State of the Platform

Mark Lentczner, Google Haskell Implementors Workshop - 2012
Stats

Number of packages — 47 (21 ghc + 26 hp)

Lines of Code — 302k (167k ghc + 135k hp)

Releases — 9 (May 2009 ~ present)

Distributions — 11+ (Mac, Windows, Linuxes)
Stats — June ~ August 2012

Downloads — 20,957 (228/day)

68% Windows
21% Mac OS X
8% Source
?? Linux

Mentions of "platform" on #haskell — 983
People

Build Maintainers

Joachim Breitner — Debian
Mikhail Glushenkov — Windows
Mark Lentczner — OS X
Andres Löh — NixOS
Gabor Pali — FreeBSD
Jens Petersen — Fedora

Release Team

Mark Lentczner — Chief Meanie
Duncan Coutts
Don Stewart

Committee

Duncan Coutts
Iavor Diatchki
Isaac Dupree
Thomas Schilling
Johan Tibell
Adam Wick

And the many contributors on

haskell-platform@
libraries@
Content
<table>
<thead>
<tr>
<th>Package</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>ghc</td>
<td>7.4.1</td>
</tr>
<tr>
<td>array</td>
<td>0.4.0.0</td>
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<tr>
<td>base</td>
<td>4.5.0.0</td>
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<tr>
<td>bytestring</td>
<td>0.9.2.1</td>
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<tr>
<td>Cabal</td>
<td>1.14.0</td>
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<tr>
<td>containers</td>
<td>0.4.2.1</td>
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<tr>
<td>deepseq</td>
<td>1.3.0.0</td>
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<tr>
<td>directory</td>
<td>1.1.0.2</td>
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<tr>
<td>extensible-exceptions</td>
<td>0.1.1.4</td>
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<td>filepath</td>
<td>1.3.0.0</td>
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<td>haskell2010</td>
<td>1.1.0.1</td>
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<td>haskell98</td>
<td>2.0.0.1</td>
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<td>hpc</td>
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<td>old-locale</td>
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<td>old-time</td>
<td>1.1.0.0</td>
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<tr>
<td>pretty</td>
<td>1.1.1.0</td>
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<td>process</td>
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<td>template-haskell</td>
<td>2.7.0.0</td>
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<td>time</td>
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<td>unix</td>
<td>2.5.1.0</td>
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<td>Win32</td>
<td>2.2.2.0</td>
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<td>cgi</td>
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<td>fgl</td>
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<td>GLUT</td>
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<td>haskell-src</td>
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<td>HTTP</td>
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<td>HUnit</td>
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<td>network</td>
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<td>OpenGL</td>
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<td>QuickCheck</td>
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<td>random</td>
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<td>regex-base</td>
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<td>regex-compat</td>
<td>0.95.1</td>
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<td>regex-posix</td>
<td>0.95.1</td>
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<td>stm</td>
<td>2.3</td>
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<td>syb</td>
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<td>text</td>
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<td>transformers</td>
<td>0.3.0.0</td>
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<td>xhtml</td>
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<td>zlib</td>
<td>0.5.3.3</td>
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<tr>
<td>cabal-install</td>
<td>0.14.0</td>
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<tr>
<td>alex</td>
<td>3.0.1</td>
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<tr>
<td>happy</td>
<td>1.18.9</td>
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</tbody>
</table>
## Standard Modules — Ruby 1.9.3

<table>
<thead>
<tr>
<th>Category</th>
<th>Modules</th>
</tr>
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<tbody>
<tr>
<td><strong>A</strong></td>
<td>abbrev</td>
</tr>
<tr>
<td><strong>B</strong></td>
<td>base64, benchmark, bigdecimal</td>
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<tr>
<td><strong>C</strong></td>
<td>cgi, cmath, complex, continuation, coverage, csv, curses</td>
</tr>
<tr>
<td><strong>D</strong></td>
<td>date, dbm, debug, delegate, digest, dl, drb</td>
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<tr>
<td><strong>E</strong></td>
<td>e2mmap, English, erb, etc, extmk</td>
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<tr>
<td><strong>F</strong></td>
<td>fcntl, fiber, fiddle, fileutils, find, forwardable</td>
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<tr>
<td><strong>G</strong></td>
<td>gdbm, generator, getoptlong, gserver</td>
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<tr>
<td><strong>I</strong></td>
<td>iconv, io/wait, ipaddr</td>
</tr>
<tr>
<td><strong>J</strong></td>
<td>json</td>
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<tr>
<td><strong>L</strong></td>
<td>logger</td>
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<tr>
<td><strong>M</strong></td>
<td>mathn, matrix, minitest/benchmark, minitest/mock, minitest/spec,</td>
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<tr>
<td></td>
<td>minitest/unit, mkmf, monitor, mutex_m</td>
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<tr>
<td><strong>N</strong></td>
<td>net/ftp, net/http, net/imap, net/pop, net/smtp, net/telnet, nkf</td>
</tr>
<tr>
<td><strong>O</strong></td>
<td>observer, open-uri, open3, openssl, ostruct</td>
</tr>
<tr>
<td><strong>P</strong></td>
<td>parsedate, pathname, pp, prettyprint, profile, profiler, pstore, pty</td>
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<tr>
<td><strong>R</strong></td>
<td>racc, racc/parser, rational, rdoc, readline, resolv, resolv-replace,</td>
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<td></td>
<td>rexml, rinda, ripper, rss, rubygems</td>
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<tr>
<td><strong>S</strong></td>
<td>scanf, sdbm, securerandom, set, shell, shellwords, singleton, socket,</td>
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<tr>
<td></td>
<td>stringio, strscan, syck, sync, syslog</td>
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<tr>
<td><strong>T</strong></td>
<td>tempfile, test/unit, thread, thwait, time, timeout, tk, tmpdir, tracer,</td>
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<tr>
<td></td>
<td>tsort</td>
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<tr>
<td><strong>U</strong></td>
<td>un, uri</td>
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<tr>
<td><strong>W</strong></td>
<td>weakref, webrick, Win32API, win32ole</td>
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<tr>
<td><strong>X</strong></td>
<td>xmlrpc</td>
</tr>
<tr>
<td><strong>Y</strong></td>
<td>yaml</td>
</tr>
<tr>
<td><strong>Z</strong></td>
<td>zlib</td>
</tr>
</tbody>
</table>
Standard Modules — **PHP 5.4.6**

**Affecting PHP's Behaviour** — APC, APD, bcompiler, Error Handling, htsscanner, included, Memtrack, Output Control, PHP Options/Info, runkit, scream, Weakref, WinCache, Xhprof

**Audio Formats Manipulation** — ID3, KTaglib, oggvorbis, OpenAL

**Authentication Services** — KADM5, Radius

**Date and Time Related Extensions** — Calendar, Date/Time

**Command Line Specific Extensions** — Ncurses, Newt, Readline

**Compression and Archive Extensions** — Bzip2, LZF, Phar, Rar, Zip, Zlib

**Credit Card Processing** — MCVE, SPPLUS

**Cryptography Extensions** — Crack, Hash, Mcrypt, Mhash, OpenSSL

**Database Extensions** — Abstraction Layers, Vendor Specific Database Extensions

**File System Related Extensions** — Direct IO, Directories, Fileinfo, Filesystem, Inotify, Mimetype, Proctitle, xattr, xdiff

**Human Language and Character Encoding Support** — Enchant, FriBiDi, Gender, Gettext, iconv, intl, Multibyte String, Pspell, Recode

**Image Processing and Generation** — Cairo, Exif, GD, Gmagick, ImageMagick

**Mail Related Extensions** — Cyrus, IMAP, Mail, Mailparser, vpopmail

**Mathematical Extensions** — BC Math, GMP, Lapack, Math, Statistics, Trader

**Non-Text MIME Output** — FDF, GnuPG, haru, Ming, PDF, PS, RPM Reader, SWF

**Process Control Extensions** — Eio, Expect, Libevent, PCNTL, POSIX, Program execution, Semaphore, Shared Memory

**Other Basic Extensions** — GeoIP, JSON, Judy, Lua, Misc., Parsekit, SPL, SPL Types, Streams, Tidy, Tokenizer, URLs, V8js, Yaml, Yaf, Taint

**Other Services** — AMQP, chdb, cURL, FAM, FTP, Gearman, Gopher, Gupnp, HTTP, Hyperwave, Hyperwave API, Java, LDAP, Lotus Notes, Memcache, Memcached, mqseries, Network, RRD, SAM, SNMP, Sockets, SSH2, Stomp, SVM, SVN, TCP, Varnish, YAZ, YP/NIS

**Search Engine Extensions** — mnoGoSearch, Solr, Sphinx, Swish

**Server Specific Extensions** — Apache, IIS, NSAPI

**Session Extensions** — Msession, Sessions, Session PgSQL

**Text Processing** — BBCode, PCRE, POSIX Regex, ssdeep, Strings

**Variable and Type Related Extensions** — Arrays, Classes/Objects, Classkit, Ctype, Filter, Function Handling, Object Aggregation, Quickhash, Reflection, Variable handling

**Web Services** — OAuth, SCA, SOAP, X.commerce, XML-RPC

**Windows Only Extensions** — .NET, COM, Printer, W32api, win32ps, win32service

**XML Manipulation** — DOM, libxml, qtdom, SDO, SDO-DAS-Relational, SDO DAS XML, SimpleXML, WDDX, XML Parser, XMLReader, XMLWriter, XSL, XSLT (PHP 4)
Standard Modules — Python 3.2

String Services — string, re, struct, difflib, textwrap, codecs, unicodedata, stringprep
Data Types — datetime, calendar, collections, heapq, bisect, array, sched, queue, weakref, types, copy, pprint, reprlib
Numeric and Mathematical Modules — numbers, math, cmath, decimal, fractions, random
Functional Programming Modules — itertools, functools, operator
File and Directory Access — os.path, fileinput, stat, filecmp, tempfile, glob, fnmatch, linecache, shutil, macpath
Data Persistence — pickle, copyreg, shelve, marshal, dbm, sqlite3
Data Compression and Archiving — zlib, gzip, bzip2, zipfile, tarfile
File Formats — csv, configparser, netrc, xdrilb, plistlib
Cryptographic Services — hashlib, hmac
Generic Operating System Services — os, io, time, argparse, optparse, getopt, logging, logging.config, logging.handlers, getpass, courses, courses.textpad, courses.ascii, courses.panel, platform, ermm, ctypes
Optional Operating System Services — select, threading, multiprocessing, concurrent.futures, mmap, readline, rlcompleter, dummy_threading, _thread, _dummy_thread
Interprocess Communication and Networking — subprocess, socket, ssl, signal, asyncio, asyncio
Internet Data Handling — email, json, mailcap, mailbox, mimetypes, base64, binhex, binascii, quopri, uu
Structured Markup Processing Tools — html, html.parser, html.entities, xml.etree.ElementTree, xml.dom, xml.dom.minidom, xml.dom.pulldom, xml.sax, xml.sax.handler, xml.sax.saxutils, xml.sax.xmlreader, xml.parsers.expat

Multimedia Services — audioop, aifc, sunau, wave, chunk, colorsys, imghdr, sndhdr, osaudiodev
Internationalization — gettext, locale
Program Frameworks — turtle, cmd, shlex
Graphical User Interfaces with Tk — tkinter, tkinter.ttk, tkinter.tix, tkinter.scrolledtext, IDLE, Other Graphical User Interface Packages
Development Tools — pydoc, doctest, unittest, 2to3 - Automated Python 2 to 3 code translation, test, test.support
Debugging and Profiling — bdb, pdb, The Python Profilers, timeit, trace
Python Runtime Services — sys, sysconfig, builtins, __main__, warnings, contextlib, abc, atexit, traceback, __future__, gc, inspect, site, fpectl, distutils
Custom Python Interpreters — code, codeop
Importing Modules — imp, zipimport, pkgutil, modulefinder, runpy, importlib – An implementation of import
Python Language Services — parser, ast, symtable, symbol, token, keyword, tokenize, tabnanny, pyclbr, py_compile, compileall, dis, pickletools
Miscellaneous Services — formatter
MS Windows Specific Services — msilib, msvcrt – Useful routines from the MS VC++ runtime, winreg – Windows registry access, winsound
Unix Specific Services — posix, pwd, spwd, grp, crypt, termios, tty, pty, fcntl, pipes, resource, nis, syslog
Standard Modules — **Java SE 7**

java.applet
java.awt — color, datatransfer, dnd, event, font, geom, im, im.spi, image, image.renderable, print
java.beans — beancontext
java.io
java.lang — annotation, instrument, invoke, management, ref, reflect
java.math
java.net
java.nio — channels, channels.spi, charset, charset.spi, file, file.attribute, file.spi
java.rmi — activation, dgc, registry, server
java.security — acl, cert, interfaces, spec
java.sql
java.text — spi
java.util — concurrent, concurrent.atomic, concurrent.locks, jar, logging, prefs, regex, spi, zip
javax.accessibility
javax.activation
javax.activity
javax.annotation — processing
javax.crypto — interfaces, spec
javax.imageio — event, metadata, plugins.bmp, plugins.jpeg, spi, stream
javax.jws — soap
javax.lang.model — element, type, util
javax.management — loading, modelmbean, monitor, openmbean, relation, remote, remote.rmi, timer
javax.naming — directory, event, ldap, spi
javax.net — ssl
javax.print — attribute, attribute.standard, event
javax.rmi — CORBA, ssl
javax.script
javax.security — auth, auth.callback, auth.kerberos, auth.login, auth.spi, auth.x500, cert, sasl
javax.sound.midi — spi
javax.sound.sampled — spi
javax.sql — rowset, rowset.serial, rowset.spi
javax.swing — border, colorchooser, event, filechooser, plaf, plaf.basic, plaf.metal, plaf.multi, plaf.nimbus, plaf.synth, table, text, text.html, text.html.parser, text.rtf, tree, undo
javax.tools
javax.transaction — xa
org.ietf.jgss
org.w3c.dom — bootstrap, events, ls
org.xml.sax — ext, helpers
Standard Modules — Java SE 7

java.applet
java.awt — color, datatransfer, dnd, event, font, geom, im, im.spi, image, image.renderable, print
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javax.transaction — xa
org.ietf.jgss
org.w3c.dom — bootstrap, events, ls
org.xml.sax — ext, helpers
Standard Modules — **Java SE 7**

java.applet
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java.beans — beancontext
java.lang — annotation, instrument, invoke, management, ref, reflect
java.math
java.net
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java.rmi — activation, dgc, registry, server
java.security — acl, cert, interfaces, spec
java.sql
java.text — spi
java.util — concurrent, concurrent.atomic, concurrency, jar, java
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javax.swing — border, colorchooser, event, filechooser, plaf, plaf.basic, plaf.metamodel, plaf.multi, plaf.nimbus, plaf.synth, table, text, text.html, text.html.parser, text.rtf, tree, undo
javax.tools
javax.transaction — xa
org.w3c.dom — bootstrap, events, ls
org.xml.sax — ext, helpers

**org.omg**
What's Missing?

crypto — crypt, hash, ssl, uuid

data — marshal, pickle

formats — base64, csv, json, yaml, mime, mailbox, pdf, swf, tarfile

database — dbm, *sql, sqlite

encoding — base64, binhex, quopri, uu

image processing — cairo, imagemagick

math — statistics

media — id3, midi, exif, oggvox, openal

network — ftp, imap, nntp, oauth, pop, soap, smtp, telnet, xmlrpc

os services — curses, logging

services — amqp, curl, memcached, sessions

text — tokenization, urls

ui — *

xml — *
Schedule

Kickoff Party

Proposals

Discussion

1st Builds

2nd Builds

Final Build

Versions Decided

Release Party

4 wks

2 wks

2 wks

2 wks

1 wk
Production Problems

Build is an unholy mix of make, shell, haskell, & cabal

How the different builds relate is... unknown

Clear, reproducible instructions are missing

How GHC fits in is... interesting
Process Problems

Contacting Maintainers

So many lists....

Proposals

Trac
When to Release?

Predictable release times

Tension

Latest versions & features
Goals
Original Aims

... a set of default libraries that implement common functionality, conveniently packaged for [each] operating system

... a set of dependencies which [...] can [...] be widely deployed and work on all major operating systems

... [a set of] packages to include when providing Haskell support for an operating system
Target Users

Programmers new to Haskell

Programmers not focused on Haskell

Package creators

Production
Aims Redux

A set of libraries that:
— have broad, common coverage
— work cross-platform (as much as possible)

A versioned release that:
— provides reliable stability
— serves as reference points for testing
— is distribution ready
Guiding Principles

**No surprises**
- *stability* over time
- releases that *just work*

**Make reasonable choices**
- pick well-used packages w/*active support*
- don't let perfect be the enemy of *good*

**Make programmer's lives** *easier*
Guiding Principles

No surprises
— stability over time
— releases that just work

Make reasonable choices
— pick well-used packages w/ active support
— don't let perfect be the enemy of good
great

Make programmer's lives easier
Guiding Principles

No surprises
— stability over time
— releases that just work

Make reasonable choices
— pick well-used packages w/ active support
— don't let perfect be the enemy of great

Make programmer's lives easier
Plans
What we need next

Better proposal process

Active Involvement of Package Maintainers

Better build process
Mark's worry closet

OpenGL consensus

Hackage security

Safe Haskell

GHC Stability
Let's Build It!

Mark Lentczner
mzero@google.com
Let's Build It!

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mzero@google.com
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Construction of Memorial Bridge by Theodor Horydczak, ca. 1920
— http://www.loc.gov/pictures/item/thc1995001571/PP/

View from second floor platform looking up at subsequent platforms by James W. Rosenthal, 2007
— http://www.loc.gov/pictures/item/al1194.photos.226334p/

Train wreck on Maricopa and Phoenix Railroad by unknown, 1902
— http://www.loc.gov/pictures/item/az0253.photos.009565p/

Platform 9 3/4, Kings Cross Station by Robin Stevens, 2006
— http://www.cynic.org.uk/photos/London/index2.html

Plan of One Tower for the East River Bridge, 1867 by War Department. Office of the Chief of Engineers, 1867
— http://arcweb.archives.gov/arch/action/ExternalIdSearch?id=594709

Gina oil platform by Erik Nielsen, 2008
— http://www.flickr.com/photos/24542697@N00/2819251699