Free Standards Group

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LIVE FREE OR DIE

LINUX

LINUX is a Registered Trademark of Linus Torvalds

The Free Standards Group
Linux® Standard Base

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UNIX is a registered trademark of The Open Group
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15-Aug-2002

LSB Overview

- ❏ Mission & Goals
- ❏ Why is the LSB needed?
- ❏ Organization
- ❏ What LSB does NOT attempt to do & why
- ❏ Architectural Overview - How will it work?
- ❏ Current LSB Roadmap

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Mission

❑ The LSB develops and promotes a set of standards that increases compatibility among Linux runtime environments and enables software applications to run on any compliant Linux system.

❑ In addition, the LSB helps coordinate efforts to recruit software vendors to port and write products for Linux.

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Goals

- ❑ To preserve backwards compatibility without locking out future progress

- ❑ To allow runtime environments to still be unique (and provide added value) by only standardizing the base

- ❑ To avoid fragmentation of the base functionality

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Why is the LSB Needed?

- Allows ISVs to:

    - Minimize issues in porting code from another Linux platform

    - Allows a package to perform the same way regardless of the Linux runtime environment or emulation of such

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Organization

❑ Steering Committee Chair - *George Kraft IV*

- ▪ ***FSG liaisons -Scott McNeil, Dan Quinlan***

- ▪ ***Technical Sub-Committees***

  - ▪ ***Written Spec - Technical Lead - Stuart Anderson***

  - ▪ ***Test Suites - Technical Lead - Andrew Josey***

  - ▪ ***Sample Implementation - Technical Lead - Ralf Flaxa***

  - ▪ ***Build Environment - Technical Lead - Chris Yeoh***

  - ▪ ***LSB Futures - Technical Lead - Matt Taggart***

- ▪ ***Plus Many volunteers***

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What is not covered?

- ❑ It does not mean there will only be one "Linux"
    - ▪ One port - multiple platform choices
- ❑ It does not specify the kernel level
    - ▪ The kernel can be any version that provides conforming interfaces
- ❑ It does not cover languages other than C
    - ▪ Other languages will be covered over time
    - ▪ Possible to statically link libraries for other language bindings or include interpreter

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What is not covered?

- ❑ It does not specify a desktop environment
  - ■ Desktop integration is a work in progress
  - ■ Use desktop independent toolkits (Qt, Gtk)
- ❑ It does not fully cover system administration
  - ■ Settled areas are specified - Others will be added

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LSB Specification

- **A generic, processor-independent specification**
  - **The Generic LSB Specification known as the gLSB**
- **One or more processor architecture-specific supplemental specifications that build upon the gLSB to provide a complete binary specification**
  - **Known as archLSB specifications**
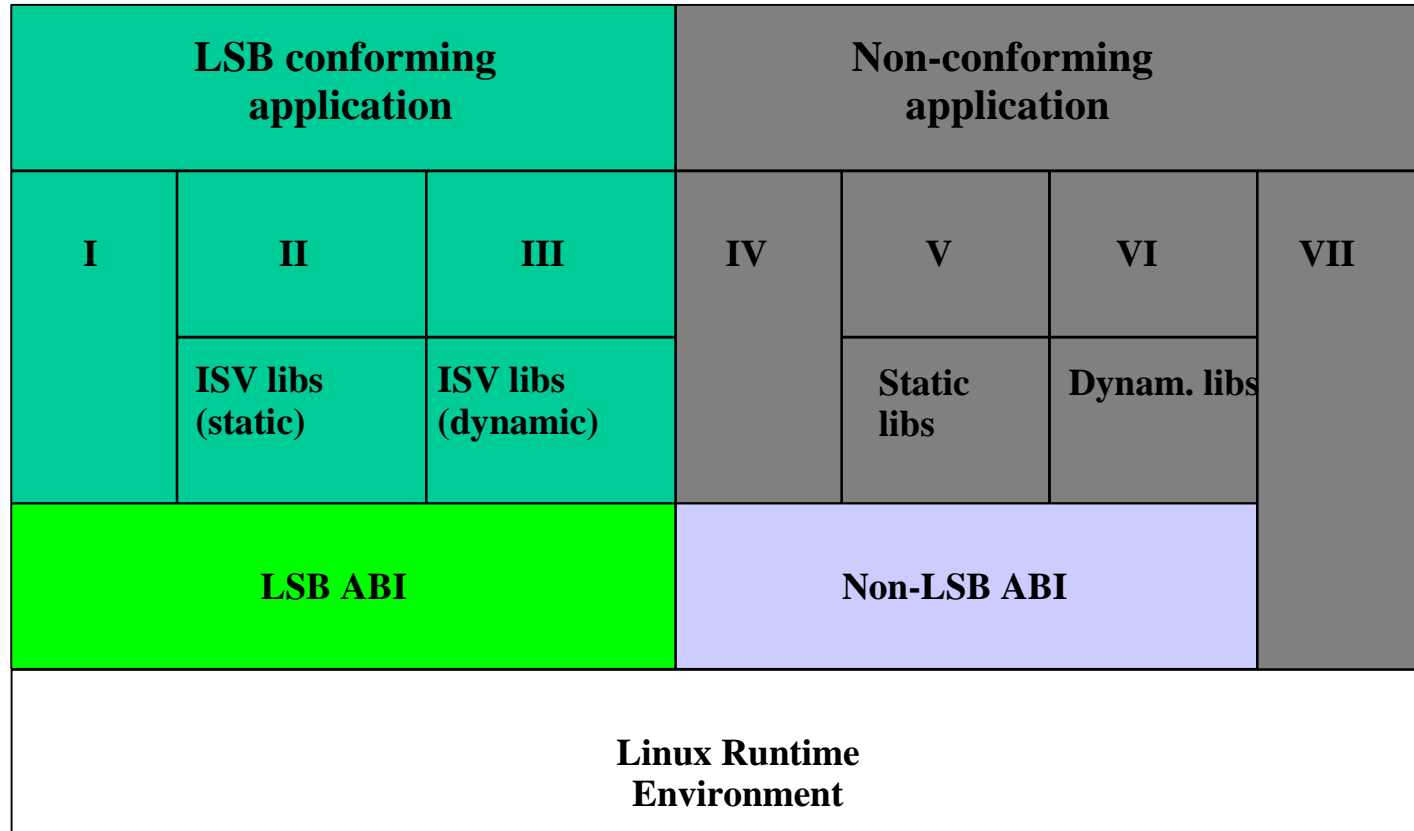 - **IA32, IA64, PPC32**

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LSB Specification

- Object file formats
- Dynamic linking
- Base libraries
- Utility libraries
- Graphics Libraries
- Packaging

- Commands and Utilities
- Standard Shell
- Users and Groups
- Filesystem Hierarchy
- System Initialization

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Architectural Overview

LSB conforming application			Non-conforming application			
I	II	III	IV	V	VI	VII
	ISV libs (static)	ISV libs (dynamic)		Static libs	Dynam. libs	
LSB ABI			Non-LSB ABI			
Linux Runtime Environment						

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Standards Alignment

❑ Built on industry standards

- ▪ *IEEE Std POSIX 1003.1-1996 (POSIX.1)*

- ▪ *IEEE Std POSIX 1003.2-1992 (POSIX.2)*

- ▪ *The Open Group Single UNIX Specification Version 2 (aka UNIX 98)*

- ▪ *AT&T (Caldera/SCO) SVID, Issue 3 1989-2001 (SVID.3)*

- ▪ *See www.linuxbase.org/spec/gLSB/gLSB/rstandards.html*

    36 Specifications referenced at this time

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LSB Milestones

- *gLSB 1.0* Specification published June 2001
- Pilot Beta test program launched August 2001
- *gLSB* 1.1 Specification published December 31 2001
- *archLSB* for IA32 published December 31 2001
- archLSB for IA64 expected 2002
- gLSB 1.2 Specification published July 2002
- archLSB for IA32, PPC32, published July 2002
- LSB Certification launched July 2002

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gLSB 1.2 vs 1.1/1.0

- ❑ Upward compatible
- ❑ Some exceptions
  - ▪ Bug fixes
  - ▪ Additions of functions identified as needed by applications
  - ▪ Improved data definitions
  - ▪ Changes needed to support *archLSBs (note these were previously called psLSBs)*

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Current Status (Cont'd)

- ***Source Test Suites released December 2001***
  - ***LSB-FHS***
  - ***VSX-PCTS***
  - ***LSB-OS***
  - ***LSB-USRGROUPS***
- ***Binary Test Suite release December 31st 2001***
- ***Certification Pilot January-June 2002***
- ***Certification Program launch July 2002***

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The Free Standards Group LSB Certification Program

- A voluntary program.
- Open to any product meeting the conformance requirements and is not restricted to Linux-based systems or Linux-based applications.
- Once a supplier has achieved certification for a product, they are permitted to use the LSB trademark in connection with that product.

Understanding LSB Certification

- ❑ To become familiar with the LSB Certification program, you should read the following program documents:
  - ▪ The *LSB Certification Policy*
  - ▪ The *LSB Product Standards*
- ❑ http://www.freestandards.org/certification/

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The LSB Certification Policy

- ❑ The foundation of the program.
- ❑ Defines the types of products that can be certified.
- ❑ Defines what it means to be certified.
- ❑ Defines what is required to certify a product .
- ❑ Defines how to make sure that a product remains certified.

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LSB Product Standards

❑ The detailed conformance requirements against which a product can be certified.

  ▪ A mapping between certification, the LSB specifications and the test suites needed to demonstrate conformance.

  ▪ An *LSB Product Standard* for each type of product that can be certified.

❑ Current Product Standards :

  ▪ the *LSB Application for IA32 Version 1.2*

  ▪ the *LSB Runtime Environment for IA32 Version 1.2*

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LSB Certification

- ❏ Product Types that can be (currently) certified
  - ■ LSB Runtime Environment Certification
    - ■ For platforms providing services that conform to the LSB specifications.
  - ■ LSB Application Certification
    - ■ For applications conforming to the LSB specifications.
    - ■ LSB applications are the consumers of the services provided by LSB Runtime Environments.

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LSB Application Certification:Test Campaign

❑ The application must execute correctly on the two selected LSB runtime environments and the LSB Sample Implementation

❑ Completion of an LSB Application Conformance Statement

❑ Test Journal output from the LSB Application Checker tool (*lsbappchk*)

❑ For the test journal, any FAIL, UNRESOLVED, UNREPORTED or UNINITIATED results need to be resolved

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LSB Runtime Environment Certification: Test Campaign

- ❑ Completion of the LSB Runtime Environment Conformance Statement
- ❑ Test Journal output from the LSB runtime environment test suite
- ❑ Test Journal output from the LSB Library Checker tool (*lsblibchk*)
- ❑ For the test journal output, any FAIL, UNRESOLVED, UNREPORTED or UNINITIATED results need to be resolved
- ❑ For the test journal output, any FIP results need to be manually resolved
- ❑ A list of at least two binary applications from the LSB Application battery that the applicant warrants works correctly

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First Certified Systems

❑ Mandrake Linux ProSuite 8.2 + first update CD

❑ Red Hat Linux 7.3 with glibc 2.2.5-39+kernel 2.4.18-10 or later

❑ SuSE Linux 8.0 Professional + aaa_base and Kernel Update

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LSB Roadmap

- ❑ LSB 1.3
  - ▪ New features, C++, upward compatible
- ❑ Additional *archLSBs*
  - ▪ IA64, *others?*
- ❑ Improved LSB Runtime Environment Test Coverage
  - ▪ Sockets, Large File, Utilities, RPC, processor architecture specifics
- ❑ Improved LSB Application development tools
- ❑ Additional LSB Certification product standards
  - ▪ LSB Build Environment?

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LSB Resources

- LSB main site - *www.linuxbase.org*
- Free Standards Group - *www.freestandards.org/*
- The LSB Specification -*www.linuxbase.org/spec/*
- LSB Test
  - *www.linuxbase.org/test/*
- LSB Sample Implementation
  - *www.linuxbase.org/impl/*
- *LSB Futures*
  - *www.linuxbase.org/futures/*
- LSB Certification
  - www.freestandards.org/certification/
  - www.opengroup.org/lsb/cert/

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How You Can Help?

❑ To participate in the Linux Standard Base visit:

  ■ www.linuxbase.org

❑ To join the Free Standards Group, visit:

  ■ www.freestandards.org

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