (<http://libtiger.googlecode.com/>)
Optional, only for the tiger element

Plugins which use a BSD covered library are as follows:

ogg libogg/libvorbis (<http://www.xiph.org/ogg/vorbis/>)
vorbis libogg/libvorbis (<http://www.xiph.org/ogg/vorbis/>)
gsttheora libtheora (<http://www.theora.org/>)
speex (<http://www.speex.org/>)
flac libFLAC (<http://flac.sourceforge.net/>)
kate libkate (<http://libkate.googlecode.com/>)

Plugins based on libraries with other free licenses:

ximagesink libXv
xvimagesink libXv
- license: MIT X11 / X Consortium license

gsm libgsm
- license MIT license <http://kbs.cs.tu-berlin.de/~jutta/toast.html>

festival (<http://www.cstr.ed.ac.uk/projects/festival/>)
- license: <http://www.cstr.ed.ac.uk/projects/festival/freecopyright.shtml>

jpeg (<http://www.ijg.org/>)
- license: IJG license

nas (<http://radscan.com/nas.html>)
- license: NAS license

snapshot libpng (<http://www.libpng.org/pub/png/>)
- license: PNG license

mngdec/mngenc libmng (<http://gjuyn.xs4all.nl/libmng>)
- license PNG license

Plugins using non-free libraries:

divxdec, divxenc (<http://www.divx.com/>)
osxaudio (<http://www.apple.com/macosx/>)
sunaudiosink (<http://www.sun.com/>)

Unsure:

faad libfaad (<http://www.audiocoding.com/>)

faad's license depends on its major version :

- for FAAD1 : it is LGPL
- for FAAD2 : it is GPL

look at these pages for more information on licenses :

<http://www.audiocoding.com/modules/wiki/?page=FAAD2>

<http://www.audiocoding.com/modules/wiki/?page=FAAC>

by default, GStreamer faad plugin would compile against FAAD2 if available.

it falls back to FAAD1 if not.

```
/* GStreamer
```

```
* Copyright (C) <1999> Erik Walthinsen <omega@cse.ogi.edu>
```

```
* Copyright (C) 2003,2004 David A. Schleeff <ds@schleeff.org>
```

```
*
```

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```
*
```

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```

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```
*
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```
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* Free Software Foundation, Inc., 59 Temple Place - Suite 330,
* Boston, MA 02111-1307, USA.
*/
/* Element-Checklist-Version: 5 */
```

```
#ifdef HAVE_CONFIG_H
#include "config.h"
#endif
#include <string.h>
#include <math.h>
```

```
/*#define DEBUG_ENABLED */
#include "gstaudioresample.h"
#include <gst/audio/audio.h>
```

```
GST_DEBUG_CATEGORY_STATIC (audioresample_debug);
#define GST_CAT_DEFAULT audioresample_debug
```

```
/* Audioresample signals and args */
```

```
enum
{
/* FILL ME */
LAST_SIGNAL
};
```

```
enum
{
ARG_0,
ARG_FILTERLEN
};
```

```
#define SUPPORTED_CAPS \
GST_STATIC_CAPS (\
"audio/x-raw-int, " \
"rate = (int) [ 1, MAX ], " \
"channels = (int) [ 1, MAX ], " \
"endianness = (int) BYTE_ORDER, " \
"width = (int) 16, " \
"depth = (int) 16, " \
"signed = (boolean) true"
#if 0
/* disabled because it segfaults */
"audio/x-raw-float, "
"rate = (int) [ 1, MAX ], "
"channels = (int) [ 1, MAX ], "
"endianness = (int) BYTE_ORDER, " "width = (int) 32"
```

```

#endif
)

static GstStaticPadTemplate gst_audioresample_sink_template =
    GST_STATIC_PAD_TEMPLATE ("sink",
        GST_PAD_SINK, GST_PAD_ALWAYS, SUPPORTED_CAPS);

static GstStaticPadTemplate gst_audioresample_src_template =
    GST_STATIC_PAD_TEMPLATE ("src",
        GST_PAD_SRC, GST_PAD_ALWAYS, SUPPORTED_CAPS);

static void gst_audioresample_base_init (gpointer g_class);
static void gst_audioresample_class_init (AudioresampleClass * klass);
static void gst_audioresample_init (Audioresample * audioresample);
static void gst_audioresample_dispose (GObject * object);

static void gst_audioresample_chain (GstPad * pad, GstData * _data);

static void gst_audioresample_set_property (GObject * object,
    guint prop_id, const GValue * value, GParamSpec * pspec);
static void gst_audioresample_get_property (GObject * object,
    guint prop_id, GValue * value, GParamSpec * pspec);

static GstElementClass *parent_class = NULL;

/*static guint gst_audioresample_signals[LAST_SIGNAL] = { 0 };*/

GType audioresample_get_type (void)
{
    static GType audioresample_type = 0;

    if (!audioresample_type)
    {
        static const GTypeInfo audioresample_info = {
            sizeof (AudioresampleClass),
            gst_audioresample_base_init,
            NULL,
            (GClassInitFunc) gst_audioresample_class_init,
            NULL,
            NULL,
            sizeof (Audioresample), 0,
            (GInstanceInitFunc) gst_audioresample_init,};

        audioresample_type =
            g_type_register_static (GST_TYPE_ELEMENT, "Audioresample",
                &audioresample_info, 0);
    }
    return audioresample_type;
}

```

```

    }

static void gst_audioresample_base_init (gpointer g_class)
{
    GstElementClass *gstelement_class = GST_ELEMENT_CLASS (g_class);

    gst_element_class_add_pad_template (gstelement_class,
        gst_static_pad_template_get (&gst_audioresample_src_template));
    gst_element_class_add_pad_template (gstelement_class,
        gst_static_pad_template_get (&gst_audioresample_sink_template));

    gst_element_class_set_details_simple (gstelement_class, "Audio scaler",
        "Filter/Converter/Audio",
        "Resample audio", "David Schleef <ds@schleef.org>");
}

static void gst_audioresample_class_init (AudioresampleClass * klass)
{
    GObjectClass *gobject_class;
    GstElementClass *gstelement_class;

    gobject_class = (GObjectClass *) klass;
    gstelement_class = (GstElementClass *) klass;

    gobject_class->set_property = gst_audioresample_set_property;
    gobject_class->get_property = gst_audioresample_get_property;
    gobject_class->dispose = gst_audioresample_dispose;

    g_object_class_install_property (G_OBJECT_CLASS (klass), ARG_FILTERLEN,
        g_param_spec_int ("filter-length", "filter_length", "filter_length",
            0, G_MAXINT, 16,
            G_PARAM_READWRITE | G_PARAM_CONSTRUCT | G_PARAM_STATIC_STRINGS));

    parent_class = g_type_class_peek_parent (klass);

    GST_DEBUG_CATEGORY_INIT (audioresample_debug, "audioresample", 0,
        "audioresample element");
}

static void gst_audioresample_expand_caps (GstCaps * caps)
{
    gint i;

    for (i = 0; i < gst_caps_get_size (caps); i++) {
        GstStructure *structure = gst_caps_get_structure (caps, i);
        const GValue *value;

        value = gst_structure_get_value (structure, "rate");
    }
}

```

```

if (value == NULL) {
    GST_ERROR ("caps structure doesn't have required rate field");
    return;
}

gst_structure_set (structure, "rate", GST_TYPE_INT_RANGE, 1, G_MAXINT, 0);
}
}

static GstCaps *gst_audioresample_getcaps (GstPad * pad)
{
    Audioresample *audioresample;
    GstCaps *caps;
    GstPad *otherpad;

    audioresample = GST_AUDIORESAMPLE (gst_pad_get_parent (pad));

    otherpad = (pad == audioresample->srcpad) ? audioresample->sinkpad :
        audioresample->srcpad;
    caps = gst_pad_get_allowed_caps (otherpad);

    gst_audioresample_expand_caps (caps);

    return caps;
}

static GstCaps *gst_audioresample_fixate (GstPad * pad, const GstCaps * caps)
{
    Audioresample *audioresample;
    GstPad *otherpad;
    int rate;
    GstCaps *copy;
    GstStructure *structure;

    audioresample = GST_AUDIORESAMPLE (gst_pad_get_parent (pad));

    if (pad == audioresample->srcpad) {
        otherpad = audioresample->sinkpad;
        rate = audioresample->i_rate;
    } else
    {
        otherpad = audioresample->srcpad;
        rate = audioresample->o_rate;
    }
    if (!GST_PAD_IS_NEGOTIATING (otherpad))
        return NULL;
    if (gst_caps_get_size (caps) > 1)
        return NULL;

```

```

copy = gst_caps_copy (caps);
structure = gst_caps_get_structure (copy, 0);
if (rate) {
    if (gst_structure_fixate_field_nearest_int (structure, "rate", rate)) {
        return copy;
    }
}
gst_caps_free (copy);
return NULL;
}

static GstPadLinkReturn gst_audioresample_link (GstPad * pad,
    const GstCaps * caps)
{
    Audioresample *audioresample;
    GstStructure *structure;
    int rate;
    int channels;
    gboolean ret;
    GstPad *otherpad;

    audioresample = GST_AUDIORESAMPLE (gst_pad_get_parent (pad));

    otherpad = (pad == audioresample->srcpad) ? audioresample->sinkpad :
        audioresample->srcpad;

    structure = gst_caps_get_structure (caps, 0);
    ret = gst_structure_get_int (structure, "rate", &rate);
    ret &= gst_structure_get_int (structure, "channels", &channels);
    if (!ret)
    {
        return GST_PAD_LINK_REFUSED;
    }

    if (gst_pad_is_negotiated (otherpad))
    {
        GstCaps *othercaps = gst_caps_copy (caps);
        int otherrate;
        GstPadLinkReturn linkret;

        if (pad == audioresample->srcpad) {
            otherrate = audioresample->i_rate;
        } else {
            otherrate = audioresample->o_rate;
        }
        gst_caps_set_simple (othercaps, "rate", G_TYPE_INT, otherrate, NULL);
        linkret = gst_pad_try_set_caps (otherpad, othercaps);
    }
}

```

```

if (GST_PAD_LINK_FAILED (linkret)) {
    return GST_PAD_LINK_REFUSED;
}

}

audioresample->channels = channels;
resample_set_n_channels (audioresample->resample, audioresample->channels);
if (pad == audioresample->srcpad) {
    audioresample->o_rate = rate;
    resample_set_output_rate (audioresample->resample, audioresample->o_rate);
    GST_DEBUG ("set o_rate to %d", rate);
} else {
    audioresample->i_rate = rate;
    resample_set_input_rate (audioresample->resample, audioresample->i_rate);
    GST_DEBUG ("set i_rate to %d", rate);
}

return GST_PAD_LINK_OK;
}

static void gst_audioresample_init (Audioresample * audioresample)
{
    ResampleState *r;

    audioresample->sinkpad =
        gst_pad_new_from_static_template (&gst_audioresample_sink_template,
            "sink");
    gst_element_add_pad (GST_ELEMENT (audioresample), audioresample->sinkpad);
    gst_pad_set_chain_function (audioresample->sinkpad, gst_audioresample_chain);
    gst_pad_set_link_function (audioresample->sinkpad, gst_audioresample_link);
    gst_pad_set_getcaps_function (audioresample->sinkpad,
        gst_audioresample_getcaps);
    gst_pad_set_fixate_function (audioresample->sinkpad,
        gst_audioresample_fixate);

    audioresample->srcpad =
        gst_pad_new_from_static_template (&gst_audioresample_src_template, "src");

    gst_element_add_pad (GST_ELEMENT (audioresample), audioresample->srcpad);
    gst_pad_set_link_function (audioresample->srcpad, gst_audioresample_link);
    gst_pad_set_getcaps_function (audioresample->srcpad,
        gst_audioresample_getcaps);
    gst_pad_set_fixate_function (audioresample->srcpad, gst_audioresample_fixate);

    r = resample_new ();
    audioresample->resample = r;

```



```

resample_set_filter_length (r, 64);
resample_set_format (r, RESAMPLE_FORMAT_S16);
}

static void gst_audioresample_dispose (GObject * object)
{
    Audioresample *audioresample = GST_AUDIORESAMPLE (object);

    if (audioresample->resample) {
        resample_free (audioresample->resample);
    }

    G_OBJECT_CLASS (parent_class)->dispose (object);
}

static void gst_audioresample_chain (GstPad * pad, GstData * _data)
{
    GstBuffer *buf = GST_BUFFER (_data);
    Audioresample *audioresample;
    ResampleState *r;
    guchar *data;
    gulong size;
    int outsize;
    GstBuffer *outbuf;

    g_return_if_fail (pad != NULL);
    g_return_if_fail (GST_IS_PAD (pad));
    g_return_if_fail (buf != NULL);

    audioresample = GST_AUDIORESAMPLE (gst_pad_get_parent (pad));

    if (!GST_IS_BUFFER (_data)) {
        gst_pad_push (audioresample->srcpad, _data);
        return;
    }

    if (audioresample->passthru) {
        gst_pad_push (audioresample->srcpad, GST_DATA (buf));
        return;
    }

    r = audioresample->resample;

    data = GST_BUFFER_DATA (buf);
    size = GST_BUFFER_SIZE (buf);

    GST_DEBUG ("got buffer of %ld bytes", size);
}

```

```

resample_add_input_data (r, data, size, (ResampleCallback) gst_data_unref,
    buf);

outsize = resample_get_output_size (r);
/* FIXME this is audioresample being dumb. dunno why */
if (outsize == 0) {
    GST_ERROR ("overriding outbuf size");
    outsize = size;
}
outbuf = gst_buffer_new_and_alloc (outsize);

outsize = resample_get_output_data (r, GST_BUFFER_DATA (outbuf), outsize);
GST_BUFFER_SIZE (outbuf) = outsize;

GST_BUFFER_TIMESTAMP (outbuf) =
    audioresample->offset * GST_SECOND / audioresample->o_rate;
audioresample->offset += outsize / sizeof (gint16) / audioresample->channels;

gst_pad_push (audioresample->srcpad, GST_DATA (outbuf));
}

static void
gst_audioresample_set_property (GObject * object, guint prop_id,
    const GValue * value, GParamSpec * pspec)
{
    Audioresample *audioresample;

    g_return_if_fail (GST_IS_AUDIORESAMPLE (object));
    audioresample = GST_AUDIORESAMPLE (object);

    switch (prop_id) {
        case ARG_FILTERLEN:
            audioresample->filter_length = g_value_get_int (value);
            GST_DEBUG_OBJECT (GST_ELEMENT (audioresample), "new filter length %d\n",
                audioresample->filter_length);
            resample_set_filter_length (audioresample->resample,
                audioresample->filter_length);
            break;
        default:
            G_OBJECT_WARN_INVALID_PROPERTY_ID (object, prop_id, pspec);
            break;
    }
}

static void
gst_audioresample_get_property (GObject * object, guint prop_id,
    GValue * value, GParamSpec * pspec)
{
    Audioresample *audioresample;

```

```

g_return_if_fail (GST_IS_AUDIORESAMPLE (object));
audioresample = GST_AUDIORESAMPLE (object);

switch (prop_id) {
case ARG_FILTERLEN:
    g_value_set_int (value, audioresample->filter_length);
    break;
default:
    G_OBJECT_WARN_INVALID_PROPERTY_ID (object, prop_id, pspec);
    break;
}
}

static gboolean plugin_init (GstPlugin * plugin)
{
    resample_init ();

    if (!gst_element_register (plugin, "audioresample", GST_RANK_PRIMARY,
        GST_TYPE_AUDIORESAMPLE)) {
        return FALSE;
    }

    return TRUE;
}

GST_PLUGIN_DEFINE (GST_VERSION_MAJOR,
    GST_VERSION_MINOR,
    "audioresample",
    "Resamples audio", plugin_init, VERSION, "LGPL", GST_PACKAGE_NAME,
    GST_PACKAGE_ORIGIN)
/* GStreamer
 * Copyright (C) <1999> Erik Walthinsen <omega@cse.ogi.edu>
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```

* Boston, MA 02111-1307, USA.

*/

```
#ifndef __AUDIORESAMPLE_H__
```

```
#define __AUDIORESAMPLE_H__
```

```
#include <gst/gst.h>
```

```
#include <audioresample/resample.h>
```

```
G_BEGIN_DECLS
```

```
#define GST_TYPE_AUDIORESAMPLE \
```

```
(audioresample_get_type())
```

```
#define GST_AUDIORESAMPLE(obj) \
```

```
(G_TYPE_CHECK_INSTANCE_CAST((obj),GST_TYPE_AUDIORESAMPLE,Audioresample))
```

```
#define GST_AUDIORESAMPLE_CLASS(klass) \
```

```
(G_TYPE_CHECK_CLASS_CAST((klass),GST_TYPE_AUDIORESAMPLE,AudioresampleClass))
```

```
#define GST_IS_AUDIORESAMPLE(obj) \
```

```
(G_TYPE_CHECK_INSTANCE_TYPE((obj),GST_TYPE_AUDIORESAMPLE))
```

```
#define GST_IS_AUDIORESAMPLE_CLASS(klass) \
```

```
(G_TYPE_CHECK_CLASS_TYPE((klass),GST_TYPE_AUDIORESAMPLE))
```

```
typedef struct _Audioresample Audioresample;
```

```
typedef struct _AudioresampleClass AudioresampleClass;
```

```
struct _Audioresample {
```

```
    GstElement element;
```

```
    GstPad *sinkpad,*srcpad;
```

```
    gboolean passthru;
```

```
    gint64 offset;
```

```
    int channels;
```

```
    int i_rate;
```

```
    int o_rate;
```

```
    int filter_length;
```

```
    ResampleState * resample;
```

```
};
```

```
struct _AudioresampleClass {
```

```
GstElementClass parent_class;
};

GType gst_audioresample_get_type(void);
```

```
G_END_DECLS
```

```
#endif /* __AUDIORESAMPLE_H__ */
/* GStreamer
 * Copyright (C) <1999> Erik Walthinsen <omega@cse.ogi.edu>
 * Copyright (C) <2003> David Schleef <ds@schleef.org>
 *
 * This library is free software; you can redistribute it and/or
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 * License along with this library; if not, write to the
 * Free Software Foundation, Inc., 59 Temple Place - Suite 330,
 * Boston, MA 02111-1307, USA.
 */

/*
 * This file was (probably) generated from
 * gstvideotemplate.c,v 1.18 2005/11/14 02:13:34 thomasvs Exp
 * and
 * $Id: make_filter,v 1.8 2004/04/19 22:51:57 ds Exp $
 */

#ifdef HAVE_CONFIG_H
#include "config.h"
#endif

#include <gst/gst.h>
#include <gst/base/gstbasetransform.h>
#include <gst/video/video.h>
#include <string.h>
#include <cog/cog.h>
#include <math.h>
#include <cog/cogvirtframe.h>
```

```

#define GST_TYPE_COGDOWNSAMPLE \
(gst_cogdownsample_get_type())
#define GST_COGDOWNSAMPLE(obj) \
(G_TYPE_CHECK_INSTANCE_CAST((obj),GST_TYPE_COGDOWNSAMPLE,GstCogdownsample))
#define GST_COGDOWNSAMPLE_CLASS(klass) \
(G_TYPE_CHECK_CLASS_CAST((klass),GST_TYPE_COGDOWNSAMPLE,GstCogdownsampleClass))
#define GST_IS_COGDOWNSAMPLE(obj) \
(G_TYPE_CHECK_INSTANCE_TYPE((obj),GST_TYPE_COGDOWNSAMPLE))
#define GST_IS_COGDOWNSAMPLE_CLASS(obj) \
(G_TYPE_CHECK_CLASS_TYPE((klass),GST_TYPE_COGDOWNSAMPLE))

```

```

typedef struct _GstCogdownsample GstCogdownsample;
typedef struct _GstCogdownsampleClass GstCogdownsampleClass;

```

```

struct _GstCogdownsample
{
    GstBaseTransform base_transform;
};

```

```

struct _GstCogdownsampleClass
{
    GstBaseTransformClass parent_class;
};

```

```

GType gst_cogdownsample_get_type (void);

```

```

enum
{
    ARG_0
};

```

```

static void gst_cogdownsample_base_init (gpointer g_class);
static void gst_cogdownsample_class_init (gpointer g_class,
    gpointer class_data);
static void gst_cogdownsample_init (GTypeInstance * instance, gpointer g_class);

```

```

static void gst_cogdownsample_set_property (GObject * object, guint prop_id,
    const GValue * value, GParamSpec * pspec);
static void gst_cogdownsample_get_property (GObject * object, guint prop_id,
    GValue * value, GParamSpec * pspec);

```

```

static GstCaps *gst_cogdownsample_transform_caps (GstBaseTransform *
    base_transform, GstPadDirection direction, GstCaps * caps);
static GstFlowReturn gst_cogdownsample_transform (GstBaseTransform *
    base_transform, GstBuffer * inbuf, GstBuffer * outbuf);

```

```

static gboolean gst_cogdownsample_get_unit_size (GstBaseTransform *
base_transform, GstCaps * caps, guint * size);

static GstStaticPadTemplate gst_cogdownsample_sink_template =
GST_STATIC_PAD_TEMPLATE ("sink",
    GST_PAD_SINK,
    GST_PAD_ALWAYS,
    GST_STATIC_CAPS (GST_VIDEO_CAPS_YUV ("{ I420, YV12, YUY2, UYVY, AYUV }")))
);

static GstStaticPadTemplate gst_cogdownsample_src_template =
GST_STATIC_PAD_TEMPLATE ("src",
    GST_PAD_SRC,
    GST_PAD_ALWAYS,
    GST_STATIC_CAPS (GST_VIDEO_CAPS_YUV ("{ I420, YV12, YUY2, UYVY, AYUV }")))
);

GType
gst_cogdownsample_get_type (void)
{
    static GType compress_type = 0;

    if (!compress_type) {
        static const GTypeInfo compress_info = {
            sizeof (GstCogdownsampleClass),
            gst_cogdownsample_base_init,
            NULL,
            gst_cogdownsample_class_init,
            NULL,
            NULL,
            sizeof (GstCogdownsample),
            0,
            gst_cogdownsample_init,
        };

        compress_type = g_type_register_static (GST_TYPE_BASE_TRANSFORM,
            "GstCogdownsample", &compress_info, 0);
    }
    return compress_type;
}

static void
gst_cogdownsample_base_init (gpointer g_class)
{
    GstElementClass *element_class = GST_ELEMENT_CLASS (g_class);

```

```

gst_element_class_add_pad_template (element_class,
    gst_static_pad_template_get (&gst_cogdownsample_src_template));
gst_element_class_add_pad_template (element_class,
    gst_static_pad_template_get (&gst_cogdownsample_sink_template));

gst_element_class_set_details_simple (element_class,
    "Scale down video by factor of 2", "Filter/Effect/Video",
    "Scales down video by a factor of 2", "David Schleef <ds@schleef.org>");
}

static void
gst_cogdownsample_class_init (gpointer g_class, gpointer class_data)
{
    GObjectClass *gobject_class;
    GstBaseTransformClass *base_transform_class;

    gobject_class = G_OBJECT_CLASS (g_class);
    base_transform_class = GST_BASE_TRANSFORM_CLASS (g_class);

    gobject_class->set_property = gst_cogdownsample_set_property;
    gobject_class->get_property = gst_cogdownsample_get_property;

    base_transform_class->transform = gst_cogdownsample_transform;
    base_transform_class->transform_caps = gst_cogdownsample_transform_caps;
    base_transform_class->get_unit_size = gst_cogdownsample_get_unit_size;
}

static void
gst_cogdownsample_init (GTypeInstance * instance, gpointer g_class)
{
    GST_DEBUG ("gst_cogdownsample_init");
}

static void
gst_cogdownsample_set_property (GObject * object, guint prop_id,
    const GValue * value, GParamSpec * pspec)
{
    GstCogdownsample *src;

    g_return_if_fail (GST_IS_COGDOWNSAMPLE (object));
    src = GST_COGDOWNSAMPLE (object);

    GST_DEBUG ("gst_cogdownsample_set_property");
    switch (prop_id) {
        default:
            break;
    }
}

```



```

}

static void
gst_cogdownsample_get_property (GObject * object, guint prop_id, GValue * value,
    GParamSpec * pspec)
{
    GstCogdownsample *src;

    g_return_if_fail (GST_IS_COGDOWNSAMPLE (object));
    src = GST_COGDOWNSAMPLE (object);

    switch (prop_id) {
    default:
        G_OBJECT_WARN_INVALID_PROPERTY_ID (object, prop_id, pspec);
        break;
    }
}

static void
transform_value (GValue * dest, const GValue * src, GstPadDirection dir)
{
    g_value_init (dest, G_VALUE_TYPE (src));

    if (G_VALUE_HOLDS_INT (src)) {
        int x;

        x = g_value_get_int (src);
        if (dir == GST_PAD_SINK) {
            g_value_set_int (dest, x / 2);
        } else {
            g_value_set_int (dest, x * 2);
        }
    } else if (GST_VALUE_HOLDS_INT_RANGE (src)) {
        int min, max;

        min = gst_value_get_int_range_min (src);
        max = gst_value_get_int_range_max (src);

        if (dir == GST_PAD_SINK) {
            min = (min + 1) / 2;
            if (max == G_MAXINT) {
                max = G_MAXINT / 2;
            } else {
                max = (max + 1) / 2;
            }
        } else {
            if (max > G_MAXINT / 2) {
                max = G_MAXINT;
            }
        }
    }
}

```

```

    } else {
        max = max * 2;
    }
    if (min > G_MAXINT / 2) {
        min = G_MAXINT;
    } else {
        min = min * 2;
    }
}
gst_value_set_int_range (dest, min, max);
} else {
    /* FIXME */
    g_warning ("case not handled");
    g_value_set_int (dest, 100);
}
}

static GstCaps *
gst_cogdownsample_transform_caps (GstBaseTransform * base_transform,
    GstPadDirection direction, GstCaps * caps)
{
    int i;
    GstStructure *structure;
    GValue new_value = { 0 };
    const GValue *value;

    caps = gst_caps_copy (caps);

    for (i = 0; i < gst_caps_get_size (caps); i++) {
        structure = gst_caps_get_structure (caps, i);

        value = gst_structure_get_value (structure, "width");
        transform_value (&new_value, value, direction);
        gst_structure_set_value (structure, "width", &new_value);
        g_value_unset (&new_value);

        value = gst_structure_get_value (structure, "height");
        transform_value (&new_value, value, direction);
        gst_structure_set_value (structure, "height", &new_value);
        g_value_unset (&new_value);
    }

    return caps;
}

static gboolean
gst_cogdownsample_get_unit_size (GstBaseTransform * base_transform,
    GstCaps * caps, guint * size)

```

```

{
int width, height;
uint32_t format;

gst_structure_get_fourcc (gst_caps_get_structure (caps, 0),
    "format", &format);
gst_structure_get_int (gst_caps_get_structure (caps, 0), "width", &width);
gst_structure_get_int (gst_caps_get_structure (caps, 0), "height", &height);

switch (format) {
case GST_MAKE_FOURCC ('I', '4', '2', '0'):
case GST_MAKE_FOURCC ('Y', 'V', '1', '2'):
    *size = width * height * 3 / 2;
    break;
case GST_MAKE_FOURCC ('Y', 'U', 'Y', '2'):
case GST_MAKE_FOURCC ('U', 'Y', 'V', 'Y'):
    *size = width * height * 2;
    break;
case GST_MAKE_FOURCC ('A', 'Y', 'U', 'V'):
    *size = width * height * 4;
    break;
default:
    g_assert_not_reached ();
}

return TRUE;
}

static GstFlowReturn
gst_cogdownsample_transform (GstBaseTransform * base_transform,
    GstBuffer * inbuf, GstBuffer * outbuf)
{
    GstCogdownsample *compress;
    CogFrame *outframe;
    int width, height;
    uint32_t format;
    CogFrame *frame;

    g_return_val_if_fail (GST_IS_COGDOWNSAMPLE (base_transform), GST_FLOW_ERROR);
    compress = GST_COGDOWNSAMPLE (base_transform);

    gst_structure_get_fourcc (gst_caps_get_structure (inbuf->caps, 0),
        "format", &format);
    gst_structure_get_int (gst_caps_get_structure (inbuf->caps, 0),
        "width", &width);
    gst_structure_get_int (gst_caps_get_structure (inbuf->caps, 0),
        "height", &height);

```

```

switch (format) {
case GST_MAKE_FOURCC ('I', '4', '2', '0'):
    frame = cog_frame_new_from_data_I420 (GST_BUFFER_DATA (inbuf),
        width, height);
    outframe = cog_frame_new_from_data_I420 (GST_BUFFER_DATA (outbuf),
        width / 2, height / 2);
    break;
case GST_MAKE_FOURCC ('Y', 'V', '1', '2'):
    frame = cog_frame_new_from_data_YV12 (GST_BUFFER_DATA (inbuf),
        width, height);
    outframe = cog_frame_new_from_data_YV12 (GST_BUFFER_DATA (outbuf),
        width / 2, height / 2);
    break;
case GST_MAKE_FOURCC ('Y', 'U', 'Y', '2'):
    frame = cog_frame_new_from_data_YUY2 (GST_BUFFER_DATA (inbuf),
        width, height);
    outframe = cog_frame_new_from_data_YUY2 (GST_BUFFER_DATA (outbuf),
        width / 2, height / 2);
    break;
case GST_MAKE_FOURCC ('U', 'Y', 'V', 'Y'):
    frame = cog_frame_new_from_data_UYVY (GST_BUFFER_DATA (inbuf),
        width, height);
    outframe = cog_frame_new_from_data_UYVY (GST_BUFFER_DATA (outbuf),
        width / 2, height / 2);
    break;
case GST_MAKE_FOURCC ('A', 'Y', 'U', 'V'):
    frame = cog_frame_new_from_data_AYUV (GST_BUFFER_DATA (inbuf),
        width, height);
    outframe = cog_frame_new_from_data_AYUV (GST_BUFFER_DATA (outbuf),
        width / 2, height / 2);
    break;
default:
    g_assert_not_reached ();
    return GST_FLOW_ERROR;
}

```

```

frame = cog_virt_frame_new_unpack (frame);
frame = cog_virt_frame_new_horiz_downsample (frame, 3);
frame = cog_virt_frame_new_vert_downsample (frame, 2);

```

```

switch (format) {
case GST_MAKE_FOURCC ('Y', 'U', 'Y', '2'):
    frame = cog_virt_frame_new_pack_YUY2 (frame);
    break;
case GST_MAKE_FOURCC ('U', 'Y', 'V', 'Y'):
    frame = cog_virt_frame_new_pack_UYVY (frame);
    break;
case GST_MAKE_FOURCC ('A', 'Y', 'U', 'V'):

```

```

    frame = cog_virt_frame_new_pack_AYUV (frame);
    break;
default:
    break;
}

cog_virt_frame_render (frame, outframe);
cog_frame_unref (frame);
cog_frame_unref (outframe);

return GST_FLOW_OK;
}
/* GStreamer mplex (mjpegtools) wrapper
 * (c) 2003 Ronald Bultje <rbultje@ronald.bitfreak.net>
 * (c) 2008 Mark Nauwelaerts <mnauw@users.sourceforge.net>
 *
 * gstmplex.cc: gstreamer mplex wrapper
 *
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 *
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 * License along with this library; if not, write to the
 * Free Software Foundation, Inc., 59 Temple Place - Suite 330,
 * Boston, MA 02111-1307, USA.
 */

/**
 * SECTION:element-mplex
 * @see_also: mpeg2enc
 *
 * This element is an audio/video multiplexer for MPEG-1/2 video streams
 * and (un)compressed audio streams such as AC3, MPEG layer I/II/III.
 * It is based on the <ulink url="http://mjpeg.sourceforge.net/">mjpegtools</ulink> library.
 * Documentation on creating MPEG videos in general can be found in the
 * <ulink url="https://sourceforge.net/docman/display_doc.php?docid=3456&group_id=5776">MJPEG
 * Howto</ulink>
 * and the man-page of the mplex tool documents the properties of this element,
 * which are shared with the mplex tool.
 *
 * <refsect2>

```

```

* <title>Example pipeline</title>
* |[
* gst-launch -v videotestsrc num-buffers=1000 ! mpeg2enc ! mplex ! filesink location=videotestsrc.mpg
* ]| This example pipeline will encode a test video source to an
* MPEG1 elementary stream and multiplexes this to an MPEG system stream.
* <para>
* If several streams are being multiplexed, there should (as usual) be
* a queue in each stream, and due to mplex' buffering the capacities of these
* may have to be set to a few times the default settings to prevent the
* pipeline stalling.
* </para>
* </refsect2>
*/

```

```

#ifdef HAVE_CONFIG_H
#include "config.h"
#endif

```

```

#include <string.h>

```

```

#include "gstmux.h"
#include "gstmuxoutputstream.h"
#include "gstmuxbitstream.h"
#include "gstmuxjob.h"

```

```

GST_DEBUG_CATEGORY (mux_debug);

```

```

static GstStaticPadTemplate src_tmpl = GST_STATIC_PAD_TEMPLATE ("src",
    GST_PAD_SRC,
    GST_PAD_ALWAYS,
    GST_STATIC_CAPS ("video/mpeg, systemstream = (boolean) true ")
);

```

```

static GstStaticPadTemplate video_sink_tmpl =
GST_STATIC_PAD_TEMPLATE ("video_%d",
    GST_PAD_SINK,
    GST_PAD_REQUEST,
    GST_STATIC_CAPS ("video/mpeg, "
        "mpegversion = (int) { 1, 2 }, "
        "systemstream = (boolean) false, "
        "width = (int) [ 16, 4096 ], "
        "height = (int) [ 16, 4096 ], framerate = (fraction) [ 0, MAX ]")
);

```

```

#define COMMON_AUDIO_CAPS \
"channels = (int) [ 1, 8 ], " \
"rate = (int) [ 8000, 96000 ]"

```

```

static GstStaticPadTemplate audio_sink_tmpl =
    GST_STATIC_PAD_TEMPLATE ("audio_%d",
        GST_PAD_SINK,
        GST_PAD_REQUEST,
        GST_STATIC_CAPS ("audio/mpeg, "
            "mpegversion = (int) 1, "
            "layer = (int) [ 1, 3 ], "
            COMMON_AUDIO_CAPS "; "
            "audio/x-ac3, "
            COMMON_AUDIO_CAPS "; "
            "audio/x-dts; "
            "audio/x-raw-int, "
            "endianness = (int) BIG_ENDIAN, "
            "signed = (boolean) TRUE, "
            "width = (int) { 16, 20, 24 }, "
            "depth = (int) { 16, 20, 24 }, "
            "rate = (int) { 48000, 96000 }, " "channels = (int) [ 1, 6 ]")
    );

/* FIXME: subtitles */

static void gst_muxer_finalize (GObject * object);
static void gst_muxer_reset (GstMuxer * muxer);
static void gst_muxer_loop (GstMuxer * muxer);
static GstPad *gst_muxer_request_new_pad (GstElement * element,
    GstPadTemplate * templ, const gchar * name);
static void gst_muxer_release_pad (GstElement * element, GstPad * pad);
static gboolean gst_muxer_src_activate_push (GstPad * pad, gboolean active);
static GstStateChangeReturn gst_muxer_change_state (GstElement * element,
    GstStateChange transition);

static void gst_muxer_get_property (GObject * object,
    guint prop_id, GValue * value, GParamSpec * pspec);
static void gst_muxer_set_property (GObject * object,
    guint prop_id, const GValue * value, GParamSpec * pspec);

GST_BOILERPLATE (GstMuxer, gst_muxer, GstElement, GST_TYPE_ELEMENT);

static void
gst_muxer_base_init (gpointer klass)
{
    GstElementClass *element_class = GST_ELEMENT_CLASS (klass);

    gst_element_class_set_details_simple (element_class,
        "muxer video multiplexer", "Codec/Muxer",
        "High-quality MPEG/DVD/SVCD/VCD video/audio multiplexer",
        "Andrew Stevens <andrew.stevens@nexgo.de>\n"
        "Ronald Bultje <rbultje@ronald.bitfreak.net>\n"
    );
}

```

```

"Mark Nauwelaerts <mnauw@users.sourceforge.net>");

gst_element_class_add_pad_template (element_class,
    gst_static_pad_template_get (&src_tmpl));
gst_element_class_add_pad_template (element_class,
    gst_static_pad_template_get (&video_sink_tmpl));
gst_element_class_add_pad_template (element_class,
    gst_static_pad_template_get (&audio_sink_tmpl));
}

static void
gst_muxer_class_init (GstMuxerClass * klass)
{
    GObjectClass *object_class = G_OBJECT_CLASS (klass);
    GstElementClass *element_class = GST_ELEMENT_CLASS (klass);

    GST_DEBUG_CATEGORY_INIT (muxer_debug, "muxer", 0, "MPEG video/audio muxer");

    object_class->set_property = gst_muxer_set_property;
    object_class->get_property = gst_muxer_get_property;

    /* register properties */
    GstMuxerJob::initProperties (object_class);

    object_class->finalize = GST_DEBUG_FUNC_PTR (gst_muxer_finalize);

    element_class->change_state = GST_DEBUG_FUNC_PTR (gst_muxer_change_state);
    element_class->request_new_pad =
        GST_DEBUG_FUNC_PTR (gst_muxer_request_new_pad);
    element_class->release_pad = GST_DEBUG_FUNC_PTR (gst_muxer_release_pad);
}

static void
gst_muxer_finalize (GObject * object)
{
    GstMuxer *muxer = GST_MUXER (object);
    GSList *walk;

    /* release all pads */
    walk = muxer->pads;
    while (walk) {
        GstMuxerPad *mpad = (GstMuxerPad *) walk->data;

        gst_object_unref (mpad->pad);
        mpad->pad = NULL;
        walk = walk->next;
    }
}

```



```

/* clean up what's left of them */
gst_mux_reset (mux);

/* ... and of the rest */
delete mux->job;

g_mutex_free (mux->tlock);

G_OBJECT_CLASS (parent_class)->finalize (object);
}

static void
gst_mux_init (GstMux * mux, GstMuxClass * g_class)
{
    GstElement *element = GST_ELEMENT (mux);
    GstElementClass *element_class = GST_ELEMENT_CLASS (g_class);

    mux->srcpad =
        gst_pad_new_from_template (gst_element_class_get_pad_template
            (element_class, "src"), "src");
    gst_element_add_pad (element, mux->srcpad);
    gst_pad_use_fixed_caps (mux->srcpad);
    gst_pad_set_activatepush_function (mux->srcpad,
        GST_DEBUG_FUNCPTR (gst_mux_src_activate_push));

    mux->job = new GstMuxJob ();
    mux->num_apads = 0;
    mux->num_vpads = 0;

    mux->tlock = g_mutex_new ();

    gst_mux_reset (mux);
}

static void
gst_mux_reset (GstMux * mux)
{
    GSList *walk;
    GSList *nlist = NULL;

    mux->eos = FALSE;
    mux->srcresult = GST_FLOW_CUSTOM_SUCCESS;

    /* reset existing streams */
    walk = mux->pads;
    while (walk != NULL) {
        GstMuxPad *mpad;

```

```

mpad = (GstMplexPad *) walk->data;

mpad->needed = 0;
mpad->eos = FALSE;
gst_adapter_clear (mpad->adapter);
if (mpad->bs) {
    delete mpad->bs;

    mpad->bs = NULL;
}

if (!mpad->pad) {
    g_cond_free (mpad->cond);
    g_object_unref (mpad->adapter);
    g_free (mpad);
} else
    nlist = g_slist_append (nlist, mpad);

walk = walk->next;
}

g_slist_free (mplex->pads);
mplex->pads = nlist;

/* clear mplex stuff */
/* clean up stream settings */
while (!mplex->job->streams.empty ()) {
    delete mplex->job->streams.back ();

    mplex->job->streams.pop_back ();
}
while (!mplex->job->video_param.empty ()) {
    delete mplex->job->video_param.back ();

    mplex->job->video_param.pop_back ();
}
while (!mplex->job->lpcm_param.empty ()) {
    delete mplex->job->lpcm_param.back ();

    mplex->job->lpcm_param.pop_back ();
}
mplex->job->audio_tracks = 0;
mplex->job->video_tracks = 0;
mplex->job->lpcm_tracks = 0;
}

static gboolean
gst_mplex_setcaps (GstPad * pad, GstCaps * caps)

```

```

{
  GstMplex *mplex;
  const gchar *mime;
  GstStructure *structure;
  StreamKind type;
  JobStream *jobstream;
  GstMplexIBitStream *inputstream;
  GstMplexPad *mpad;
  GstCaps *othercaps;
  gboolean ret = TRUE;

  mplex = GST_MPLEX (GST_PAD_PARENT (pad));

  /* does not go well to negotiate when started */
  if (mplex->srcresult != GST_FLOW_CUSTOM_SUCCESS)
    goto refuse_renegotiation;

  /* since muxer does not really check much ... */
  othercaps = gst_caps_intersect (caps, gst_pad_get_pad_template_caps (pad));
  if (othercaps)
    gst_caps_unref (othercaps);
  else
    goto refuse_caps;

  /* set the fixed template caps on the srcpad, should accept without objection */
  othercaps = gst_caps_copy (gst_pad_get_pad_template_caps (mplex->srcpad));
  ret = gst_pad_set_caps (mplex->srcpad, othercaps);
  gst_caps_unref (othercaps);
  if (!ret)
    goto refuse_caps;

  structure = gst_caps_get_structure (caps, 0);
  mime = gst_structure_get_name (structure);

  if (!strcmp (mime, "video/mpeg")) { /* video */
    VideoParams *params;

    type = MPEG_VIDEO;
    if (mplex->job->bufsize)
      params = VideoParams::Checked (mplex->job->bufsize);
    else
      params = VideoParams::Default (mplex->job->mux_format);
    /* set standard values if forced by the selected profile */
    if (params->Force (mplex->job->mux_format))
      GST_WARNING_OBJECT (mplex,
        "overriding non-standard option due to selected profile");

    mplex->job->video_param.push_back (params);
  }
}

```

```

mplex->job->video_tracks++;
} else {          /* audio */
if (!strcmp (mime, "audio/mpeg")) {
    type = MPEG_AUDIO;
} else if (!strcmp (mime, "audio/x-ac3")) {
    type = AC3_AUDIO;
} else if (!strcmp (mime, "audio/x-dts")) {
    type = DTS_AUDIO;
} else if (!strcmp (mime, "audio/x-raw-int")) {
    LpcmParams *params;
    gint bits, chans, rate;
    gboolean result = TRUE;

    type = LPCM_AUDIO;

    /* set LPCM params */
    result &= gst_structure_get_int (structure, "depth", &bits);
    result &= gst_structure_get_int (structure, "rate", &rate);
    result &= gst_structure_get_int (structure, "channels", &chans);
    if (!result)
        goto refuse_caps;

    params = LpcmParams::Checked (rate, chans, bits);

    mplex->job->lpcm_param.push_back (params);
    mplex->job->lpcm_tracks++;
} else
    goto refuse_caps;

mplex->job->audio_tracks++;
}

mpad = (GstMplexPad *) gst_pad_get_element_private (pad);
g_return_val_if_fail (mpad, FALSE);
inputstream = new GstMplexIBitStream (mpad);
mpad->bs = inputstream;
jobstream = new JobStream (inputstream, type);
mplex->job->streams.push_back (jobstream);

return TRUE;

refuse_caps:
{
    GST_WARNING_OBJECT (mplex, "refused caps %" GST_PTR_FORMAT, caps);

    /* undo if we were a bit too fast/confident */
    if (GST_PAD_CAPS (mplex->srcpad))
        gst_pad_set_caps (mplex->srcpad, NULL);
}

```

```

    return FALSE;
}
refuse_renegotiation:
{
    GST_WARNING_OBJECT (mplex, "already started; "
        "refused (re)negotiation (to %" GST_PTR_FORMAT ")", caps);

    return FALSE;
}
}

static void
gst_mplex_loop (GstMplex * mplex)
{
    GstMplexOutputStream *out = NULL;
    Multiplexor *mux = NULL;
    GSList *walk;

    /* do not try to resume muxing after it finished
     * this can be relevant mainly/only in case of forced state change */
    if (mplex->eos)
        goto eos;

    /* inform downstream about what's coming */
    gst_pad_push_event (mplex->srcpad, gst_event_new_new_segment (FALSE, 1.0,
        GST_FORMAT_BYTES, 0, -1, 0));

    /* hm (!) each inputstream really needs an initial read
     * so that all is internally in the proper state */
    walk = mplex->pads;
    while (walk != NULL) {
        GstMplexPad *mpad;

        mpad = (GstMplexPad *) walk->data;
        mpad->bs->ReadBuffer ();

        walk = walk->next;
    }

    /* create new multiplexer with inputs/output */
    out = new GstMplexOutputStream (mplex, mplex->srcpad);
    #if GST_MJPEGTOOLS_API >= 10900
        mux = new Multiplexor (*mplex->job, *out, NULL);
    #else
        mux = new Multiplexor (*mplex->job, *out);
    #endif
}

```

```

if (mux) {
    mux->Multiplex ();
    delete mux;
    delete out;

    /* if not well and truly eos, something strange happened */
    if (!mplex->eos) {
        GST_ERROR_OBJECT (mplex, "muxing task ended without being eos");
        /* notify there is no point in collecting any more */
        GST_MPLEX_MUTEX_LOCK (mplex);
        mplex->srcresult = GST_FLOW_ERROR;
        GST_MPLEX_SIGNAL_ALL (mplex);
        GST_MPLEX_MUTEX_UNLOCK (mplex);
    } else
        goto eos;
    } else {
        GST_WARNING_OBJECT (mplex, "failed to create Multiplexor");
    }

    /* fall-through */
done:
    {
        /* no need to run wildly, stopped elsewhere, e.g. state change */
        GST_DEBUG_OBJECT (mplex, "pausing muxing task");
        gst_pad_pause_task (mplex->srcpad);

        return;
    }
eos:
    {
        GST_DEBUG_OBJECT (mplex, "encoding task reached eos");
        goto done;
    }
}

static gboolean
gst_mux_sink_event (GstPad * sinkpad, GstEvent * event)
{
    GstMplex *mplex;
    GstMplexPad *mpad;
    gboolean result = TRUE;

    mplex = (GstMplex *) (GST_PAD_PARENT (sinkpad));
    mpad = (GstMplexPad *) gst_pad_get_element_private (sinkpad);
    g_return_val_if_fail (mpad, FALSE);

    switch (GST_EVENT_TYPE (event)) {
        case GST_EVENT_FLUSH_START:

```

```

/* forward event */
gst_pad_event_default (sinkpad, event);

/* now unblock the chain function */
GST_MPLEX_MUTEX_LOCK (mplex);
mplex->srcresult = GST_FLOW_WRONG_STATE;
GST_MPLEX_SIGNAL (mplex, mpad);
GST_MPLEX_MUTEX_UNLOCK (mplex);
/* no way to pause/restart loop task */
goto done;
case GST_EVENT_FLUSH_STOP:
/* forward event */
gst_pad_event_default (sinkpad, event);

/* clear state and resume */
GST_MPLEX_MUTEX_LOCK (mplex);
gst_adapter_clear (mpad->adapter);
mplex->srcresult = GST_FLOW_OK;
GST_MPLEX_MUTEX_UNLOCK (mplex);
goto done;
case GST_EVENT_NEWSEGMENT:
/* eat segments; we make our own (byte)stream */
gst_event_unref (event);
goto done;
case GST_EVENT_EOS:
/* inform this pad that it can stop now */
GST_MPLEX_MUTEX_LOCK (mplex);
mpad->eos = TRUE;
GST_MPLEX_SIGNAL (mplex, mpad);
GST_MPLEX_MUTEX_UNLOCK (mplex);

/* eat this event for now, task will send eos when finished */
gst_event_unref (event);
goto done;
default:
/* for a serialized event, wait until earlier data is gone,
 * though this is no guarantee as to when task is done with it.
 * Only wait if loop has been started already */
if (GST_EVENT_IS_SERIALIZED (event)) {
    GST_MPLEX_MUTEX_LOCK (mplex);
    while (mplex->srcresult == GST_FLOW_OK && !mpad->needed)
        GST_MPLEX_WAIT (mplex, mpad);
    GST_MPLEX_MUTEX_UNLOCK (mplex);
}
break;
}

result = gst_pad_event_default (sinkpad, event);

```

```

done:
return result;
}

/* starts task if conditions are right for it
* must be called with mutex_lock held */
static void
gst_muxer_start_task (GstMuxer * muxer)
{
/* start task to create multiplexer and start muxing */
if (G_UNLIKELY (muxer->srcresult == GST_FLOW_CUSTOM_SUCCESS)
&& muxer->job->video_tracks == muxer->num_vpads
&& muxer->job->audio_tracks == muxer->num_apads) {
gst_pad_start_task (muxer->srcpad, (GstTaskFunction) gst_muxer_loop, muxer);
muxer->srcresult = GST_FLOW_OK;
}
}

static GstFlowReturn
gst_muxer_chain (GstPad * sinkpad, GstBuffer * buffer)
{
GstMuxer *muxer;
GstMuxerPad *mpad;

muxer = (GstMuxer *) (GST_PAD_PARENT (sinkpad));
mpad = (GstMuxerPad *) gst_pad_get_element_private (sinkpad);
g_return_val_if_fail (mpad, GST_FLOW_ERROR);

/* check if pad were properly negotiated and set up */
if (G_UNLIKELY (!mpad->bs)) {
GST_ELEMENT_ERROR (muxer, CORE, NEGOTIATION, (NULL),
("input pad has not been set up prior to chain function"));
return GST_FLOW_NOT_NEGOTIATED;
}

GST_MUXER_MUTEX_LOCK (muxer);

gst_muxer_start_task (muxer);

if (G_UNLIKELY (mpad->eos))
goto eos;

if (G_UNLIKELY (muxer->srcresult != GST_FLOW_OK))
goto ignore;

gst_adapter_push (mpad->adapter, buffer);
buffer = NULL;
}

```



```

while (gst_adapter_available (mpad->adapter) >= mpad->needed) {
    GST_MPLEX_SIGNAL (mplex, mpad);
    GST_MPLEX_WAIT (mplex, mpad);
    /* may have become flushing or in error */
    if (G_UNLIKELY (mplex->srcresult != GST_FLOW_OK))
        goto ignore;
    /* or been removed */
    if (G_UNLIKELY (mpad->eos))
        goto eos;
}

GST_MPLEX_MUTEX_UNLOCK (mplex);

return GST_FLOW_OK;

/* special cases */
eos:
{
    GST_DEBUG_OBJECT (mplex, "ignoring buffer at end-of-stream");
    GST_MPLEX_MUTEX_UNLOCK (mplex);

    gst_buffer_unref (buffer);
    return GST_FLOW_UNEXPECTED;
}
ignore:
{
    GstFlowReturn ret = mplex->srcresult;

    GST_DEBUG_OBJECT (mplex, "ignoring buffer because src task encountered %s",
        gst_flow_get_name (ret));
    GST_MPLEX_MUTEX_UNLOCK (mplex);

    if (buffer)
        gst_buffer_unref (buffer);
    return ret;
}

static GstPad *
gst_mplex_request_new_pad (GstElement * element,
    GstPadTemplate * templ, const gchar * name)
{
    GstElementClass *klass = GST_ELEMENT_GET_CLASS (element);
    GstMplex *mplex = GST_MPLEX (element);
    gchar *padname;
    GstPad *newpad;
    GstMplexPad *mpad;

```

```

if (templ == gst_element_class_get_pad_template (klass, "audio_%d")) {
    GST_DEBUG_OBJECT (mplex, "request pad audio %d", mplex->num_apads);
    padname = g_strdup_printf ("audio_%d", mplex->num_apads++);
} else if (templ == gst_element_class_get_pad_template (klass, "video_%d")) {
    GST_DEBUG_OBJECT (mplex, "request pad video %d", mplex->num_vpads);
    padname = g_strdup_printf ("video_%d", mplex->num_vpads++);
} else {
    GST_WARNING_OBJECT (mplex, "This is not our template!");
    return NULL;
}

newpad = gst_pad_new_from_template (templ, padname);
g_free (padname);

mpad = g_new0 (GstMplexPad, 1);
mpad->adapter = gst_adapter_new ();
mpad->cond = g_cond_new ();
gst_object_ref (newpad);
mpad->pad = newpad;

gst_pad_set_setcaps_function (newpad, GST_DEBUG_FUNCPTR (gst_mplex_setcaps));
gst_pad_set_chain_function (newpad, GST_DEBUG_FUNCPTR (gst_mplex_chain));
gst_pad_set_event_function (newpad, GST_DEBUG_FUNCPTR (gst_mplex_sink_event));
gst_pad_set_element_private (newpad, mpad);
gst_element_add_pad (element, newpad);
mplex->pads = g_slist_append (mplex->pads, mpad);

return newpad;
}

static void
gst_mplex_release_pad (GstElement * element, GstPad * pad)
{
    GstMplex *mplex = GST_MPLEX (element);
    GstMplexPad *mpad;

    g_return_if_fail (pad);
    mpad = (GstMplexPad *) gst_pad_get_element_private (pad);
    g_return_if_fail (mpad);

    if (gst_element_remove_pad (element, pad)) {
        gchar *padname;

        GST_MPLEX_MUTEX_LOCK (mplex);
        mpad->eos = TRUE;
        gst_object_unref (mpad->pad);
        mpad->pad = NULL;
        /* wake up if waiting on this pad */
    }
}

```

```

GST_MPLEX_SIGNAL (mplex, mpad);

padname = gst_object_get_name (GST_OBJECT (pad));
if (strstr (padname, "audio")) {
    mplex->num_apads--;
} else {
    mplex->num_vpads--;
}
g_free (padname);

/* may now be up to us to get things going */
gst_mplex_start_task (mplex);
GST_MPLEX_MUTEX_UNLOCK (mplex);
}
}

static void
gst_mplex_get_property (GObject * object,
    guint prop_id, GValue * value, GParamSpec * pspec)
{
    GST_MPLEX (object)->job->getProperty (prop_id, value);
}

static void
gst_mplex_set_property (GObject * object,
    guint prop_id, const GValue * value, GParamSpec * pspec)
{
    GST_MPLEX (object)->job->setProperty (prop_id, value);
}

static gboolean
gst_mplex_src_activate_push (GstPad * pad, gboolean active)
{
    gboolean result = TRUE;
    GstMplex *mplex;

    mplex = GST_MPLEX (GST_PAD_PARENT (pad));

    if (active) {
        /* chain will start task once all streams have been setup */
    } else {
        /* end the muxing loop by forcing eos and unblock chains */
        GST_MPLEX_MUTEX_LOCK (mplex);
        mplex->eos = TRUE;
        mplex->srcresult = GST_FLOW_WRONG_STATE;
        GST_MPLEX_SIGNAL_ALL (mplex);
        GST_MPLEX_MUTEX_UNLOCK (mplex);
    }
}

```

```

/* muxing loop should have ended now and can be joined */
result = gst_pad_stop_task (pad);
}

return result;
}

static GstStateChangeReturn
gst_mux_change_state (GstElement * element, GstStateChange transition)
{
    GstMplex *mplex = GST_MPLEX (element);
    GstStateChangeReturn ret;

    switch (transition) {
        case GST_STATE_CHANGE_NULL_TO_READY:
            break;
        case GST_STATE_CHANGE_READY_TO_PAUSED:
            break;
        case GST_STATE_CHANGE_PAUSED_TO_PLAYING:
            break;
        default:
            break;
    }

    ret = GST_ELEMENT_CLASS (parent_class)->change_state (element, transition);
    if (ret == GST_STATE_CHANGE_FAILURE)
        goto done;

    switch (transition) {
        case GST_STATE_CHANGE_PAUSED_TO_READY:
            gst_mux_reset (mplex);
            break;
        default:
            break;
    }

done:
    return ret;
}

#ifdef GST_DISABLE_GST_DEBUG

static mjpeg_log_handler_t old_handler = NULL;

/* note that this will affect all mjpegtools elements/threads */
static void
gst_mux_log_callback (log_level_t level, const char *message)
{

```

```

GstDebugLevel gst_level;

#if GST_MJPEGTOOLS_API >= 10900
static const gint mjpeg_log_error = mjpeg_loglev_t ("error");
static const gint mjpeg_log_warn = mjpeg_loglev_t ("warn");
static const gint mjpeg_log_info = mjpeg_loglev_t ("info");
static const gint mjpeg_log_debug = mjpeg_loglev_t ("debug");
#else
static const gint mjpeg_log_error = LOG_ERROR;
static const gint mjpeg_log_warn = LOG_WARN;
static const gint mjpeg_log_info = LOG_INFO;
static const gint mjpeg_log_debug = LOG_DEBUG;
#endif

if (level == mjpeg_log_error) {
    gst_level = GST_LEVEL_ERROR;
} else if (level == mjpeg_log_warn) {
    gst_level = GST_LEVEL_WARNING;
} else if (level == mjpeg_log_info) {
    gst_level = GST_LEVEL_INFO;
} else if (level == mjpeg_log_debug) {
    gst_level = GST_LEVEL_DEBUG;
} else {
    gst_level = GST_LEVEL_INFO;
}

/* message could have a % in it, do not segfault in such case */
gst_debug_log (mplex_debug, gst_level, "", "", 0, NULL, "%s", message);

/* chain up to the old handler;
 * this could actually be a handler from another mjpegtools based
 * gstreamer element; in which case messages can come out double or from
 * the wrong element ... */
old_handler (level, message);
}
#endif

static gboolean
plugin_init (GstPlugin * plugin)
{
    #ifndef GST_DISABLE_GST_DEBUG
    old_handler = mjpeg_log_set_handler (gst_mplex_log_callback);
    g_assert (old_handler != NULL);
    #endif

    /* in any case, we do not want default handler output */
    mjpeg_default_handler_verbosity (0);

    return gst_element_register (plugin, "mplex", GST_RANK_NONE, GST_TYPE_MPLEX);
}

```

```
}
```

```
GST_PLUGIN_DEFINE (GST_VERSION_MAJOR,  
    GST_VERSION_MINOR,  
    "mplex",  
    "High-quality MPEG/DVD/SVCD/VCD video/audio multiplexer",  
    plugin_init, VERSION, "GPL", GST_PACKAGE_NAME, GST_PACKAGE_ORIGIN)  
/* GStreamer mplex (mjpegtools) wrapper  
* (c) 2003 Ronald Bultje <rbultje@ronald.bitfreak.net>  
*  
* gstmplex.hh: gstreamer mplex wrapper  
*  
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* License along with this library; if not, write to the  
* Free Software Foundation, Inc., 59 Temple Place - Suite 330,  
* Boston, MA 02111-1307, USA.  
*/
```

```
#ifndef __GST_MPLEX_H__  
#define __GST_MPLEX_H__  
  
#include <gst/gst.h>  
#include <gst/base/gstadapter.h>  
#include <multiplexor.hpp>  
#include "gstmplexibitstream.hh"  
#include "gstmplexjob.hh"
```

```
G_BEGIN_DECLS
```

```
#define GST_TYPE_MPLEX \  
    (gst_mplex_get_type ())  
#define GST_MPLEX(obj) \  
    (G_TYPE_CHECK_INSTANCE_CAST ((obj), GST_TYPE_MPLEX, GstMplex))  
#define GST_MPLEX_CLASS(klass) \  
    (G_TYPE_CHECK_CLASS_CAST ((klass), GST_TYPE_MPLEX, GstMplex))  
#define GST_IS_MPLEX(obj) \  
    (G_TYPE_CHECK_INSTANCE_TYPE ((obj), GST_TYPE_MPLEX))  
#define GST_IS_MPLEX_CLASS(obj) \  
    (G_TYPE_CHECK_CLASS_TYPE ((obj), GST_TYPE_MPLEX))
```

```
(G_TYPE_CHECK_CLASS_TYPE ((klass), GST_TYPE_MPLEX))
```

```
GST_DEBUG_CATEGORY_EXTERN (mplex_debug);
```

```
#define GST_CAT_DEFAULT mplex_debug
```

```
#define GST_MPLEX_MUTEX_LOCK(m) G_STMT_START { \
    GST_LOG_OBJECT (m, "locking tlock from thread %p", g_thread_self ()); \
    g_mutex_lock ((m)->tlock); \
    GST_LOG_OBJECT (m, "locked tlock from thread %p", g_thread_self ()); \
} G_STMT_END
```

```
#define GST_MPLEX_MUTEX_UNLOCK(m) G_STMT_START { \
    GST_LOG_OBJECT (m, "unlocking tlock from thread %p", g_thread_self ()); \
    g_mutex_unlock ((m)->tlock); \
} G_STMT_END
```

```
#define GST_MPLEX_WAIT(m, p) G_STMT_START { \
    GST_LOG_OBJECT (m, "thread %p waiting", g_thread_self ()); \
    g_cond_wait ((p)->cond, (m)->tlock); \
} G_STMT_END
```

```
#define GST_MPLEX_SIGNAL(m, p) G_STMT_START { \
    GST_LOG_OBJECT (m, "signalling from thread %p", g_thread_self ()); \
    g_cond_signal ((p)->cond); \
} G_STMT_END
```

```
#define GST_MPLEX_SIGNAL_ALL(m) G_STMT_START { \
    GST_LOG_OBJECT (m, "signalling all from thread %p", g_thread_self ()); \
    GSList *walk = m->pads; \
    while (walk) { \
        GST_MPLEX_SIGNAL (m, (GstMplexPad *) walk->data); \
        walk = walk->next; \
    } \
} G_STMT_END
```

```
typedef struct _GstMplexPad
```

```
{ \
    /* associated pad */ \
    GstPad *pad; \
    /* with mplex TLOCK */ \
    /* adapter collecting buffers for this pad */ \
    GstAdapter *adapter; \
    /* no more to expect on this pad */ \
    gboolean eos; \
    /* signals counterpart thread to have a look */ \
    GCond *cond; \
    /* amount needed by mplex on this stream */ \
    guint needed;
```

```

/* bitstream for this pad */
GstMplexIBitStream *bs;
} GstMplexPad;

typedef struct _GstMplex {
    GstElement parent;

/* pads */
    GSList *pads;
    GstPad *srcpad;
    guint num_apads, num_vpads;

/* options wrapper */
    GstMplexJob *job;

/* lock for syncing */
    GMutex *tlock;
/* with TLOCK */
/* muxer writer generated eos */
    gboolean eos;
/* flowreturn obtained by muxer task */
    GstFlowReturn srcresult;
} GstMplex;

typedef struct _GstMplexClass {
    GstElementClass parent;
} GstMplexClass;

GType gst_muxer_get_type (void);

G_END_DECLS

#endif /* __GST_MPLEX_H__ */
/* GStreamer mplex (mjpegtools) wrapper
* (c) 2003 Ronald Bultje <rbultje@ronald.bitfreak.net>
* (c) 2008 Mark Nauwelaerts <mnauw@users.sourceforge.net>
*
* gstmplexibitstream.hh: gstreamer/mplex input bitstream wrapper
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*/

#ifdef HAVE_CONFIG_H
#include "config.h"
#endif

#include <string.h>

#include "gstmux.h"
#include "gstmuxibitstream.h"

/*
* Class init/exit functions.
*/

GstMuxIBitStream::GstMuxIBitStream (GstMuxPad * _data, guint buf_size):
IBitStream ()
{
    mpad = _data;
    mux = GST_MUX (GST_PAD_PARENT (mpad->pad));
    eos = FALSE;

    SetBufSize (buf_size);
    eobs = false;
    byteidx = 0;
}

/*
* Read data.
*/

size_t
GstMuxIBitStream::ReadStreamBytes (uint8_t * buf, size_t size =
    BUFFER_SIZE)
{
    guint8 *data;

    GST_MUX_MUTEX_LOCK (mux);

    GST_DEBUG_OBJECT (mux, "needing %d bytes", (guint) size);

    while (gst_adapter_available (mpad->adapter) < size
        && !mux->eos && !mpad->eos) {

```

```

mpad->needed = size;
GST_MPLEX_SIGNAL (mplex, mpad);
GST_MPLEX_WAIT (mplex, mpad);
}

mpad->needed = 0;
size = MIN (size, gst_adapter_available (mpad->adapter));
if (size) {
    data = gst_adapter_take (mpad->adapter, size);
    memcpy (buf, data, size);
    g_free (data);
}

GST_MPLEX_MUTEX_UNLOCK (mplex);

return size;
}

/*
 * Are we at EOS?
 */

bool GstMplexIBitStream::EndOfStream (void)
{
    return eos;
}

bool GstMplexIBitStream::ReadBuffer ()
{
    return ReadIntoBuffer (BUFFER_SIZE);
}

/* GStreamer mplex (mjpegtools) wrapper
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*/

#ifndef __GST_MPLEXIBITSTREAM_H__
#define __GST_MPLEXIBITSTREAM_H__

#include <gst/gst.h>
#include <mjpeg_types.h>
#include <bits.hpp>

#include "gstmplex.hh"

/* forward declaration; break circular referencing */
typedef struct _GstMplex GstMplex;
typedef struct _GstMplexPad GstMplexPad;

class GstMplexIBitStream : public IBitStream {
public:
    GstMplexIBitStream (GstMplexPad *pad, guint buf_size = BUFFER_SIZE);
    bool ReadBuffer ();

protected:
    /* read data */
    size_t ReadStreamBytes (uint8_t *buf, size_t number);

    /* are we at EOS? */
    bool EndOfStream (void);

private:
    GstMplex *mplex;
    GstMplexPad *mpad;
    gboolean eos;
};

#endif /* __GST_MPLEXIBITSTREAM_H__ */
/* GStreamer mplex (mjpegtools) wrapper
* (c) 2003 Ronald Bultje <rbultje@ronald.bitfreak.net>
*
* gstmplexjob.hh: gstreamer/mplex multiplex-job wrapper
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*/

```
#ifdef HAVE_CONFIG_H
#include "config.h"
#endif
```

```
#include "gstmplexjob.hh"
```

```
enum
```

```
{
  ARG_0,
  ARG_FORMAT,
  ARG_MUX_BITRATE,
  ARG_VBR,
  ARG_SYSTEM_HEADERS,
  ARG_SPLIT_SEQUENCE,
  ARG_SEGMENT_SIZE,
  ARG_PACKETS_PER_PACK,
  ARG_SECTOR_SIZE,
  ARG_BUFSIZE
  /* FILL ME */
};
```

```
/*
```

```
* Property enumeration types.
```

```
*/
```

```
#define GST_TYPE_MPLEX_FORMAT \
(gst_mplex_format_get_type ())
```

```
static GType
```

```
gst_mplex_format_get_type (void)
```

```
{
```

```
  static GType mplex_format_type = 0;
```

```
  if (!mplex_format_type) {
```

```
    static const GEnumValue mplex_formats[] = {
```

```
      {0, "Generic MPEG-1", "0"},
```

```
      {1, "Standard VCD", "1"},
```

```

    {2, "User VCD", "2"},
    {3, "Generic MPEG-2", "3"},
    {4, "Standard SVCD", "4"},
    {5, "User SVCD", "5"},
    {6, "VCD Stills sequences", "6"},
    {7, "SVCD Stills sequences", "7"},
    {8, "DVD MPEG-2 for dvdauthor", "8"},
    {9, "DVD MPEG-2", "9"},
    {0, NULL, NULL},
};

mplex_format_type =
    g_enum_register_static ("GstMplexFormat", mplex_formats);
}

return mplex_format_type;
}

/*
 * Class init functions.
 */

GstMplexJob::GstMplexJob (void):
MultiplexJob ()
{
    /* blabla */
    bufsize = 0;
}

/*
 * GObject properties.
 */

void
GstMplexJob::initProperties (GObjectClass * klass)
{
    /* encoding profile */
    g_object_class_install_property (klass, ARG_FORMAT,
        g_param_spec_enum ("format", "Format", "Encoding profile format",
            GST_TYPE_MPLEX_FORMAT, 0,
            (GParamFlags) (G_PARAM_READWRITE | G_PARAM_STATIC_STRINGS)));

    /* total stream datarate. Normally, this shouldn't be needed, but
     * some DVD/VCD/SVCD players really need strict values to handle
     * the created files correctly. */
    g_object_class_install_property (klass, ARG_MUX_BITRATE,
        g_param_spec_int ("mux-bitrate", "Mux. bitrate",
            "Bitrate of output stream in kbps (0 = autodetect)",

```

```

0, 15 * 1024, 0,
(GParamFlags) (G_PARAM_READWRITE | G_PARAM_STATIC_STRINGS));

/* override decode buffer size otherwise determined by format */
g_object_class_install_property (klass, ARG_BUFSIZE,
g_param_spec_int ("bufsize", "Decoder buf. size",
"Target decoders video buffer size (kB) "
"[default determined by format if not explicitly set]",
20, 4000, 46,
(GParamFlags) (G_PARAM_READWRITE | G_PARAM_STATIC_STRINGS));

/* some boolean stuff for headers */
g_object_class_install_property (klass, ARG_VBR,
g_param_spec_boolean ("vbr", "VBR",
"Whether the input video stream is variable bitrate",
FALSE,
(GParamFlags) (G_PARAM_READWRITE | G_PARAM_STATIC_STRINGS));
g_object_class_install_property (klass, ARG_SYSTEM_HEADERS,
g_param_spec_boolean ("system-headers", "System headers",
"Create system header in every pack for generic formats",
FALSE,
(GParamFlags) (G_PARAM_READWRITE | G_PARAM_STATIC_STRINGS));
#if 0 /* not supported */
g_object_class_install_property (klass, ARG_SPLIT_SEQUENCE,
g_param_spec_boolean ("split-sequence", "Split sequence",
"Simply split a sequence across files "
"(rather than building run-out/run-in)",
FALSE,
(GParamFlags) (G_PARAM_READWRITE | G_PARAM_STATIC_STRINGS));

/* size of a segment */
g_object_class_install_property (klass, ARG_SEGMENT_SIZE,
g_param_spec_int ("max-segment-size", "Max. segment size",
"Max. size per segment/file in MB (0 = unlimited)",
0, 10 * 1024, 0,
(GParamFlags) (G_PARAM_READWRITE | G_PARAM_STATIC_STRINGS));
#endif

/* packets per pack (generic formats) */
g_object_class_install_property (klass, ARG_PACKETS_PER_PACK,
g_param_spec_int ("packets-per-pack", "Packets per pack",
"Number of packets per pack for generic formats",
1, 100, 1,
(GParamFlags) (G_PARAM_READWRITE | G_PARAM_STATIC_STRINGS));

/* size of one sector */
g_object_class_install_property (klass, ARG_SECTOR_SIZE,
g_param_spec_int ("sector-size", "Sector size",

```

```

        "Specify sector size in bytes for generic formats",
        256, 16384, 2048,
        (GParamFlags) (G_PARAM_READWRITE | G_PARAM_STATIC_STRINGS)));
    }

/*
 * set/get gobject properties.
 */

void
GstMplexJob::getProperty (guint prop_id, GValue * value)
{
    switch (prop_id) {
        case ARG_FORMAT:
            g_value_set_enum (value, mux_format);
            break;
        case ARG_MUX_BITRATE:
            /* convert from bytes back to bits */
            g_value_set_int (value, (data_rate * 8) / 1000);
            break;
        case ARG_VBR:
            g_value_set_boolean (value, VBR);
            break;
        case ARG_SYSTEM_HEADERS:
            g_value_set_boolean (value, always_system_headers);
            break;
        case ARG_SPLIT_SEQUENCE:
            g_value_set_boolean (value, multifile_segment);
            break;
        case ARG_SEGMENT_SIZE:
            g_value_set_int (value, max_segment_size);
            break;
        case ARG_PACKETS_PER_PACK:
            g_value_set_int (value, packets_per_pack);
            break;
        case ARG_SECTOR_SIZE:
            g_value_set_int (value, sector_size);
            break;
        case ARG_BUFSIZE:
            g_value_set_int (value, bufsize);
            break;
        default:
            break;
    }
}

void
GstMplexJob::setProperty (guint prop_id, const GValue * value)

```

```

{
switch (prop_id) {
case ARG_FORMAT:
    mux_format = g_value_get_enum (value);
    break;
case ARG_MUX_BITRATE:
    /* data_rate expects bytes (don't ask me why the property itself is
    * in bits, I'm just staying compatible to mjpegtools options), and
    * rounded up to 50-bytes. */
    data_rate = ((g_value_get_int (value) * 1000 / 8 + 49) / 50) * 50;
    break;
case ARG_VBR:
    VBR = g_value_get_boolean (value);
    break;
case ARG_SYSTEM_HEADERS:
    always_system_headers = g_value_get_boolean (value);
    break;
case ARG_SPLIT_SEQUENCE:
    multifile_segment = g_value_get_boolean (value);
    break;
case ARG_SEGMENT_SIZE:
    max_segment_size = g_value_get_int (value);
    break;
case ARG_PACKETS_PER_PACK:
    packets_per_pack = g_value_get_int (value);
    break;
case ARG_SECTOR_SIZE:
    sector_size = g_value_get_int (value);
    break;
case ARG_BUFSIZE:
    bufsize = g_value_get_int (value);
    break;
default:
    break;
}
}
/* GStreamer mplex (mjpegtools) wrapper
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* gstmuxjob.hh: gstreamer/mplex multiplex-job wrapper
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 */

```
#ifndef __GST_MPLEXJOB_H__
#define __GST_MPLEXJOB_H__
```

```
#include <glib-object.h>
#include <interact.hpp>
```

```
class GstMplexJob : public MultiplexJob {
public:
  GstMplexJob (void);

  /* gobject properties */
  static void initProperties (GObjectClass *klass);

  /* set/get gobject properties */
  void getProperty (guint prop_id,
                  GValue *value);
  void setProperty (guint prop_id,
                  const GValue *value);

  int bufsize;
};
```

```
#endif /* __GST_MPLEXJOB_H__ */
/* GStreamer mplex (mjpegtools) wrapper
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*/
```

```
#ifdef HAVE_CONFIG_H
#include "config.h"
#endif
```

```
#include <string.h>
```

```
#include "gstmux.h"
#include "gstmuxoutputstream.h"
```

```
/*
* Class init functions.
*/
```

```
GstMuxOutputStream::GstMuxOutputStream (GstMux * _element, GstPad * _pad):
OutputStream ()
{
    mux = _element;
    pad = _pad;
    size = 0;
}
```

```
/*
* Open/close. Basically 'no-op's (close() sets EOS).
*
* Open (): -1 means failure, 0 means success.
*/
```

```
int
GstMuxOutputStream::Open (void)
{
    return 0;
}
```

```
void
GstMuxOutputStream::Close (void)
{
    GST_MUX_MUTEX_LOCK (mux);
    GST_DEBUG_OBJECT (mux, "closing stream and sending eos");
    gst_pad_push_event (pad, gst_event_new_eos ());
    /* notify chain there is no more need to supply buffers */
    mux->eos = TRUE;
    GST_MUX_SIGNAL_ALL (mux);
}
```

```

GST_MPLEX_MUTEX_UNLOCK (mplex);
}

/*
 * Get size of current segment.
 */

#if GST_MJPEGTOOLS_API >= 10900
uint64_t
GstMplexOutputStream::SegmentSize (void)
#else
off_t
GstMplexOutputStream::SegmentSize (void)
#endif
{
    return size;
}

/*
 * Next segment; not really supported.
 */

void
GstMplexOutputStream::NextSegment (void)
{
    size = 0;

    GST_WARNING_OBJECT (mplex, "multiple file output is not supported");
    /* FIXME: no such filesink behaviour to be expected */
}

/*
 * Write data.
 */

void
GstMplexOutputStream::Write (guint8 * data, guint len)
{
    GstBuffer *buf;

    buf = gst_buffer_new_and_alloc (len);
    memcpy (GST_BUFFER_DATA (buf), data, len);

    size += len;
    GST_MPLEX_MUTEX_LOCK (mplex);
    gst_buffer_set_caps (buf, GST_PAD_CAPS (pad));
    mplex->srcresult = gst_pad_push (pad, buf);
    GST_MPLEX_MUTEX_UNLOCK (mplex);
}

```

```

}
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* Boston, MA 02111-1307, USA.
*/

#ifndef __GST_MPLEXOUTPUTSTREAM_H__
#define __GST_MPLEXOUTPUTSTREAM_H__

#include <gst/gst.h>
#include <mjpeg_types.h>
#include <outputstrm.hpp>

#include "gstmplex.hh"

class GstMplexOutputStream : public OutputStream {
public:
    GstMplexOutputStream (GstMplex *element, GstPad *pad);

    /* open/close. Basically 'no-op's (close() sets EOS). */
    int Open (void);
    void Close (void);

    /* get size of current segment */
#ifdef GST_MJPEGTOOLS_API >= 10900
    uint64_t SegmentSize (void);
#else
    off_t SegmentSize (void);
#endif

    /* next segment */

```

```

void NextSegment (void);

/* write data */
void Write (guint8 *data, guint len);

private:
GstMplex *mplex;
GstPad *pad;
guint64 size;
};

#endif /* __GST_MPLEXOUTPUTSTREAM_H__ */

```

1.14 gstreamer-plugins-base 0.10.35.1

1.14.1 Available under license :

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```

```
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```

```
Ty Coon, President of Vice
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```

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```

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```

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```

```
*/
```

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aasink	aalib	(http://sourceforge.net/projects/aa-project/)
cdparanoia	libcdparanoia	(http://www.xiph.org/paranoia/)
dtsdec	libdts	(http://www.videolan.org/dtsdec.html)
dvdnavsrc	libdvdnav	(http://dvd.sourceforge.net/)
dxr3		(http://dxr3.sourceforge.net/)
icecastsend	libshout	(http://www.icecast.org)
mad	libmad	(http://www.mars.org/home/rob/proj/mpeg/)
mpeg2dec	libmpeg2	(http://libmpeg2.sourceforge.net/)
mpeg2enc	libmpeg2enc	(http://mjpeg.sourceforge.net/)
mplex	libmplex	(http://mjpeg.sourceforge.net/)
siddec	libsidplay 1.36	(http://www.geocities.com/SiliconValley/Lakes/5147/sidplay/ , http://sourceforge.net/projects/sidplay2/)
trm	libmusicbrainz	(http://www.musicbrainz.org/)
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rtjpeg	None	(Erik Walthinsen's algorithm)
rtp	None	(http://www.linphone.org/ortp/)
synaesthesia		(http://www.logarithmic.net/pfh/synaesthesia)
system_encode	None	(Algorithm by Chrisoph Moar, Wim Tayman's and Erik Walthinsen)
vbidec	None	(Algorithm by Billy Biggs, Doug Bell, Erik Walthinsen and David I. Lehn)

Plugins which use a LGPL library are as follows:

alsa	alsa	(http://alsa-project.org/)
artsdsink	aRts	(http://arts-project.org/)
cacasink	libcaca	(http://sam.zoy.org/projects/libcaca/)

colorspacecs libcolorspace
 dvdec libdv (<http://libdv.sourceforge.net/>)
 esdmon,esdsink libesd (<ftp.gnome.org/pub/GNOME/stable/sources/esound/>)
 faac libfaac (<http://www.audiocoding.com/modules/mydownloads/>)
 fameenc libfame (<http://fame.sourceforge.net/>)
 ffmpeg ffmpeg (<http://ffmpeg.sourceforge.net/>)
 gdkpixbuf GTK+ (<http://www.gtk.org/>)
 gnomevfs gnome-vfs (<ftp.gnome.org/pub/GNOME/stable/sources/gnome-vfs/>)
 gst_arts aRts (<http://arts-project.org/>)
 gst1394 libraw1394 (<http://www.linux1394.org/>)
 gstaf libaudiofile (<http://www.68k.org/~michael/audiofile/>)
 gstsflibsndfile (<http://www.mega-nerd.com/libsndfile/>)
 hermescolorspace Hermes (<http://www.clanlib.org/hermes/>)
 kio KDE (<http://www.kde.org/>)
 ladspa (<http://www.ladspa.org/>)
 lame libmp3lame (<http://lame.sourceforge.net/>)
 libvisual libvisual (<http://libvisual.sourceforge.net/>)
 matroska (<http://www.matroska.org/>)
 mikmod libmikmod (<http://mikmod.raphnet.net/>)
 ossaudio (<http://www.opensound.com/>)
 qcamsrc
 rfbenc librfb
 sdlvideosink libSDL (<http://www.libsdl.org/>)
 shout2send libshout2 (<http://www.icecast.org>)
 smoothwave
 swfdec (<http://swfdec.sourceforge.net/>)
 tarkin (<http://svn.xiph.org/trunk/tarkin/>)
 textoverlay pango (<http://www.pango.org/>)
 dirac (<http://www.bbc.co.uk/rd/projects/dirac/>)
 effectv (Our ports was relicensed)(<http://effectv.sourceforge.net/>)
 musepack (<http://www.musepack.net/>)

Plugins which use a BSD covered library are as follows:

ogg libogg/libvorbis (<http://www.xiph.org/ogg/vorbis/>)
 vorbis libogg/libvorbis (<http://www.xiph.org/ogg/vorbis/>)
 gsttheora libtheora (<http://www.theora.org/>)
 speex (<http://www.speex.org/>)
 flac libFLAC (<http://flac.sourceforge.net/>)

Plugins based on libraries with other free licenses:

ximagesink libXv
 xvimagesink libXv
 - license: MIT X11 / X Consortium license

 gsm libgsm
 - license MIT license <http://kbs.cs.tu-berlin.de/~jutta/toast.html>

festival (<http://www.cstr.ed.ac.uk/projects/festival/>)
- license: <http://www.cstr.ed.ac.uk/projects/festival/freecopyright.shtml>

jpeg (<http://www.ijg.org/>)
- license: IJG license

nas (<http://radscan.com/nas.html>)
- license: NAS license

snapshot libpng (<http://www.libpng.org/pub/png/>)
- license: PNG license

mngdec/mngenc libmng (<http://gjuyn.xs4all.nl/libmng>)
- license PNG license

Plugins using non-free libraries:

divxdec, divxenc (<http://www.divx.com/>)
osxaudio (<http://www.apple.com/macosx/>)
sunaudiosink (<http://www.sun.com/>)

Unsure:

faad libfaad (<http://www.audiocoding.com/>)

faad's license depends on its major version :

- for FAAD1 : it is LGPL
- for FAAD2 : it is GPL

look at these pages for more information on licenses :

<http://www.audiocoding.com/modules/wiki/?page=FAAD2>

<http://www.audiocoding.com/modules/wiki/?page=FAAC>

by default, GStreamer faad plugin would compile against FAAD2 if available.
it falls back to FAAD1 if not.

1.15 gstreamer-plugins-good 0.10.30.1

1.15.1 Available under license :

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Version 2.1, February 1999

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This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

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That's all there is to it!

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*

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The plugins which use a GPL library are as follows:

a52dec	liba52	(http://liba52.sourceforge.net/)
aasink	aalib	(http://sourceforge.net/projects/aa-project/)
cdparanoia	libcdparanoia	(http://www.xiph.org/paranoia/)
dtsdec	libdts	(http://www.videolan.org/dtsdec.html)
dvdnavsrc	libdvdnav	(http://dvd.sourceforge.net/)
dxr3		(http://dxr3.sourceforge.net/)
icecastsend	libshout	(http://www.icecast.org)
mad	libmad	(http://www.mars.org/home/rob/proj/mpeg/)
mpeg2dec	libmpeg2	(http://libmpeg2.sourceforge.net/)
mpeg2enc	libmpeg2enc	(http://mjpeg.sourceforge.net/)
mplex	libmplex	(http://mjpeg.sourceforge.net/)
siddec	libsidplay 1.36	(http://www.geocities.com/SiliconValley/Lakes/5147/sidplay/ , http://sourceforge.net/projects/sidplay2/)
trm	libmusicbrainz	(http://www.musicbrainz.org/)
xine	libxine	(http://xinehq.de/)
xvid	libxvidcore	(http://www.xvid.org/)

Plugins derived from GPL code are as follows:

dvdreadsrc	libdvdread	(http://www.dtek.chalmers.se/groups/dvd/)
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jack libjack (<http://jackit.sourceforge.net/>)
 Note libjack is LGPL, but plugin is GPL.

monoscope None (Algorithm by Ralph Loader, Joerg Walter,
 Richard Boulton, and Andy Lo A Foe)

rtjpeg None (Erik Walthinsen's algorithm)

rtp None (<http://www.linphone.org/ortp/>)

synaesthesia (<http://www.logarithmic.net/pfh/synaesthesia>)

system_encode None (Algorithm by Chrisoph Moar, Wim Tayman's and
 Erik Walthinsen)

vbidec None (Algorithm by Billy Biggs, Doug Bell,
 Erik Walthinsen and David I. Lehn)

Plugins which use a LGPL library are as follows:

alsa alsa (<http://alsa-project.org/>)

artsdsink aRts (<http://arts-project.org/>)

cacasink libcaca (<http://sam.zoy.org/projects/libcaca/>)

colorspacecs libcolorspace

dvdec libdv (<http://libdv.sourceforge.net/>)

esdmon,esdsink libesd (<ftp.gnome.org/pub/GNOME/stable/sources/esound/>)

faac libfaac (<http://www.audiocoding.com/modules/mydownloads/>)

fameenc libfame (<http://fame.sourceforge.net/>)

ffmpeg ffmpeg (<http://ffmpeg.sourceforge.net/>)

gdkpixbuf GTK+ (<http://www.gtk.org/>)

gnomevfs gnome-vfs (<ftp.gnome.org/pub/GNOME/stable/sources/gnome-vfs/>)

gst_arts aRts (<http://arts-project.org/>)

gst1394 libraw1394 (<http://www.linux1394.org/>)

gstaf libaudiofile (<http://www.68k.org/~michael/audiofile/>)

gstsf libsndfile (<http://www.mega-nerd.com/libsndfile/>)

hermescolorspace Hermes (<http://www.clanlib.org/hermes/>)

kio KDE (<http://www.kde.org/>)

ladspa (<http://www.ladspa.org/>)

lame libmp3lame (<http://lame.sourceforge.net/>)

libvisual libvisual (<http://libvisual.sourceforge.net/>)

matroska (<http://www.matroska.org/>)

mikmod libmikmod (<http://mikmod.raphnet.net/>)

ossaudio (<http://www.opensound.com/>)

qcamsrc

rfbenc librfb

sdlvideosink libsdl (<http://www.libsdl.org/>)

shout2send libshout2 (<http://www.icecast.org>)

smoothwave

swfdec (<http://swfdec.sourceforge.net/>)

tarkin (<http://svn.xiph.org/trunk/tarkin/>)

textoverlay pango (<http://www.pango.org/>)

dirac (<http://www.bbc.co.uk/rd/projects/dirac/>)

effectv (Our ports was relicensed)(<http://effectv.sourceforge.net/>)

musepack (<http://www.musepack.net/>)

Plugins which use a BSD covered library are as follows:

ogg libogg/libvorbis (<http://www.xiph.org/ogg/vorbis/>)
vorbis libogg/libvorbis (<http://www.xiph.org/ogg/vorbis/>)
gsttheora libtheora (<http://www.theora.org/>)
speex (<http://www.speex.org/>)
flac libFLAC (<http://flac.sourceforge.net/>)

Plugins based on libraries with other free licenses:

ximagesink libXv
xvimagesink libXv
- license: MIT X11 / X Consortium license

gsm libgsm
- license MIT license <http://kbs.cs.tu-berlin.de/~jutta/toast.html>

festival (<http://www.cstr.ed.ac.uk/projects/festival/>)
- license: <http://www.cstr.ed.ac.uk/projects/festival/freecopyright.shtml>

jpeg (<http://www.ijg.org/>)
- license: IJG license

nas (<http://radscan.com/nas.html>)
- license: NAS license

snapshot libpng (<http://www.libpng.org/pub/png/>)
- license: PNG license

mngdec/mngenc libmng (<http://gjuyn.xs4all.nl/libmng>)
- license PNG license

Plugins using non-free libraries:

divxdec, divxenc (<http://www.divx.com/>)
osxaudio (<http://www.apple.com/macosx/>)
sunaudiosink (<http://www.sun.com/>)

Unsure:

faad libfaad (<http://www.audiocoding.com/>)

faad's license depends on its major version :

- for FAAD1 : it is LGPL

- for FAAD2 : it is GPL

look at these pages for more information on licenses :

<http://www.audiocoding.com/modules/wiki/?page=FAAD2>

<http://www.audiocoding.com/modules/wiki/?page=FAAC>

by default, GStreamer faad plugin would compile against FAAD2 if available.

it falls back to FAAD1 if not.

```
/*
```

```
* GStreamer
```

```
* Copyright (C) 2007 Sebastian Drge <slomo@circular-chaos.org>
```

```
* Copyright (C) 2006 Stefan Kost <ensonic@users.sf.net>
```

```
*
```

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```
*
```

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```

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```

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```
*
```

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```

```
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```

```
* Boston, MA 02111-1307, USA.
```

```
*/
```

```
/**
```

```
* SECTION:element-audioamplify
```

```
*
```

```
* Amplifies an audio stream by a given factor and allows the selection of different clipping modes.
```

```
* The difference between the clipping modes is best evaluated by testing.
```

```
*
```

```
* <refsect2>
```

```
* <title>Example launch line</title>
```

```
* [[
```

```
* gst-launch audiotestsrc wave=saw ! audioamplify amplification=1.5 ! alsasink
```

```
* gst-launch filesrc location="melo1.ogg" ! oggdemux ! vorbisdec ! audioconvert ! audioamplify amplification=1.5  
method=wrap-negative ! alsasink
```

```
* gst-launch audiotestsrc wave=saw ! audioconvert ! audioamplify amplification=1.5 method=wrap-positive !
```

```
audioconvert ! alsasink
```

```
* ]]
```

```
* </refsect2>
```

```
*/
```

```
#ifdef HAVE_CONFIG_H
```

```
#include "config.h"
```

```
#endif
```

```
#include <gst/gst.h>
```

```
#include <gst/base/gstbasetransform.h>
```

```
#include <gst/audio/audio.h>
```



```

#include <gst/audio/gstaudiofilter.h>
#include <gst/controller/gstcontroller.h>

#include "audioamplify.h"

#define GST_CAT_DEFAULT gst_audio_amplify_debug
GST_DEBUG_CATEGORY_STATIC (GST_CAT_DEFAULT);

/* Filter signals and args */
enum
{
    /* FILL ME */
    LAST_SIGNAL
};

enum
{
    PROP_0,
    PROP_AMPLIFICATION,
    PROP_CLIPPING_METHOD
};

enum
{
    METHOD_CLIP = 0,
    METHOD_WRAP_NEGATIVE,
    METHOD_WRAP_POSITIVE,
    METHOD_NOCLIP,
    NUM_METHODS
};

#define GST_TYPE_AUDIO_AMPLIFY_CLIPPING_METHOD (gst_audio_amplify_clipping_method_get_type
())
static GType
gst_audio_amplify_clipping_method_get_type (void)
{
    static GType gtype = 0;

    if (gtype == 0) {
        static const GEnumValue values[] = {
            {METHOD_CLIP, "Normal clipping (default)", "clip"},
            {METHOD_WRAP_NEGATIVE,
             "Push overdriven values back from the opposite side",
             "wrap-negative"},
            {METHOD_WRAP_POSITIVE, "Push overdriven values back from the same side",
             "wrap-positive"},
            {METHOD_NOCLIP, "No clipping", "none"},
            {0, NULL, NULL}
        }
    }
}

```

```

};

/* FIXME 0.11: rename to GstAudioAmplifyClippingMethod */
gtype = g_enum_register_static ("GstAudioPanoramaClippingMethod", values);
}
return gtype;
}

#define ALLOWED_CAPS \
    "audio/x-raw-int," \
    " depth=(int)8," \
    " width=(int)8," \
    " endianness=(int)BYTE_ORDER," \
    " signed=(bool)TRUE," \
    " rate=(int)[1,MAX]," \
    " channels=(int)[1,MAX]; " \
    "audio/x-raw-int," \
    " depth=(int)16," \
    " width=(int)16," \
    " endianness=(int)BYTE_ORDER," \
    " signed=(bool)TRUE," \
    " rate=(int)[1,MAX]," \
    " channels=(int)[1,MAX]; " \
    "audio/x-raw-int," \
    " depth=(int)32," \
    " width=(int)32," \
    " endianness=(int)BYTE_ORDER," \
    " signed=(bool)TRUE," \
    " rate=(int)[1,MAX]," \
    " channels=(int)[1,MAX]; " \
    "audio/x-raw-float," \
    " width=(int){32,64}," \
    " endianness=(int)BYTE_ORDER," \
    " rate=(int)[1,MAX]," \
    " channels=(int)[1,MAX]"

#define DEBUG_INIT(bla) \
    GST_DEBUG_CATEGORY_INIT (gst_audio_amplify_debug, "audioamplify", 0, "audioamplify element");

GST_BOILERPLATE_FULL (GstAudioAmplify, gst_audio_amplify, GstAudioFilter,
    GST_TYPE_AUDIO_FILTER, DEBUG_INIT);

static gboolean gst_audio_amplify_set_process_function (GstAudioAmplify *
    filter, gint clipping, gint format, gint width);
static void gst_audio_amplify_set_property (GObject * object, guint prop_id,
    const GValue * value, GParamSpec * pspec);
static void gst_audio_amplify_get_property (GObject * object, guint prop_id,
    GValue * value, GParamSpec * pspec);

```

```

static gboolean gst_audio_amplify_setup (GstAudioFilter * filter,
    GstRingBufferSpec * format);
static GstFlowReturn gst_audio_amplify_transform_ip (GstBaseTransform * base,
    GstBuffer * buf);

#define MIN_gint8 G_MININT8
#define MAX_gint8 G_MAXINT8
#define MIN_gint16 G_MININT16
#define MAX_gint16 G_MAXINT16
#define MIN_gint32 G_MININT32
#define MAX_gint32 G_MAXINT32

#define MAKE_INT_FUNCS(type, targettype) \
static void \
gst_audio_amplify_transform_##type##_clip (GstAudioAmplify * filter, \
    void * data, guint num_samples) \
{ \
    type *d = data; \
 \
    while (num_samples--) { \
        targettype val = *d * filter->amplification; \
        *d++ = CLAMP (val, MIN_##type, MAX_##type); \
    } \
} \
static void \
gst_audio_amplify_transform_##type##_wrap_negative (GstAudioAmplify * filter, \
    void * data, guint num_samples) \
{ \
    type *d = data; \
 \
    while (num_samples--) { \
        targettype val = *d * filter->amplification; \
        if (val > MAX_##type) \
            val = MIN_##type + (val - MIN_##type) % ((targettype) MAX_##type + 1 - \
                MIN_##type); \
        else if (val < MIN_##type) \
            val = MAX_##type - (MAX_##type - val) % ((targettype) MAX_##type + 1 - \
                MIN_##type); \
        *d++ = val; \
    } \
} \
static void \
gst_audio_amplify_transform_##type##_wrap_positive (GstAudioAmplify * filter, \
    void * data, guint num_samples) \
{ \
    type *d = data; \
 \

```

```

while (num_samples--) {
    largetype val = *d * filter->amplification;
    do {
        if (val > MAX_##type)
            val = MAX_##type - (val - MAX_##type);
        else if (val < MIN_##type)
            val = MIN_##type + (MIN_##type - val);
        else
            break;
    } while (1);
    *d++ = val;
}

static void
gst_audio_amplify_transform_##type##_noclip (GstAudioAmplify * filter,
    void * data, guint num_samples)
{
    type *d = data;

    while (num_samples--)
        *d++ *= filter->amplification;
}

#define MAKE_FLOAT_FUNCS(type)
static void
gst_audio_amplify_transform_##type##_clip (GstAudioAmplify * filter,
    void * data, guint num_samples)
{
    type *d = data;

    while (num_samples--) {
        type val = *d * filter->amplification;
        *d++ = CLAMP (val, -1.0, +1.0);
    }
}

static void
gst_audio_amplify_transform_##type##_wrap_negative (GstAudioAmplify *
    filter, void * data, guint num_samples)
{
    type *d = data;

    while (num_samples--) {
        type val = *d * filter->amplification;
        do {
            if (val > 1.0)
                val = -1.0 + (val - 1.0);
            else if (val < -1.0)
                val = 1.0 - (1.0 - val);
        } while (1);
    }
}

```

```

    else
        break;
} while (1);
*d++ = val;
}
}
static void
gst_audio_amplify_transform_##type##_wrap_positive (GstAudioAmplify * filter, \
    void * data, guint num_samples)
{
    type *d = data;

    while (num_samples--) {
        type val = *d* filter->amplification;
        do {
            if (val > 1.0)
                val = 1.0 - (val - 1.0);
            else if (val < -1.0)
                val = -1.0 + (-1.0 - val);
            else
                break;
        } while (1);
        *d++ = val;
    }
}
static void
gst_audio_amplify_transform_##type##_noclip (GstAudioAmplify * filter, \
    void * data, guint num_samples)
{
    type *d = data;

    while (num_samples--)
        *d++ *= filter->amplification;
}

/* *INDENT-OFF* */
MAKE_INT_FUNCS (gint8,gint)
MAKE_INT_FUNCS (gint16,gint)
MAKE_INT_FUNCS (gint32,gint64)
MAKE_FLOAT_FUNCS (gfloat)
MAKE_FLOAT_FUNCS (gdouble)
/* *INDENT-ON* */

/* GObject vmethod implementations */

static void
gst_audio_amplify_base_init (gpointer klass)
{

```

```

GstElementClass *element_class = GST_ELEMENT_CLASS (klass);
GstCaps *caps;

gst_element_class_set_details_simple (element_class, "Audio amplifier",
    "Filter/Effect/Audio",
    "Amplifies an audio stream by a given factor",
    "Sebastian Drge <slomo@circular-chaos.org>");

caps = gst_caps_from_string (ALLOWED_CAPS);
gst_audio_filter_class_add_pad_templates (GST_AUDIO_FILTER_CLASS (klass),
    caps);
gst_caps_unref (caps);
}

static void
gst_audio_amplify_class_init (GstAudioAmplifyClass * klass)
{
    GObjectClass *gobject_class;

    gobject_class = (GObjectClass *) klass;
    gobject_class->set_property = gst_audio_amplify_set_property;
    gobject_class->get_property = gst_audio_amplify_get_property;

    g_object_class_install_property (gobject_class, PROP_AMPLIFICATION,
        g_param_spec_float ("amplification", "Amplification",
            "Factor of amplification", -G_MAXFLOAT, G_MAXFLOAT,
            1.0,
            G_PARAM_READWRITE | GST_PARAM_CONTROLLABLE | G_PARAM_STATIC_STRINGS));

    /**
     * GstAudioAmplify:clipping-method
     *
     * Clipping method: clip mode set values higher than the maximum to the
     * maximum. The wrap-negative mode pushes those values back from the
     * opposite side, wrap-positive pushes them back from the same side.
     */
    g_object_class_install_property (gobject_class, PROP_CLIPPING_METHOD,
        g_param_spec_enum ("clipping-method", "Clipping method",
            "Selects how to handle values higher than the maximum",
            GST_TYPE_AUDIO_AMPLIFY_CLIPPING_METHOD, METHOD_CLIP,
            G_PARAM_READWRITE | G_PARAM_STATIC_STRINGS));

    GST_AUDIO_FILTER_CLASS (klass)->setup =
        GST_DEBUG_FUNCPTR (gst_audio_amplify_setup);
    GST_BASE_TRANSFORM_CLASS (klass)->transform_ip =
        GST_DEBUG_FUNCPTR (gst_audio_amplify_transform_ip);
}

```

```

static void
gst_audio_amplify_init (GstAudioAmplify * filter, GstAudioAmplifyClass * klass)
{
    filter->amplification = 1.0;
    gst_audio_amplify_set_process_function (filter, METHOD_CLIP,
        GST_BUFTYPE_LINEAR, 16);
    gst_base_transform_set_in_place (GST_BASE_TRANSFORM (filter), TRUE);
    gst_base_transform_set_gap_aware (GST_BASE_TRANSFORM (filter), TRUE);
}

static GstAudioAmplifyProcessFunc
gst_audio_amplify_process_function (gint clipping, gint format, gint width)
{
    static const struct process
    {
        gint format;
        gint width;
        gint clipping;
        GstAudioAmplifyProcessFunc func;
    } process[] = {
        {
            GST_BUFTYPE_FLOAT, 32, METHOD_CLIP,
                gst_audio_amplify_transform_gfloat_clip}, {
            GST_BUFTYPE_FLOAT, 32, METHOD_WRAP_NEGATIVE,
                gst_audio_amplify_transform_gfloat_wrap_negative}, {
            GST_BUFTYPE_FLOAT, 32, METHOD_WRAP_POSITIVE,
                gst_audio_amplify_transform_gfloat_wrap_positive}, {
            GST_BUFTYPE_FLOAT, 32, METHOD_NOCLIP,
                gst_audio_amplify_transform_gfloat_noclip}, {
            GST_BUFTYPE_FLOAT, 64, METHOD_CLIP,
                gst_audio_amplify_transform_gdouble_clip}, {
            GST_BUFTYPE_FLOAT, 64, METHOD_WRAP_NEGATIVE,
                gst_audio_amplify_transform_gdouble_wrap_negative}, {
            GST_BUFTYPE_FLOAT, 64, METHOD_WRAP_POSITIVE,
                gst_audio_amplify_transform_gdouble_wrap_positive}, {
            GST_BUFTYPE_FLOAT, 64, METHOD_NOCLIP,
                gst_audio_amplify_transform_gdouble_noclip}, {
            GST_BUFTYPE_LINEAR, 8, METHOD_CLIP, gst_audio_amplify_transform_gint8_clip}, {
            GST_BUFTYPE_LINEAR, 8, METHOD_WRAP_NEGATIVE,
                gst_audio_amplify_transform_gint8_wrap_negative}, {
            GST_BUFTYPE_LINEAR, 8, METHOD_WRAP_POSITIVE,
                gst_audio_amplify_transform_gint8_wrap_positive}, {
            GST_BUFTYPE_LINEAR, 8, METHOD_NOCLIP,
                gst_audio_amplify_transform_gint8_noclip}, {
            GST_BUFTYPE_LINEAR, 16, METHOD_CLIP,
                gst_audio_amplify_transform_gint16_clip}, {
            GST_BUFTYPE_LINEAR, 16, METHOD_WRAP_NEGATIVE,

```

```

    gst_audio_amplify_transform_gint16_wrap_negative}, {
GST_BUFTYPE_LINEAR, 16, METHOD_WRAP_POSITIVE,
    gst_audio_amplify_transform_gint16_wrap_positive}, {
GST_BUFTYPE_LINEAR, 16, METHOD_NOCLIP,
    gst_audio_amplify_transform_gint16_noclip}, {
GST_BUFTYPE_LINEAR, 32, METHOD_CLIP,
    gst_audio_amplify_transform_gint32_clip}, {
GST_BUFTYPE_LINEAR, 32, METHOD_WRAP_NEGATIVE,
    gst_audio_amplify_transform_gint32_wrap_negative}, {
GST_BUFTYPE_LINEAR, 32, METHOD_WRAP_POSITIVE,
    gst_audio_amplify_transform_gint32_wrap_positive}, {
GST_BUFTYPE_LINEAR, 32, METHOD_NOCLIP,
    gst_audio_amplify_transform_gint32_noclip}, {
    0, 0, 0, NULL}
};
const struct process *p;

for (p = process; p->func; p++)
    if (p->format == format && p->width == width && p->clipping == clipping)
        return p->func;
return NULL;
}

static gboolean
gst_audio_amplify_set_process_function (GstAudioAmplify * filter, gint
    clipping_method, gint format, gint width)
{
    GstAudioAmplifyProcessFunc process;

    /* set processing function */

    process = gst_audio_amplify_process_function (clipping_method, format, width);
    if (!process) {
        GST_DEBUG ("wrong format");
        return FALSE;
    }

    filter->process = process;
    filter->clipping_method = clipping_method;
    filter->format = format;
    filter->width = width;

    return TRUE;
}

static void
gst_audio_amplify_set_property (GObject * object, guint prop_id,
    const GValue * value, GParamSpec * pspec)

```



```

{
GstAudioAmplify *filter = GST_AUDIO_AMPLIFY (object);

switch (prop_id) {
case PROP_AMPLIFICATION:
    filter->amplification = g_value_get_float (value);
    gst_base_transform_set_passthrough (GST_BASE_TRANSFORM (filter),
        filter->amplification == 1.0);
    break;
case PROP_CLIPPING_METHOD:
    gst_audio_amplify_set_process_function (filter, g_value_get_enum (value),
        filter->format, filter->width);
    break;
default:
    G_OBJECT_WARN_INVALID_PROPERTY_ID (object, prop_id, pspec);
    break;
}
}

static void
gst_audio_amplify_get_property (GObject * object, guint prop_id,
    GValue * value, GParamSpec * pspec)
{
GstAudioAmplify *filter = GST_AUDIO_AMPLIFY (object);

switch (prop_id) {
case PROP_AMPLIFICATION:
    g_value_set_float (value, filter->amplification);
    break;
case PROP_CLIPPING_METHOD:
    g_value_set_enum (value, filter->clipping_method);
    break;
default:
    G_OBJECT_WARN_INVALID_PROPERTY_ID (object, prop_id, pspec);
    break;
}
}

/* GstAudioFilter vmethod implementations */
static gboolean
gst_audio_amplify_setup (GstAudioFilter * base, GstRingBufferSpec * format)
{
GstAudioAmplify *filter = GST_AUDIO_AMPLIFY (base);

return gst_audio_amplify_set_process_function (filter,
    filter->clipping_method, format->type, format->width);
}

```

```

/* GstBaseTransform vmethod implementations */
static GstFlowReturn
gst_audio_amplify_transform_ip (GstBaseTransform * base, GstBuffer * buf)
{
    GstAudioAmplify *filter = GST_AUDIO_AMPLIFY (base);
    guint num_samples;
    GstClockTime timestamp, stream_time;

    timestamp = GST_BUFFER_TIMESTAMP (buf);
    stream_time =
        gst_segment_to_stream_time (&base->segment, GST_FORMAT_TIME, timestamp);

    GST_DEBUG_OBJECT (filter, "sync to %" GST_TIME_FORMAT,
        GST_TIME_ARGS (timestamp));

    if (GST_CLOCK_TIME_IS_VALID (stream_time))
        gst_object_sync_values (G_OBJECT (filter), stream_time);

    num_samples =
        GST_BUFFER_SIZE (buf) / (GST_AUDIO_FILTER (filter)->format.width / 8);

    if (gst_base_transform_is_passthrough (base) ||
        G_UNLIKELY (GST_BUFFER_FLAG_IS_SET (buf, GST_BUFFER_FLAG_GAP)))
        return GST_FLOW_OK;

    filter->process (filter, GST_BUFFER_DATA (buf), num_samples);

    return GST_FLOW_OK;
}
/*
 * GStreamer
 * Copyright (C) 2007 Sebastian Drge <slomo@circular-chaos.org>
 * Copyright (C) 2006 Stefan Kost <ensonic@users.sf.net>
 *
 * This library is free software; you can redistribute it and/or
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 *
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 * License along with this library; if not, write to the
 * Free Software Foundation, Inc., 59 Temple Place - Suite 330,
 * Boston, MA 02111-1307, USA.

```

```

*/

#ifndef __GST_AUDIO_AMPLIFY_H__
#define __GST_AUDIO_AMPLIFY_H__

#include <gst/gst.h>
#include <gst/base/gstbasetransform.h>
#include <gst/audio/audio.h>
#include <gst/audio/gstaudiofilter.h>

G_BEGIN_DECLS
#define GST_TYPE_AUDIO_AMPLIFY      (gst_audio_amplify_get_type())
#define GST_AUDIO_AMPLIFY(obj)      (G_TYPE_CHECK_INSTANCE_CAST((obj),GST_TYPE_AUDIO_AMPLIFY,GstAudioAmplify))
#define GST_IS_AUDIO_AMPLIFY(obj)   (G_TYPE_CHECK_INSTANCE_TYPE((obj),GST_TYPE_AUDIO_AMPLIFY))
#define GST_AUDIO_AMPLIFY_CLASS(klass) (G_TYPE_CHECK_CLASS_CAST((klass),GST_TYPE_AUDIO_AMPLIFY,GstAudioAmplifyClass))
#define GST_IS_AUDIO_AMPLIFY_CLASS(klass) (G_TYPE_CHECK_CLASS_TYPE((klass),GST_TYPE_AUDIO_AMPLIFY))
#define GST_AUDIO_AMPLIFY_GET_CLASS(obj) (G_TYPE_INSTANCE_GET_CLASS((obj),GST_TYPE_AUDIO_AMPLIFY,GstAudioAmplifyClass))
typedef struct _GstAudioAmplify GstAudioAmplify;
typedef struct _GstAudioAmplifyClass GstAudioAmplifyClass;

typedef void (*GstAudioAmplifyProcessFunc) (GstAudioAmplify *, void *, guint);

struct _GstAudioAmplify
{
    GstAudioFilter audiofilter;

    gfloat amplification;

    /* < private > */
    GstAudioAmplifyProcessFunc process;
    gint clipping_method;
    gint format;
    gint width;
};

struct _GstAudioAmplifyClass
{
    GstAudioFilterClass parent;
};

GType gst_audio_amplify_get_type (void);

G_END_DECLS

```

#endif /* __GST_AUDIO_AMPLIFY_H__ */

1.16 icu4c 56.1

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1.17 jansson 2.7

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1.18 json-c 0.12

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1.19 json-c/test-driver 0.12

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```
#!/bin/sh
# test-driver - basic testsuite driver script.

scriptversion=2012-06-27.10; # UTC

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# bugs to <bug-automake@gnu.org> or send patches to
# <automake-patches@gnu.org>.

# Make unconditional expansion of undefined variables an error. This
# helps a lot in preventing typo-related bugs.
```

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The implementations of GSSAPI mechglue in GSSAPI-SPNEGO in "src/lib/gssapi", including the following files:

lib/gssapi/generic/gssapi_err_generic.et
lib/gssapi/mechglue/g_accept_sec_context.c
lib/gssapi/mechglue/g_acquire_cred.c
lib/gssapi/mechglue/g_canon_name.c
lib/gssapi/mechglue/g_compare_name.c
lib/gssapi/mechglue/g_context_time.c
lib/gssapi/mechglue/g_delete_sec_context.c
lib/gssapi/mechglue/g_dsp_name.c
lib/gssapi/mechglue/g_dsp_status.c
lib/gssapi/mechglue/g_dup_name.c
lib/gssapi/mechglue/g_exp_sec_context.c

lib/gssapi/mechglue/g_export_name.c
lib/gssapi/mechglue/g_glue.c
lib/gssapi/mechglue/g_imp_name.c
lib/gssapi/mechglue/g_imp_sec_context.c
lib/gssapi/mechglue/g_init_sec_context.c
lib/gssapi/mechglue/g_initialize.c
lib/gssapi/mechglue/g_inquire_context.c
lib/gssapi/mechglue/g_inquire_cred.c
lib/gssapi/mechglue/g_inquire_names.c
lib/gssapi/mechglue/g_process_context.c
lib/gssapi/mechglue/g_rel_buffer.c
lib/gssapi/mechglue/g_rel_cred.c
lib/gssapi/mechglue/g_rel_name.c
lib/gssapi/mechglue/g_rel_oid_set.c
lib/gssapi/mechglue/g_seal.c
lib/gssapi/mechglue/g_sign.c
lib/gssapi/mechglue/g_store_cred.c
lib/gssapi/mechglue/g_unseal.c
lib/gssapi/mechglue/g_userok.c
lib/gssapi/mechglue/g_utils.c
lib/gssapi/mechglue/g_verify.c
lib/gssapi/mechglue/gssd_pname_to_uid.c
lib/gssapi/mechglue/mglueP.h
lib/gssapi/mechglue/oid_ops.c
lib/gssapi/spnego/gssapiP_spnego.h
lib/gssapi/spnego/spnego_mech.c

and the initial implementation of incremental propagation, including the following new or changed files:

include/iprop_hdr.h
kadmin/server/ipropd_svc.c
lib/kdb/iprop.x
lib/kdb/kdb_convert.c
lib/kdb/kdb_log.c
lib/kdb/kdb_log.h
lib/krb5/error_tables/kdb5_err.et
kprop/kpropd_rpc.c
kprop/kproplog.c

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  <link rel="stylesheet" href="_static/pygments.css" type="text/css" />
  <link rel="stylesheet" href="_static/kerb.css" type="text/css" />
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  <link rel="next" title="How to build this documentation from the source" href="build_this.html" />
  <link rel="prev" title="MIT Kerberos License information" href="mitK5license.html" />
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<body>
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    <div class="header">

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      <div class="rel">

        <a href="index.html" title="Full Table of Contents"
          accesskey="C">Contents</a> |
        <a href="mitK5license.html" title="MIT Kerberos License information"
          accesskey="P">previous</a> |
        <a href="build_this.html" title="How to build this documentation from the source"
          accesskey="N">next</a> |
        <a href="genindex.html" title="General Index"
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<a href="mailto:krb5-bugs@mit.edu?subject=Documentation__Copyright">feedback</a>
</div>
</div>
</div>
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<div class="content-wrapper">
<div class="content">
<div class="document">
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<div class="documentwrapper">
<div class="bodywrapper">
<div class="body" role="main">
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</div>
</div>
</div>
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<h2>On this page</h2>
<ul>
<li><a class="reference internal" href="#">Copyright</a></li>
</ul>
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<h2>Table of contents</h2>
<ul>
<li class="toctree-l1"><a class="reference internal" href="user/index.html">For users</a></li>
<li class="toctree-l1"><a class="reference internal" href="admin/index.html">For administrators</a></li>
<li class="toctree-l1"><a class="reference internal" href="appdev/index.html">For application developers</a></li>
<li class="toctree-l1"><a class="reference internal" href="plugindev/index.html">For plugin module
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<li class="toctree-l1"><a class="reference internal" href="build/index.html">Building Kerberos V5</a></li>
<li class="toctree-l1"><a class="reference internal" href="basic/index.html">Kerberos V5 concepts</a></li>
<li class="toctree-l1"><a class="reference internal" href="formats/index.html">Protocols and file formats</a></li>
<li class="toctree-l1"><a class="reference internal" href="mitK5features.html">MIT Kerberos features</a></li>
<li class="toctree-l1"><a class="reference internal" href="build_this.html">How to build this documentation from
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the source</a></li>
<li class="toctree-l1"><a class="reference internal" href="about.html">Contributing to the MIT Kerberos
Documentation</a></li>
<li class="toctree-l1"><a class="reference internal" href="resources.html">Resources</a></li>
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        >previous</a> |
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        >next</a> |
      <a href="genindex.html" title="General Index"
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  <link rel="next" title="Copyright" href="copyright.html" />
  <link rel="prev" title="MIT Kerberos features" href="mitK5features.html" />
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    <div class="header">

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        <a href="index.html" title="Full Table of Contents"
          accesskey="C">Contents</a> |
        <a href="mitK5features.html" title="MIT Kerberos features"
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  <div class="content">
    <div class="document">
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        <div class="bodywrapper">
          <div class="body" role="main">
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<div class="highlight-default"><div class="highlight"><pre>lib<span

class="o">gssapi<span

class="n">genericgssapi_err_generic<span

class="o">et

libgssapi<span

class="o">mechglue<span

class="n">g_accept_sec_contextc

libgssapi<span

class="o">mechglue<span

class="n">g_acquire_credc

libgssapi<span

class="o">mechglue<span

class="n">g_canon_namec

libgssapi<span

class="o">mechglue<span

class="n">g_compare_namec

libgssapi<span

class="o">mechglue<span

class="n">g_context_timec

libgssapi<span

class="o">mechglue<span

class="n">g_delete_sec_contextc

libgssapi<span

class="o">mechglue<span

class="n">g_dsp_namec

libgssapi<span

class="o">mechglue<span

class="n">g_dsp_statusc

libgssapi<span

class="o">mechglue<span

class="n">g_dup_namec

libgssapi<span

class="o">mechglue<span

class="n">g_exp_sec_contextc

libgssapi<span

class="o">mechglue<span

class="n">g_export_namec


```

<span class="n">kprop</span><span class="o"></span><span class="n">kproplog</span><span
class="o">.</span><span class="n">c</span>
</pre></div>
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.. parsed-literal::

lib/gssapi/generic/gssapi_err_generic.et
lib/gssapi/mechglue/g_accept_sec_context.c
lib/gssapi/mechglue/g_acquire_cred.c
lib/gssapi/mechglue/g_canon_name.c
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lib/gssapi/mechglue/g_exp_sec_context.c
lib/gssapi/mechglue/g_export_name.c
lib/gssapi/mechglue/g_glue.c
lib/gssapi/mechglue/g_imp_name.c
lib/gssapi/mechglue/g_imp_sec_context.c
lib/gssapi/mechglue/g_init_sec_context.c
lib/gssapi/mechglue/g_initialize.c
lib/gssapi/mechglue/g_inquire_context.c
lib/gssapi/mechglue/g_inquire_cred.c
lib/gssapi/mechglue/g_inquire_names.c
lib/gssapi/mechglue/g_process_context.c
lib/gssapi/mechglue/g_rel_buffer.c
lib/gssapi/mechglue/g_rel_cred.c
lib/gssapi/mechglue/g_rel_name.c
lib/gssapi/mechglue/g_rel_oid_set.c
lib/gssapi/mechglue/g_seal.c
lib/gssapi/mechglue/g_sign.c
lib/gssapi/mechglue/g_store_cred.c
lib/gssapi/mechglue/g_unseal.c
lib/gssapi/mechglue/g_userok.c
lib/gssapi/mechglue/g_utils.c
lib/gssapi/mechglue/g_verify.c
lib/gssapi/mechglue/gssd_pname_to_uid.c
lib/gssapi/mechglue/mglueP.h
lib/gssapi/mechglue/oid_ops.c
lib/gssapi/spnego/gssapiP_spnego.h
lib/gssapi/spnego/spnego_mech.c

and the initial implementation of incremental propagation, including the following new or changed files:

.. parsed-literal::

include/iprop_hdr.h
kadmin/server/ipropd_svc.c
lib/kdb/iprop.x
lib/kdb/kdb_convert.c
lib/kdb/kdb_log.c

lib/kdb/kdb_log.h
lib/krb5/error_tables/kdb5_err.et
kprop/kpropd_rpc.c
kprop/kproplog.c

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cmd/krb5/ipropl/ipropl.x
cmd/krb5/ipropl/ipropl_hdr.h
cmd/krb5/kadmin/server/ipropld_svc.c
cmd/krb5/kproplog/kproplog.c
cmd/krb5/slave/kpropd_rpc.c
lib/gss_mechs/mech_krb5/et/kdb5_err.c
```

lib/gss_mechs/mech_spnego/mech/gssapiP_spnego.h
lib/gss_mechs/mech_spnego/mech/spnego_mech.c
lib/krb5/kadm5/kadm_host_srv_names.c
lib/krb5/kdb/kdb_convert.c
lib/krb5/kdb/kdb_hdr.h
lib/krb5/kdb/kdb_log.c
lib/krb5/kdb/kdb_log.h
lib/libgss/g_accept_sec_context.c
lib/libgss/g_acquire_cred.c
lib/libgss/g_canon_name.c
lib/libgss/g_compare_name.c
lib/libgss/g_context_time.c
lib/libgss/g_delete_sec_context.c
lib/libgss/g_dsp_name.c
lib/libgss/g_dsp_status.c
lib/libgss/g_dup_name.c
lib/libgss/g_exp_sec_context.c
lib/libgss/g_export_name.c
lib/libgss/g_glue.c
lib/libgss/g_imp_name.c
lib/libgss/g_imp_sec_context.c
lib/libgss/g_init_sec_context.c
lib/libgss/g_initialize.c
lib/libgss/g_inquire_context.c
lib/libgss/g_inquire_cred.c
lib/libgss/g_inquire_names.c
lib/libgss/g_process_context.c
lib/libgss/g_rel_buffer.c
lib/libgss/g_rel_cred.c
lib/libgss/g_rel_name.c
lib/libgss/g_rel_oid_set.c
lib/libgss/g_seal.c
lib/libgss/g_sign.c
lib/libgss/g_store_cred.c
lib/libgss/g_unseal.c
lib/libgss/g_userok.c
lib/libgss/g_utils.c
lib/libgss/g_verify.c
lib/libgss/gssd_pname_to_uid.c
uts/common/gssapi/include/gssapi_err_generic.h
uts/common/gssapi/include/mechglueP.h

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```

# This program is intended to be used by "make check-copyright". It
# checks for violations of the coding standards related to copyright
# and license statements in source code comments.

import os
import sys
import re

def warn(fname, ln, msg):
    print '%s: %d: %s' % (fname, ln + 1, msg)

def indicates_license(line):
    return 'Copyright' in line or 'COPYRIGHT' in line or 'License' in line

# Check a comment for boilerplate violations. Return true if the comment
# is a license statement.
def check_comment(comment, fname, ln, code_seen, nonlicense_seen):
    text_seen = False
    is_license = False
    for line in comment:
        if not is_license and indicates_license(line):
            is_license = True
            if text_seen:
                warn(fname, ln, 'License begins after first line of comment')
            elif code_seen:
                warn(fname, ln, 'License after code')
            elif nonlicense_seen:
                warn(fname, ln, 'License after non-license comments')
            break
        # DB2 licenses start with '/*-' and we don't want to change them.
        if line != " and line != '-':
            text_seen = True
    return is_license

def check_file(lines, fname):
    # Skip emacs mode line if present.
    ln = 0
    if '-*- mode: c;' in lines[ln]:
        ln += 1

    # Check filename comment if present.
    m = re.match(r'^* ([^ ]*)( - .*)? \*/', lines[ln])
    if m:
        if m.group(1) != fname:
            warn(fname, ln, 'Wrong filename in comment')
        ln += 1

```

```

# Scan for license statements.
in_comment = False
code_seen = False
nonlicense_seen = False
for line in lines[ln:]:
    # Strip out whitespace and comments contained within a line.
    if not in_comment:
        line = re.sub(r'^\s.*?\s*/', '', line)
    line = line.strip()

    if not in_comment and '/*' in line:
        (line, sep, comment_part) = line.partition('/*')
        comment = [comment_part.strip()]
        comment_starts_at = ln
        in_comment = True
    elif in_comment and '*/' not in line:
        comment.append(line.lstrip('*').rstrip())
    elif in_comment:
        (comment_part, sep, line) = line.partition('*/')
        comment.append(comment_part.strip())
        is_license = check_comment(comment, fname, comment_starts_at,
                                   code_seen, nonlicense_seen)
        nonlicense_seen = nonlicense_seen or not is_license
        in_comment = False
    elif line.strip() != "":
        code_seen = True

    ln += 1

for fname in sys.argv[1:]:
    if fname.startswith('./'):
        fname = fname[2:]
    f = open(fname)
    lines = f.readlines()
    f.close()
    check_file(lines, fname)

```

1.21 libcurl 7.65.0

1.21.1 Available under license :

License Mixing

=====

libcurl can be built to use a fair amount of various third party libraries, libraries that are written and provided by other parties that are distributed using their own licenses. Even libcurl itself contains code that may cause problems to some. This document attempts to describe what licenses libcurl and

the other libraries use and what possible dilemmas linking and mixing them all can lead to for end users.

I am not a lawyer and this is not legal advice!

One common dilemma is that [GPL](<https://www.gnu.org/licenses/gpl.html>) licensed code is not allowed to be linked with code licensed under the [Original BSD license](<https://spdx.org/licenses/BSD-4-Clause.html>) (with the announcement clause). You may still build your own copies that use them all, but distributing them as binaries would be to violate the GPL license - unless you accompany your license with an [exception](<https://www.gnu.org/licenses/gpl-faq.html#GPLIncompatibleLibs>). This particular problem was addressed when the [Modified BSD license](<https://opensource.org/licenses/BSD-3-Clause>) was created, which does not have the announcement clause that collides with GPL.

libcurl

Uses an [MIT style license](<https://curl.haxx.se/docs/copyright.html>) that is very liberal.

OpenSSL

(May be used for SSL/TLS support) Uses an Original BSD-style license with an announcement clause that makes it "incompatible" with GPL. You are not allowed to ship binaries that link with OpenSSL that includes GPL code (unless that specific GPL code includes an exception for OpenSSL - a habit that is growing more and more common). If OpenSSL's licensing is a problem for you, consider using another TLS library.

GnuTLS

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libressl

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c-ares

(Used for asynchronous name resolves) Uses an MIT license that is very liberal and imposes no restrictions on any other library or part you may link with.

zlib

(Used for compressed Transfer-Encoding support) Uses an MIT-style license that shouldn't collide with any other library.

MIT Kerberos

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Heimdal

(May be used for GSS support) Heimdal is Original BSD licensed with the announcement clause.

GNU GSS

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OpenLDAP

(Used for LDAP support) Uses a Modified BSD-style license. Since libcurl uses OpenLDAP as a shared library only, I have not heard of anyone that ships OpenLDAP linked with libcurl in an app.

libssh2

(Used for scp and sftp support) libssh2 uses a Modified BSD-style license.
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1.22 libjpeg 6b

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README for release 6b of 27-Mar-1998
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DOCUMENTATION ROADMAP

=====

This file contains the following sections:

OVERVIEW General description of JPEG and the IJG software.
LEGAL ISSUES Copyright, lack of warranty, terms of distribution.
REFERENCES Where to learn more about JPEG.
ARCHIVE LOCATIONS Where to find newer versions of this software.
RELATED SOFTWARE Other stuff you should get.
FILE FORMAT WARS Software *not* to get.
TO DO Plans for future IJG releases.

Other documentation files in the distribution are:

User documentation:

install.doc How to configure and install the IJG software.
usage.doc Usage instructions for cjpeg, djpeg, jpegtran,
 rdjpgcom, and wjjpgcom.
*.1 Unix-style man pages for programs (same info as usage.doc).
wizard.doc Advanced usage instructions for JPEG wizards only.

change.log Version-to-version change highlights.
Programmer and internal documentation:
libjpeg.doc How to use the JPEG library in your own programs.
example.c Sample code for calling the JPEG library.
structure.doc Overview of the JPEG library's internal structure.
filelist.doc Road map of IJG files.
coderrules.doc Coding style rules --- please read if you contribute code.

Please read at least the files install.doc and usage.doc. Useful information can also be found in the JPEG FAQ (Frequently Asked Questions) article. See ARCHIVE LOCATIONS below to find out where to obtain the FAQ article.

If you want to understand how the JPEG code works, we suggest reading one or more of the REFERENCES, then looking at the documentation files (in roughly the order listed) before diving into the code.

OVERVIEW

=====

This package contains C software to implement JPEG image compression and decompression. JPEG (pronounced "jay-peg") is a standardized compression method for full-color and gray-scale images. JPEG is intended for compressing "real-world" scenes; line drawings, cartoons and other non-realistic images are not its strong suit. JPEG is lossy, meaning that the output image is not exactly identical to the input image. Hence you must not use JPEG if you have to have identical output bits. However, on typical photographic images, very good compression levels can be obtained with no visible change, and remarkably high compression levels are possible if you can tolerate a low-quality image. For more details, see the references, or just experiment with various compression settings.

This software implements JPEG baseline, extended-sequential, and progressive compression processes. Provision is made for supporting all variants of these processes, although some uncommon parameter settings aren't implemented yet. For legal reasons, we are not distributing code for the arithmetic-coding variants of JPEG; see LEGAL ISSUES. We have made no provision for supporting the hierarchical or lossless processes defined in the standard.

We provide a set of library routines for reading and writing JPEG image files, plus two sample applications "cjpeg" and "djpeg", which use the library to perform conversion between JPEG and some other popular image file formats. The library is intended to be reused in other applications.

In order to support file conversion and viewing software, we have included considerable functionality beyond the bare JPEG coding/decoding capability; for example, the color quantization modules are not strictly part of JPEG decoding, but they are essential for output to colormapped file formats or

colormapped displays. These extra functions can be compiled out of the library if not required for a particular application. We have also included "jpegtran", a utility for lossless transcoding between different JPEG processes, and "rdjpgcom" and "wrjpgcom", two simple applications for inserting and extracting textual comments in JFIF files.

The emphasis in designing this software has been on achieving portability and flexibility, while also making it fast enough to be useful. In particular, the software is not intended to be read as a tutorial on JPEG. (See the REFERENCES section for introductory material.) Rather, it is intended to be reliable, portable, industrial-strength code. We do not claim to have achieved that goal in every aspect of the software, but we strive for it.

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The Unix configuration script "configure" was produced with GNU Autoconf. It is copyright by the Free Software Foundation but is freely distributable. The same holds for its supporting scripts (config.guess, config.sub, ltconfig, ltmain.sh). Another support script, install-sh, is copyright by M.I.T. but is also freely distributable.

It appears that the arithmetic coding option of the JPEG spec is covered by patents owned by IBM, AT&T, and Mitsubishi. Hence arithmetic coding cannot legally be used without obtaining one or more licenses. For this reason, support for arithmetic coding has been removed from the free JPEG software. (Since arithmetic coding provides only a marginal gain over the unpatented Huffman mode, it is unlikely that very many implementations will support it.) So far as we are aware, there are no patent restrictions on the remaining code.

The IJG distribution formerly included code to read and write GIF files. To avoid entanglement with the Unisys LZW patent, GIF reading support has been removed altogether, and the GIF writer has been simplified to produce "uncompressed GIFs". This technique does not use the LZW algorithm; the

resulting GIF files are larger than usual, but are readable by all standard GIF decoders.

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REFERENCES

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We highly recommend reading one or more of these references before trying to understand the innards of the JPEG software.

The best short technical introduction to the JPEG compression algorithm is Wallace, Gregory K. "The JPEG Still Picture Compression Standard", Communications of the ACM, April 1991 (vol. 34 no. 4), pp. 30-44. (Adjacent articles in that issue discuss MPEG motion picture compression, applications of JPEG, and related topics.) If you don't have the CACM issue handy, a PostScript file containing a revised version of Wallace's article is available at <ftp://ftp.uu.net/graphics/jpeg/wallace.ps.gz>. The file (actually a preprint for an article that appeared in IEEE Trans. Consumer Electronics) omits the sample images that appeared in CACM, but it includes corrections and some added material. Note: the Wallace article is copyright ACM and IEEE, and it may not be used for commercial purposes.

A somewhat less technical, more leisurely introduction to JPEG can be found in "The Data Compression Book" by Mark Nelson and Jean-loup Gailly, published by M&T Books (New York), 2nd ed. 1996, ISBN 1-55851-434-1. This book provides good explanations and example C code for a multitude of compression methods including JPEG. It is an excellent source if you are comfortable reading C code but don't know much about data compression in general. The book's JPEG sample code is far from industrial-strength, but when you are ready to look at a full implementation, you've got one here...

The best full description of JPEG is the textbook "JPEG Still Image Data Compression Standard" by William B. Pennebaker and Joan L. Mitchell, published by Van Nostrand Reinhold, 1993, ISBN 0-442-01272-1. Price US\$59.95, 638 pp. The book includes the complete text of the ISO JPEG standards (DIS 10918-1 and draft DIS 10918-2). This is by far the most complete exposition of JPEG in existence, and we highly recommend it.

The JPEG standard itself is not available electronically; you must order a paper copy through ISO or ITU. (Unless you feel a need to own a certified official copy, we recommend buying the Pennebaker and Mitchell book instead; it's much cheaper and includes a great deal of useful explanatory material.) In the USA, copies of the standard may be ordered from ANSI Sales at (212)

642-4900, or from Global Engineering Documents at (800) 854-7179. (ANSI doesn't take credit card orders, but Global does.) It's not cheap: as of 1992, ANSI was charging \$95 for Part 1 and \$47 for Part 2, plus 7% shipping/handling. The standard is divided into two parts, Part 1 being the actual specification, while Part 2 covers compliance testing methods. Part 1 is titled "Digital Compression and Coding of Continuous-tone Still Images, Part 1: Requirements and guidelines" and has document numbers ISO/IEC IS 10918-1, ITU-T T.81. Part 2 is titled "Digital Compression and Coding of Continuous-tone Still Images, Part 2: Compliance testing" and has document numbers ISO/IEC IS 10918-2, ITU-T T.83.

Some extensions to the original JPEG standard are defined in JPEG Part 3, a newer ISO standard numbered ISO/IEC IS 10918-3 and ITU-T T.84. IJG currently does not support any Part 3 extensions.

The JPEG standard does not specify all details of an interchangeable file format. For the omitted details we follow the "JFIF" conventions, revision 1.02. A copy of the JFIF spec is available from:

Literature Department
C-Cube Microsystems, Inc.
1778 McCarthy Blvd.
Milpitas, CA 95035
phone (408) 944-6300, fax (408) 944-6314

A PostScript version of this document is available by FTP at <ftp://ftp.uu.net/graphics/jpeg/jfif.ps.gz>. There is also a plain text version at <ftp://ftp.uu.net/graphics/jpeg/jfif.txt.gz>, but it is missing the figures.

The TIFF 6.0 file format specification can be obtained by FTP from <ftp://ftp.sgi.com/graphics/tiff/TIFF6.ps.gz>. The JPEG incorporation scheme found in the TIFF 6.0 spec of 3-June-92 has a number of serious problems. IJG does not recommend use of the TIFF 6.0 design (TIFF Compression tag 6). Instead, we recommend the JPEG design proposed by TIFF Technical Note #2 (Compression tag 7). Copies of this Note can be obtained from <ftp://ftp.sgi.com> or from <ftp://ftp.uu.net/graphics/jpeg/>. It is expected that the next revision of the TIFF spec will replace the 6.0 JPEG design with the Note's design. Although IJG's own code does not support TIFF/JPEG, the free libtiff library uses our library to implement TIFF/JPEG per the Note. libtiff is available from <ftp://ftp.sgi.com/graphics/tiff/>.

ARCHIVE LOCATIONS

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The "official" archive site for this software is <ftp://ftp.uu.net> (Internet address 192.48.96.9). The most recent released version can always be found there in directory [graphics/jpeg](ftp://ftp.uu.net/graphics/jpeg/). This particular version will be archived as <ftp://ftp.uu.net/graphics/jpeg/jpegsrc.v6b.tar.gz>. If you don't have

direct Internet access, UUNET's archives are also available via UUCP; contact help@uunet.uu.net for information on retrieving files that way.

Numerous Internet sites maintain copies of the UUNET files. However, only [ftp.uu.net](ftp://ftp.uu.net) is guaranteed to have the latest official version.

You can also obtain this software in DOS-compatible "zip" archive format from the SimTel archives (<ftp://ftp.simtel.net/pub/simtelnet/msdos/graphics/>), or on CompuServe in the Graphics Support forum (GO CIS:GRAPHSUP), library 12 "JPEG Tools". Again, these versions may sometimes lag behind the [ftp.uu.net](ftp://ftp.uu.net) release.

The JPEG FAQ (Frequently Asked Questions) article is a useful source of general information about JPEG. It is updated constantly and therefore is not included in this distribution. The FAQ is posted every two weeks to Usenet newsgroups [comp.graphics.misc](news:comp.graphics.misc), [news.answers](news:news.answers), and other groups. It is available on the World Wide Web at <http://www.faqs.org/faqs/jpeg-faq/> and other [news.answers](news:news.answers) archive sites, including the official [news.answers](news:news.answers) archive at rtfm.mit.edu: <ftp://rtfm.mit.edu/pub/usenet/news.answers/jpeg-faq/>. If you don't have Web or FTP access, send e-mail to mail-server@rtfm.mit.edu with body

```
send usenet/news.answers/jpeg-faq/part1
send usenet/news.answers/jpeg-faq/part2
```

RELATED SOFTWARE

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Numerous viewing and image manipulation programs now support JPEG. (Quite a few of them use this library to do so.) The JPEG FAQ described above lists some of the more popular free and shareware viewers, and tells where to obtain them on Internet.

If you are on a Unix machine, we highly recommend Jef Poskanzer's free PBMPPLUS software, which provides many useful operations on PPM-format image files. In particular, it can convert PPM images to and from a wide range of other formats, thus making `cjpeg/djpeg` considerably more useful. The latest version is distributed by the NetPBM group, and is available from numerous sites, notably <ftp://wuarchive.wustl.edu/graphics/graphics/packages/NetPBM/>. Unfortunately PBMPPLUS/NETPBM is not nearly as portable as the IJG software is; you are likely to have difficulty making it work on any non-Unix machine.

A different free JPEG implementation, written by the PVRG group at Stanford, is available from <ftp://havefun.stanford.edu/pub/jpeg/>. This program is designed for research and experimentation rather than production use; it is slower, harder to use, and less portable than the IJG code, but it is easier to read and modify. Also, the PVRG code supports lossless JPEG, which we do not. (On the other hand, it doesn't do progressive JPEG.)

FILE FORMAT WARS

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Some JPEG programs produce files that are not compatible with our library. The root of the problem is that the ISO JPEG committee failed to specify a concrete file format. Some vendors "filled in the blanks" on their own, creating proprietary formats that no one else could read. (For example, none of the early commercial JPEG implementations for the Macintosh were able to exchange compressed files.)

The file format we have adopted is called JFIF (see REFERENCES). This format has been agreed to by a number of major commercial JPEG vendors, and it has become the de facto standard. JFIF is a minimal or "low end" representation. We recommend the use of TIFF/JPEG (TIFF revision 6.0 as modified by TIFF Technical Note #2) for "high end" applications that need to record a lot of additional data about an image. TIFF/JPEG is fairly new and not yet widely supported, unfortunately.

The upcoming JPEG Part 3 standard defines a file format called SPIFF. SPIFF is interoperable with JFIF, in the sense that most JFIF decoders should be able to read the most common variant of SPIFF. SPIFF has some technical advantages over JFIF, but its major claim to fame is simply that it is an official standard rather than an informal one. At this point it is unclear whether SPIFF will supersede JFIF or whether JFIF will remain the de-facto standard. IJG intends to support SPIFF once the standard is frozen, but we have not decided whether it should become our default output format or not. (In any case, our decoder will remain capable of reading JFIF indefinitely.)

Various proprietary file formats incorporating JPEG compression also exist. We have little or no sympathy for the existence of these formats. Indeed, one of the original reasons for developing this free software was to help force convergence on common, open format standards for JPEG files. Don't use a proprietary file format!

TO DO

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The major thrust for v7 will probably be improvement of visual quality. The current method for scaling the quantization tables is known not to be very good at low Q values. We also intend to investigate block boundary smoothing, "poor man's variable quantization", and other means of improving quality-vs-file-size performance without sacrificing compatibility.

In future versions, we are considering supporting some of the upcoming JPEG Part 3 extensions --- principally, variable quantization and the SPIFF file

format.

As always, speeding things up is of great interest.

Please send bug reports, offers of help, etc. to jpeg-info@uunet.uu.net.

1.23 liboil 0.3.16.1

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1.24 libSRTP 2.2.0

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1.26 libz 1.2.8

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1.27 log4cplus 1.0.2

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1.40 sqlite 3.28.0

1.40.1 Available under license :

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1.41 tidy 5.7.24

1.41.1 Available under license :

HTML Tidy

HTML parser and pretty printer

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Contributing Author(s):

Dave Raggett <dsr@w3.org>

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1.42 tinycl 2.6.2

1.42.1 Available under license :

/*

www.sourceforge.net/projects/tinycl

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*/

1.43 zipper 0.9.*

1.44 Zlib 1.2.3

1.44.1 Available under license :

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Jean-loup Gailly Mark Adler
jloup@gzip.org madler@alumni.caltech.edu

1.45 zlib 1.2.8

1.45.1 Available under license :

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```
/* zlib.h -- interface of the 'zlib' general purpose compression library
version 1.2.8, April 28th, 2013
```

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Jean-loup Gailly Mark Adler
jloup@gzip.org madler@alumni.caltech.edu

The data format used by the zlib library is described by RFCs (Request for Comments) 1950 to 1952 in the files <http://tools.ietf.org/html/rfc1950> (zlib format), rfc1951 (deflate format) and rfc1952 (gzip format).

*/

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