



# Open Source Used In EFM C Message Broker 1.2.3

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1.1.1 Available under license

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1.3.1 Available under license

### **1.4 zlib 1.2.11**

1.4.1 Available under license

## 1.1 boost 1.69.0

### 1.1.1 Available under license :

[article Invalid copyright years

[quickbook 1.5]

[copyright 2010-2001 Timequake man]

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\*

\*/

```
#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 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](mailto: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](mailto:brazile@diamond.bbn.com)) originally supplied the ULTRIX code.

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

Jesper Peterson ([jep@mtiame.mtia.oz.au](mailto:jep@mtiame.mtia.oz.au)), Michel Schinz, and

Martin Tauchmann ([martintauchmann@bigfoot.com](mailto:martintauchmann@bigfoot.com)) supplied the Amiga port.

Thomas Funke ([thf@zelator.in-berlin.de](mailto: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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```
<!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/html; charset=utf-8" />
```

```
<title><no title> &#8212; Boost.HigherOrderFunctions 0.6 documentation</title>
```

```
<link rel="stylesheet" href="_static/boostbook.css" type="text/css" />
```

```
<link rel="stylesheet" href="_static/pygments.css" type="text/css" />
```

```
<script type="text/javascript">
```

```
var DOCUMENTATION_OPTIONS = {
```

```
    URL_ROOT:    '/',
```

```
    VERSION:    '0.6',
```

```
    COLLAPSE_INDEX: false,
```

```
    FILE_SUFFIX: '.html',
```

```
    HAS_SOURCE: true,
```

```
    SOURCELINK_SUFFIX: '.txt'
```

```
};
```

```
</script>
```

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

```
<script type="text/javascript" src="_static/underscore.js"></script>
```

```
<script type="text/javascript" src="_static/doctools.js"></script>
```

```
<link rel="index" title="Index" href="genindex.html" />
```

```
<link rel="search" title="Search" href="search.html" />
```

```
</head>
```

```
<body role="document">
```

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

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

```
</tr></table>
```

```
<div class="spirit-nav">
```

```
<a accesskey="p" ></a>
```

```
<a accesskey="u" href="doc/index.html"></a>
```

```
<a accesskey="h" href="doc/index.html"></a>
```

```
<a accesskey="n" ></a>
```

```
</div>
```

```
<div class="document">
```

```
<div class="chapter">
```

```
<div class="body" role="main">
```



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</div>  
</div>  
<div class="clearer"></div>  
</div>  
<div class="footer" role="contentinfo">  
<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">  
    &#169; Copyright 2016, Paul Fultz II.  
  
Created using <a href="http://sphinx-doc.org/">Sphinx</a> 1.5.6.  
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(See accompanying file <code class="filename">LICENSE\_1\_0.txt</code> or copy at  
<a href="http://www.boost.org/LICENSE\_1\_0.txt" target="\_top">http://www.boost.org/LICENSE\_1\_0.txt</a>  
</p>  
</div></td>  
</tr></table>  
</div>  
</body>  
</html>  
<!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/html; charset=utf-8" />

  <title>License &#8212; Boost.HigherOrderFunctions 0.6 documentation</title>

  <link rel="stylesheet" href="../../_static/boostbook.css" type="text/css" />
  <link rel="stylesheet" href="../../_static/pygments.css" type="text/css" />

  <script type="text/javascript">
    var DOCUMENTATION_OPTIONS = {
      URL_ROOT:    './..',
      VERSION:    '0.6',
      COLLAPSE_INDEX: false,
      FILE_SUFFIX: '.html',
      HAS_SOURCE:  true,
      SOURCELINK_SUFFIX: '.txt'
    };
  </script>
  <script type="text/javascript" src="../../_static/jquery.js"></script>
  <script type="text/javascript" src="../../_static/underscore.js"></script>
  <script type="text/javascript" src="../../_static/doctools.js"></script>
  <link rel="index" title="Index" href="../../genindex.html" />
  <link rel="search" title="Search" href="../../search.html" />
  <link rel="prev" title="Acknowledgements" href="acknowledgements.html" />
</head>
<body role="document">
<table cellpadding="2" width="100%"><tr>
<td valign="top"></td>
</tr></table>

<div class="spirit-nav">
<a accesskey="p" href="acknowledgements.html"></a>
<a accesskey="u" href="../../index.html"></a>
<a accesskey="h" href="../../index.html"></a>
<a accesskey="n" ></a>
</div>

  <div class="document">
  <div class="chapter">
    <div class="body" role="main">

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--><div class="section" id="license">

```

```
<h1>License<a class="headerlink" href="#license" title="Permalink to this headline"></a></h1>
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FOR ANY DAMAGES OR OTHER LIABILITY, WHETHER IN CONTRACT, TORT OR OTHERWISE,
ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER</p>
</div>
```

```
</div>
</div>
<div class="clearer"></div>
</div>
<div class="footer" role="contentinfo">
<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 2016, Paul Fultz II.
```

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<a href="http://www.boost.org/LICENSE_1_0.txt"
target="_top">http://www.boost.org/LICENSE_1_0.txt</a>
</p>
```

```
</div></td>
</tr></table>
</div>
</body>
</html>
```

```
http_parser.c is based on src/http/nginx_http_parse.c from NGINX copyright
Igor Sysoev.
```

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```
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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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```

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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 cellspacing="0" cellpadding="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">1.5.0</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>

```

```

</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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```

-->

```

```

<!-- 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 ]

```

```

];

```

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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>

#!/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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```

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```
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```

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

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```

-->

<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>
    Copyright &#169; 2002 CrystalClear Software, Inc.
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  </para>
  <!--hr / -->
  <ulink url="mailto:jeff@crystalclearsoftware.com">Jeff Garland</ulink>
  &#169; 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="../../../../doc/src/boostbook.css" type="text/css">
<meta name="generator" content="DocBook XSL Stylesheets V1.79.1">
<link rel="home" href="../../index.html" title="Chapter 1: Boost.TypeTraits">
<link rel="up" href="../../index.html" title="Chapter 1: Boost.TypeTraits">
<link rel="prev" href="intrinsic.html" title="Support for Compiler Intrinsics">
<link rel="next" href="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"><a href="../../index.html">Home</a></td>
<td align="center"><a href="../../libs/libraries.htm">Libraries</a></td>
<td align="center"><a href="http://www.boost.org/users/people.html">People</a></td>
<td align="center"><a href="http://www.boost.org/users/faq.html">FAQ</a></td>
<td align="center"><a href="../../more/index.htm">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_typetraits.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="../../../../libs/mpl/doc/refmanual/integral-constant.html" target="_top">Integral
Constant type</a>.
</p>
<p>
Please note that these types no longer inherit from mpl<span class="special">::true_</span> or
mpl<span class="special">::false_</span> etc, and the library will no longer
implicitly include any MPL header. However there is an implicit conversion
```



from `<span class="identifier">integral_constant</span>` 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>
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</html>
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////

[#mpl]
# MPL Support, <boost/mp11/mpl.hpp>
:toc:
:toc-title:
:idprefix:

```

The header `<boost/mp11/mpl.hpp>`, when included, defines the necessary support infrastructure for `mp_list` and `std::tuple` to be valid link:../../../../libs/mpl[MPL] sequences.

NOTE: `mpl.hpp` is not included by `<boost/mp11.hpp>`.  
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```
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```

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//
```

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```

```
//
```

```
// 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 dtl {

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); }
};

template <class T, class=void>
struct is_transparent

```

```

{
    static const bool value = false;
};

template <class T>
struct is_transparent<T, typename T::is_transparent>
{
    static const bool value = true;
};

template <typename C, typename K, typename R>
struct enable_if_transparent
    : boost::move_detail::enable_if_c<dtl::is_transparent<C>::value, R>
{
};

} //namespace dtl {
} //namespace container {
} //namespace boost {

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

#endif //ifndef BOOST_CONTAINER_CONTAINER_DETAIL_MPL_HPP
////////////////////////////////////////////////////////////////
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//
// 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 <cstdint>

```

```

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 {

#endif //ifndef BOOST_INTERPROCESS_DETAIL_MPL_HPP

```

```

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//
// 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

```

```

#if defined(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> \
struct boost_intrusive_has_type_ ## TNAME \
{ \
    template <typename X> \
    static char test(int, typename X::TNAME*); \
 \
    template <typename X> \
    static int test(...); \
}

```

```

        \
static const bool value = (1 == sizeof(test<T>(0, 0))); \
}; \
\
template <typename T, typename DefaultType> \
struct boost_intrusive_default_type_ ## TNAME \
{ \
    struct DefaultWrap { typedef DefaultType TNAME; }; \
\
    typedef typename \
        ::boost::intrusive::detail::if_c \
        < boost_intrusive_has_type_ ## TNAME<T>::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_HAS_TYPE(INSTANTIATION_NS_PREFIX, T, TNAME) \
INSTANTIATION_NS_PREFIX \
    boost_intrusive_has_type_ ## TNAME< T >::value \
//

#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(TRAIT_PREFIX,
TYPEDEF_TO_FIND) \
template <class T>\
struct TRAIT_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 TRAIT_PREFIX##_bool_is_true\
{\
    static const bool value = TRAIT_PREFIX##_bool<T>::value > sizeof(yes_type)*2;\
};\
//

#define BOOST_INTRUSIVE_HAS_STATIC_MEMBER_FUNC_SIGNATURE(TRAIT_NAME,
FUNC_NAME) \
template <typename U, typename Signature> \
class TRAIT_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(TRAITS_NAME, \
FUNC_NAME) \
BOOST_INTRUSIVE_HAS_MEMBER_FUNC_CALLED(TRAITS_NAME##_ignore_signature, FUNC_NAME) \
\
\
template <typename Type, class> \
struct TRAITS_NAME \
: public TRAITS_NAME##_ignore_signature<Type> \
{}; \
//

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

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

#endif //BOOST_INTRUSIVE_DETAIL_MPL_HPP
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(agg@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.) This package was debianized by Vladimir Prus <ghost@cs.msu.su> on Wed, 17 July 2002, 19:27:00 +0400.

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  <body>
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    </h3>
    <p class="copyright">
      1963, 1964, 1965 Jane Doe
    </p>
    <p class="copyright">
      2018 Joe Blow, John Coe
    </p>
    <p class="copyright">
      1977, 1985 Someone else
    </p>
  </body>
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[copyright 1963-1965 Jane Doe, 2018 Joe Blow, John Coe]
[copyright 1977,1985 Someone else]
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[quickbook 1.5]
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Maybe this should pass?

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<div class="document">
<div class="chapter">
  <div class="body" role="main">

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    </p>
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</tr></table>
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<link rel="stylesheet" href="_static/pygments.css" type="text/css" />

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    VERSION:    '0.6',
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<a accesskey="h" href="doc/index.html"></a>
<a accesskey="n" ></a>
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<div class="document">
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<div class="section">
<div class="titlepage"><div><div><h2 class="title" style="clear: both">
<a name="boost_typetraits.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="..../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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-->

<!-- 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 cellspacing="0" cellpadding="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">1.5.0</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::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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-->
<!-- 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>

```

# 1.2 OpenSSL 1.0.2r :1.0.2r

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