



IBM Platform LSF V9.1 family of products delivers excellent performance, scalability, and utilization

Table of contents

1	Overview	6	Publications
2	Key prerequisites	7	Technical information
2	Planned availability date	12	Ordering information
2	Description	15	Terms and conditions
5	Product positioning	19	Prices
5	Program number	20	Order now

At a glance

Realize excellent performance, scalability, and utilization with the IBM® Platform LSF® family of products.

- Platform LSF V9.1.1 includes notable scheduling, usability, manageability, and scalability enhancements, such as efficient processor core and nonuniform memory access (NUMA) memory allocation. It also includes enhanced integration with IBM Parallel Environment Runtime Edition for Linux™.
- Platform Process Manager V9.1 provides additional enhancements so that clients can leverage its existing capabilities for IBM Platform Symphony® grids as well as in environments using non-LSF batch systems.
- In Platform RTM V9.1, enhancements include support for Scientific Linux, Platform LSF - Advanced Edition, and GPFS™ monitoring; graphing of Platform LSF GSLA; IBM Platform Dynamic Cluster; updated, more flexibility and intuitive alarms; and enhanced filtering and drilldown capabilities.
- Platform License Scheduler V9.1 includes an enhanced project mode for faster scheduling and improved utilization and other enhancements.
- The latest release of Platform Application Center V9.1 includes extended support for 3D visualization technologies, such as DCV and Exceed on Demand as well as an enhanced web services interface.

For ordering, contact your IBM representative or an IBM Business Partner.
For more information contact the Americas Call Centers at
800-IBM-CALL (426-2255).

Reference: YE001

Overview

IBM Platform LSF V9.1.1 includes notable scheduling, usability, manageability, and scalability enhancements. This includes an enhanced integration with IBM Parallel Environment Runtime Edition for Linux, which provides additional performance for larger high performance computing (HPC) workloads. Enhancements to the LSF Family add-on products provide additional value including improved resource management and reporting as well as new HPC cloud capabilities such as extended support for 3D visualization and an enhanced web services interface.

Refer to the [Description](#) section for information about the following products:

- IBM Platform LSF - Express® Edition V9.1.1
- IBM Platform LSF - Standard Edition V9.1.1

- IBM Platform LSF - Advanced Edition V9.1.1
- IBM Platform Process Manager V9.1
- IBM Platform License Scheduler V9.1
- IBM Platform RTM V9.1
- IBM Platform RTM Data Collectors V9.1
- IBM Platform Application Center - Standard Edition V9.1

Key prerequisites

Key prerequisites to run the IBM Platform LSF product family include:

- The cluster, grid, or cloud computing environment must consist of two or more servers.
- Cluster nodes should be preinstalled with supported operating environments.
- Cluster nodes should be connected via a fast TCP/IP network infrastructure.
- Management hosts on the cluster should share a common network file system.

For additional information, refer to the [Hardware requirements](#) and [Software requirements](#) sections.

Planned availability date

- February 22, 2013: IBM Platform Process Manager V9.1
- February 22, 2013: IBM Platform RTM V9.1
- February 22, 2013: IBM Platform Application Center V9.1
- March 15, 2013: IBM Platform License Scheduler V9.1
- March 15, 2013: IBM Platform LSF V9.1.1

Description

Introduction to the IBM Platform LSF product family

The IBM Platform LSF product family provides powerful workload management for demanding, distributed, and mission-critical technical computing environments. It includes a complete set of workload management capabilities, all designed to work together to address high performance computing needs. V9.1.1 includes notable scheduling, usability, manageability, and scalability enhancements.

Relative to other workload management offerings, the IBM Platform LSF product family provides the following unique advantages:

- Sophisticated resource sharing capabilities
- A comprehensive application-centric interface usable by both administrators and end users for job and resource management, including simplified application integration, web services APIs, and remote 2D and 3D visualization via integration with DCV and Exceed on Demand (IBM Platform Application Center)
- A comprehensive operational dashboard that makes cluster administrators more efficient in their day-to-day activities, and provides the information and tools needed to improve cluster efficiency, enable better user productivity, and contain or reduce costs (IBM Platform RTM)
- Sophisticated visual workflow tools to automate the execution of complex processes (IBM Platform Process Manager)
- Integrated license management enabling commercial software licenses to be shared according to policy (IBM Platform License Scheduler)
- Multicluster capabilities to virtualize multiple global clusters and treat them as a single, shared resource pool (IBM Platform LSF)

- A future-proofed investment with over 100 technical professionals focused on developing and sustaining IBM Platform LSF
- Support from a large, global organization with extensive HPC expertise

IBM Platform LSF V9.1.1: Workload Management

Platform LSF manages and accelerates workload processing for compute-intensive or data-intensive applications across distributed compute environments. With support for heterogeneous compute environments, IBM Platform LSF can fully utilize all the infrastructure resources needed for policy-driven, prioritized service levels for always-on access to resources.

This latest release builds on these capabilities with new scheduling features that ensure efficient processor core and non-uniform memory access (NUMA) memory allocation. Due to the NUMA nature of today's multicore hosts, internal processor memory bandwidth can be saturated well before all the cores are allocated. Prior versions of Platform LSF include support for complex core and memory placement on large systems. This latest release extends this functionality to dual socket nodes with an enhanced Platform LSF core scheduler that supports CPU and memory affinity scheduling for all jobs (single hosts and multiple hosts). The scheduler includes cross platform support and a new Platform LSF job resource requirement option to allow users to express per slot and task binding options.

IBM Platform LSF V9.1.1 is available in three editions in order to ensure that users have the right set of capabilities to meet their needs:

- Express Edition - ideal for single-cluster environments and optimized for low throughput parallel jobs and simple user grouping structures
- Standard Edition - ideal for multicluster or grid environments and optimized for high throughput serial jobs and complex user grouping structures
- Advanced Edition - architected to support extreme scalability and throughput

Platform LSF V9.1.1 also includes enhanced integration with IBM Parallel Environment Runtime Edition for Linux on x86 Architecture, V1.3, which provides additional performance for larger high performance computing (HPC) workloads. Pre-existing integration is significantly simplified and streamlined so that it involves fewer components and moving parts. Platform LSF also supports key IBM Parallel Environment Runtime Edition functionality including enabling multiple jobs to share the same nodes, support for CPU affinity, and network scheduling options (for example, `sn_single` or `sn_all`, dedicated).

IBM Platform Process Manager V9.1: Workflow design and scheduling

By reducing or removing the need for operator intervention to trigger computational workflows, IBM Platform Process Manager compresses end-to-end cycle time. Using an intuitive web-based interface, designers can describe workflow steps and dependencies so that lengthy, repetitive tasks, that are prone to human error, are automated. The result is a more cost-effective, logical, self-documenting solution for workflow design and scheduling.

With Platform Process Manager V9.1, these capabilities can be leveraged in IBM Platform Symphony grids as well as in environments using non-LSF batch systems. Additional enhancements include consistent use of spooler and working directory definition and use between Platform LSF, Platform Application Center, and Platform Process Manager as well as support for user variables when running flows spanning multiple clusters.

IBM Platform RTM V9.1: Resource utilization reporting and monitoring

IBM Platform RTM is an operational dashboard for IBM Platform LSF environments, which provides comprehensive workload monitoring, reporting, and management. It makes cluster administrators more efficient in their day-to-day activities, and provides the information and tools needed to improve cluster efficiency, enable better user productivity, and contain or reduce costs.

V9.1 includes the following enhancements:

- Support for Scientific Linux
- Support for Platform LSF - Advanced Edition
- Support for GPFS monitoring
- Graphing of Platform LSF GSLA, IBM Platform Dynamic Cluster
- Updated, more flexibility and intuitive alarms
- Enhanced filtering and drilldown capabilities

IBM Platform License Scheduler V9.1: License management and reporting

By allocating a virtualized pool of licenses based on an organization's own distribution policies, IBM Platform License Scheduler enables license sharing of FlexLM licenses between global project teams. It prioritizes license availability by workload, user, and project, such that licenses are optimally utilized. Whether the application software environment is simple or complex, IBM Platform License Scheduler helps organizations optimize their use of enterprise software licenses, improving productivity and containing cost.

IBM Platform License Scheduler V9.1 includes an enhanced project mode for faster scheduling and improved utilization. Additional enhancements include:

- A new hierarchal project definition for increased flexibility
- Better handling of parallel jobs where each rank checks out a license directly
- Removal of the need for scheduler restarts when the Platform License Scheduler configuration changes

IBM Platform Application Center V9.1: Portal management and application support

IBM Platform Application Center V9.1 provides a flexible application-centric portal for users and administrators to interact with their cluster, grid, or HPC cloud in a natural and powerful way. The web-based interface simplifies workload management with remote job monitoring, easy access to job related data, and the capability to manage jobs, such as stopping, suspending, resuming, or requeuing jobs. Intuitive, self-documenting scripting guidelines provide standardized access to applications, enabling administrators to better enforce site policies as well as simplify the creation of job submission templates, resulting in reduced setup time while minimizing user errors during job submissions.

This latest release includes extended support for 3D visualization technologies including DCV and Exceed on Demand as well as an enhanced web services interface. Additional capabilities are available in the dashboard including badmin perfmon metrics and new columns, including job runtime information (-WF, -WL, and -WP), job description (-Jd), and custom column content. The application integration capabilities are further simplified with a custom help capability within each template and improved handling of include files when they are uploaded.

IBM Platform Application Center is also tightly integrated with IBM Platform Analytics, which is part of the IBM Platform LSF product family. The integration makes it more efficient to access the capabilities of Platform Analytics using a single integrated interface.

Accessibility by people with disabilities

A US Section 508 Voluntary Product Accessibility Template (VPAT) containing details on accessibility compliance can be requested at

http://www.ibm.com/able/product_accessibility/index.html

Product positioning

IBM Platform LSF V9.1.1 and the accompanying V9.1 add-on products are part of the IBM Platform Computing portfolio of products, which include:

- IBM Platform Analytics V9.1
- IBM Platform MPI V9.1
- IBM Platform Cluster Manager - Advanced Edition V4.1
- IBM Platform Cluster Manager - Standard Edition V4.1
- IBM Platform Symphony V6.1

IBM Platform Analytics V9.1 is an advanced analysis and visualization tool for analyzing massive amounts of workload data. It enables managers, planners, and administrators to easily correlate job, resource, and license data from one or multiple Platform LSF and Platform Symphony clusters, grids, or clouds for data-driven decision making. With better insight into technical and high performance computing (HPC) data center environments, organizations can identify and quickly remove bottlenecks, spot emerging trends, and plan capacity more effectively.

Platform MPI is often purchased in conjunction with Platform LSF . Platform MPI is a high-performance, production-ready quality implementation of the Message Passing Interface (MPI). It is widely used in the high performance computing (HPC) industry and is considered one of the standards for developing scalable, parallel applications.

Platform Cluster Manager - Advanced Edition V4.1 complements the Platform LSF product family by providing the capability to assemble multiple high-performance technical computing environments on a shared compute infrastructure for use by multiple teams. In addition to support for Platform LSF , IBM Platform Cluster Manager - Advanced Edition includes support for multitenant HPC cloud and multiple workload managers including Grid Engine and TIBCO DataSynapse GridServer (formerly DataSynapse GridServer). It creates an agile environment for running technical computing and analysis workloads to consolidate disparate cluster infrastructure, resulting in increased hardware utilization and the ability to meet or exceed service level agreements while lowering costs. If you have a single HPC cluster and more static application requirements, then Platform Cluster Manager - Standard Edition V3.2 helps provision, run, manage, and monitor an HPC cluster with unprecedented ease.

Platform Symphony typically runs different types of workloads than Platform LSF , and is, therefore, a complementary product. Platform LSF is optimized for scheduling batch jobs where each job is discrete and the application is typically parallelized using Platform MPI. However, workloads that require very fast scheduling, low latency, high throughput and scalability, and fast, agile resource sharing are likely to be best served by Platform Symphony . As a result, LSF is typically beneficial to HPC clients in manufacturing, oil and gas, life sciences, electronics, government, and media and entertainment, whereas Platform Symphony is more appropriate to clients in financial services.

Reference information

Refer to Software Announcement [212-423](#), dated November 13, 2012 .

Program number

Program number	VRM	Program name
5725-G82	9.1.1	IBM Platform LSF
5725-G82	9.1.0	IBM Platform Process Manager

5725-G82	9.1.0	IBM Platform RTM
5725-G82	9.1.0	IBM Platform License Scheduler
5725-G85	9.1.0	IBM Platform Application Center

Offering Information

Product information is available via the Offering Information website

<http://www.ibm.com/common/ssi>

Also, visit the Passport Advantage® website

<http://www.ibm.com/software/passportadvantage>

Publications

The following publications are shipped with the product and available on the web for the IBM Platform LSF V9.1 product family.

IBM Platform LSF :

- Administering Platform LSF
- Platform LSF Security
- Platform LSF Foundations Guide
- Platform LSF Command Reference
- Platform LSF Configuration Reference
- Running Jobs with Platform LSF
- Using Platform License Scheduler
- Using Platform LSF HPC Features
- Platform LSF Desktop Support User's Guide
- Platform LSF Quick Reference
- Using Platform MultiCluster
- Using Platform LSF on Windows™
- Platform LSF Programmer's Guide
- Using the Platform LSF Launch Framework
- Platform LSF API Reference (auto-generated)
- Installing Platform LSF on UNIX™ and Linux
- Upgrading Platform LSF on UNIX and Linux
- Installing Platform LSF on Windows
- Completing Your Platform LSF Installation (lsf_getting_started.tmpl)
- Getting Started with Platform LSF (lsf_quick_admin.tmpl)
- IBM Platform LSF Release Notes

IBM Platform Application Center:

- Installing IBM Platform Application Center
- Administering IBM Platform Application Center
- Release Notes

IBM Platform Process Manager:

- Release Notes
- Administering IBM Platform Process Manager
- Using IBM Platform Process Manager

- Installing IBM Platform Process Manager on UNIX
- Installing IBM Platform Process Manager on Windows
- Guide to Using Templates

IBM Platform RTM:

- Installing IBM Platform RTM
- Administering IBM Platform RTM
- Release Notes for IBM Platform RTM
- README for Installing Remote License Poller
- README for Installing Remote LSF Poller

The IBM Publications Center

<http://www.ibm.com/shop/publications/order>

The Publications Center is a worldwide central repository for IBM product publications and marketing material with a catalog of 70,000 items. Extensive search facilities are provided. Payment options for orders are via credit card (in the US) or customer number for 50 countries. A large number of publications are available online in various file formats, and they can all be downloaded by all countries, free of charge.

Technical information

Specified operating environment

Hardware requirements

Platform LSF V9.1 and Platform Application Center V9.1 are supported on IBM System x® iDataPlex® and other rack-based servers. They are also fully certified to run on clusters comprised of IBM Power Systems™ servers running AIX® or Linux .

LSF installations are typically large and involve a significant amount of hardware. Because of this, rack-based solutions tend to be the most practical.

The hardware requirements for the IBM Platform LSF scheduler are as follows:

- A minimum of 2 GB of physical memory (RAM); 16 GB or more recommended for large clusters
- Available SWAP space that is twice physical memory
- A minimum of one high-speed network interface

A secondary master host is recommended in large clusters.

Note: The hardware requirements for the product options vary based on the HPC environment. Refer to the product publications for additional details.

Software requirements

IBM Platform LSF is supported on any of the following operating environments:

- Red Hat Enterprise Linux (RHEL) 5, 6 (on x86_64)
- SUSE Linux Enterprise Server (SLES) 9, 10, 11
- IBM AIX V6 and AIX V7 on IBM POWER®
- HP B11.31 on PA-RISC and IA64
- Oracle Solaris 10 and 11 on SPARC and x86-64
- Other Linux distributions 2.6 or later on x86-64 and IBM Power Systems
- Windows 2003, Windows 2008, Windows 2012, Windows XP, Windows 7, Windows 8 32 bit and 64 bit

- Mac OS 10.x
- Cray XT

Note: For Linux installations, precompiled binaries facilitate easy installation on different Linux kernels. The distribution to install will depend more on the version of Linux (specifically the Linux kernel version) rather than the actual distribution (RHEL, CentOS, SLES). The version to install will also depend on the version of glibc.

The program's specifications and specified operating environment information may be found in documentation accompanying the program, if available, such as a readme file, or other information published by IBM, such as an announcement letter. Documentation and other program content may be supplied only in the English language.

Companion products

The following products can be used in conjunction with Platform LSF :

- System x servers and options
- IBM General Parallel File System (GPFS)
- IBM Platform Symphony
- IBM Platform MPI
- IBM Extreme Cloud Administrative Toolkit (xCAT) Support Services

Other considerations:

- Clusters comprised of IBM System x servers are an ideal hardware platform for Platform LSF . Platform LSF is certified to run on IBM System x iDataPlex and other rack-based servers including the M4 generation of System x servers.
- For users running applications that benefit from a distributed parallel file system, GPFS may be deployed together with IBM Platform LSF , providing improved file system performance for data intensive applications.
- For users with diverse workload scheduling requirements, IBM Platform LSF may be purchased in conjunction with IBM Platform Symphony and associated add-on products. Platform LSF and Platform Symphony share a common resource management layer, and can share resources on the same physical cluster.
- Platform MPI is a high-performance, production-ready quality implementation of the Message Passing Interface (MPI). It is widely used in the high performance computing (HPC) industry and is considered a standard for developing scalable, parallel applications.
- To provision actual operating systems and cluster software environments, xCAT may be used along with other IBM provisioning and management tools. IBM Support for xCAT delivers the technical support developers and Solution Providers need to confidently manage their large systems.
- Depending on the nature of the user requirement, IBM Platform LSF deployments often involve software development and integration services. With its breadth of services capabilities, IBM is uniquely positioned to help you integrate applications and be up and running quickly to get maximum value from your grid computing investment.

Compatibility

IBM Platform LSF V9.1.1 is fully compatible with Platform LSF V7 and Platform LSF V8.

Limitations

Users deploying **IBM Platform LSF - Advanced Edition** should be aware of the following limitation:

- Platform LSF - Advanced Edition has been tested on configurations up to 18,000 nodes and 160,000 cores running high-throughput workloads of 160,000 concurrent short (below 5 minute) jobs with 2,000,000 pending jobs. These are not hard scalability or performance limits.

Users deploying **IBM Platform LSF - Standard Edition** should be aware of the following limitations:

- It is possible to run IBM Platform LSF and IBM Platform Symphony on the same grid environment and share resources between the two environments. While documentation is included in the Platform Symphony distribution that explains how to do this, we recommend that users running mixed Platform Symphony and Platform LSF environments seek configuration assistance from IBM .
- Platform LSF Standard has been tested on clusters up to 6,000 nodes and 48,000 cores running high-throughput workloads of 48,000 concurrent short (below 5 minute) jobs with 500,000 pending jobs. These are not hard scalability or performance limits. Higher node and core counts can be achieved with a lower volume of jobs (such as parallel HPC workloads).
- For high-throughput workloads, the overall system performance is dependent upon the processing power, I/O capacity, and memory of the scheduling node. Sizing guidelines are included in the documentation. For very large clusters, it is recommended that users seek configuration assistance from IBM .
- Other specific limitations are discussed in the IBM Platform LSF Standard Edition release notes and documentation.

Users deploying **IBM Platform LSF - Express Edition** should be aware of the following limitations:

- IBM Platform LSF Express Edition is supported only on x86_64 Linux .
- This edition is optimized for clusters of 100 nodes or less with straightforward scheduling requirements.
- IBM Platform LSF - Express Edition, IBM Platform LSF - Standard Edition, and IBM Platform LSF - Advanced Edition cannot coexist in the same cluster - only one IBM Platform LSF edition can be present in the cluster.
- Other specific limitations are discussed in the IBM Platform LSF - Express Edition release notes and documentation.

Users deploying **IBM Platform License Scheduler** should be aware of the following limitations:

- IBM Platform LSF License Scheduler manages licenses that use the Flexera FLEXlm license manager. Other license managers are not currently supported.
- Other specific limitations are discussed in the IBM Platform LSF - License Scheduler release notes and documentation.

Users deploying **IBM Platform Application Center** should be aware of the following limitations:

- IBM Platform Application Center requires that web browsers accept first-party and third-party cookies. In some cases, browser default settings may block these cookies. In this case, the setting will need to be manually changed.
- JRE 1.6.0_10, or later is required.
- JRE1.6.0_25, or later is required for Internet Explorer 9, and Firefox 7, or later.
- Adobe™ Flash V8, or later is required to view report charts.
- On RHEL 5.3 and 5.5, the compat-libstdc++-33-3.2.3-61 package may not be installed by default. You need to manually install this package.
- Platform Application Center will show only the first 4,000 files in any given folder.
- When using LDAP authentication on SLES 10.1 and RHEL 5.6, Platform Application Center may core dump due to an operating system bug. Remedial action is documented in the release notes.
- Other specific limitations are discussed in the IBM Platform Application Center release notes and documentation.

Users deploying **IBM Platform Process Manager** should be aware of the following limitations:

- When using the Flow Editor or Flow Manager and viewing or changing a job or job array definition, the entire job or job array definition dialog cannot be viewed if you are using a screen resolution lower than 1,024 x 768. It is recommended to set your resolution to 1,024 x 768 or higher when using the Process Manager graphical user interface.
- When launching the graphical interfaces (Flow Editor, Calendar Editor, and Flow Manager) on some UNIX systems, the user receives font not found warnings. The Java™ Virtual Machine user interface manager automatically determines which fonts are used on each machine. If the fonts are not available on the machine, the warning is issued. These warning messages do not affect the operation of the client.
- For Linux hosts, when JS_TIME_ZONE is set to client, the default, during Daylight Savings Time (in the March to November time period), some time events may trigger an hour early. This occurs when Java gets the wrong time zone information from the client machine. To resolve this issue on the (Linux) client, users should edit the file /etc/sysconfig/clock and replace TIMEZONE=zone with ZONE=zone (for example, ZONE="US/Eastern").
- Other specific limitations are discussed in the IBM Platform Process Manager release notes and documentation.

Users deploying **IBM Platform RTM** should be aware of the following limitations:

- If IBM Platform RTM is down for an extended period of time, there will be gaps in the collected data. This can be resolved by manually loading the lsb.acct data that was missed during this period.
- Support is not provided with the AIX operating system.
- Other specific limitations are discussed in the IBM Platform RTM release notes and documentation.

Performance considerations

The performance of Platform LSF depends upon many factors, including the number of nodes in the cluster, the number of concurrently executing jobs, the number of pending jobs, the number of users querying the system, and the frequency of queries. As these increase, the scheduling cycle and user response time will increase.

For a high-throughput workload, such as the workloads found in the semiconductor design market, clusters of 5,000 nodes with 40,000 cores and concurrently executing jobs are not uncommon. In traditional HPC environments, where the concurrent job volume is significantly lower, LSF has been used on substantially larger clusters (for example, 75,000 to 100,000 cores).

IBM Electronic Support

The IBM Support Portal is your gateway to technical support. This includes IBM Electronic Support tools and resources, for software and hardware, to help save time and simplify support. The Electronic Support tools can help you find answers to questions, download fixes, troubleshoot, automate data collection, submit and track problems through the Service Request online tool, and build skills. All these tools are made available through your IBM support agreement, at no additional charge.

Read about the Electronic Support portfolio of tools

<http://ibm.com/electronicssupport>

Access the IBM Support Portal

<http://ibm.com/support>

Access the online Service Request tool

<http://ibm.com/support/servicerequest>

Planning information

Customer responsibilities

You must provide at least the minimum hardware and software environments in which the IBM Platform LSF product family will operate. It is recommended to assign a systems administrator who has responsibility for planning, installing, maintaining, and administering the IBM Platform LSF product family.

While the installation and upgrade procedures for Platform LSF V9.1 have been tested carefully, as with any installation or upgrade, it is prudent to ensure that backups exist and you prepare for the installation or upgrade in advance.

Installability

IBM Platform LSF V9.1 is functionally the same as prior versions. However, it will now be available in three product editions:

- Express Edition - ideal for single-cluster environments and optimized for low-throughput parallel jobs and simple user grouping structures
- Standard Edition - ideal for multicluster or grid environments and optimized for high-throughput serial jobs and complex user grouping structures
- Advanced Edition - ideal for multicluster or grid environments and optimized for high-throughput serial jobs and complex user grouping structures

Existing Platform LSF users will map to the Standard Edition. However, IBM Platform LSF - Standard Edition is a new product; it is more than just Platform LSF . It includes additional capabilities previously provided by Platform MultiCluster, Platform Make, and Platform LSF Client.

The Platform LSF licensing model changed between Platform LSF V7 and V8. Therefore, customers who are currently using Platform LSF V7 update 6, or earlier will require new licenses. In addition, IBM Platform LSF V8.3 no longer uses FLEXlm for licensing. For assistance on configurations or licensing, contact your local Platform Computing representative.

Packaging

Platform LSF V9.1 is distributed on optional DVD media or available for electronic download in multiple eAssemblies. Included are:

- IBM International Program License Agreement (L-YCHW-8YGNRT) in multiple languages
- Release notes
- Installation or User's Guide
- Required files

Platform Application Center V9.1 is distributed as a single DVD media option or available for electronic download in multiple eAssemblies. Included are:

- IBM International Program License Agreement (L-YCHW-8YGPMP) in multiple languages
- Release notes
- Installation or User's Guide
- Required files

This program, when downloaded from a website, contains the applicable IBM license agreement and License Information, if appropriate, and will be presented for acceptance at the time of installation of the program. For future reference, the license and License Information will be stored in a directory such as LICENSE.TXT.

Security, auditability, and control

Platform LSF and Platform Application Center use the security and auditability features of the system in which they are installed.

The customer is responsible for evaluation, selection, and implementation of security features, administrative procedures, and appropriate controls in application systems and communication facilities.

Software Services

IBM Software Services has the breadth, depth, and reach to manage your services needs. You can leverage the deep technical skills of our lab-based, software services team and the business consulting, project management, and infrastructure expertise of our IBM Global Services team. Also, we extend our IBM Software Services reach through IBM Business Partners to provide an extensive portfolio of capabilities. Together, we provide the global reach, intellectual capital, industry insight, and technology leadership to support a wide range of critical business needs.

To learn more about IBM Software Services or to contact a Software Services sales specialist, visit

<http://www.ibm.com/software/sw-services/>

Ordering information

This product is only available via Passport Advantage . It is not available as shrinkwrap.

Product group: IBM Platform Computing
Product Identifier Description (PID)
IBM Platform LSF 5725G82
IBM Platform Application
Center 5725G85

Product category: Other Software

Charge metric

Program name	Part number or PID number	Charge metric
IBM Platform LSF	5725-G82	
-Express Edition		Managed core RVU (1)
-Standard Edition		Managed core RVU
-Advanced Edition		Managed core RVU
-License Scheduler		Managed core RVU
-Process Manager		Concurrent user
-RTM		Install
-RTM Data Collectors		Managed core RVU
IBM Platform Application Center	5725-G85	Concurrent user

(1) Resource Value Unit

Each license includes 12 months' subscription and support.

Concurrent User

Concurrent User is a unit of measure by which the program can be licensed. A Concurrent User is a person who is accessing the program at any particular

point in time. Regardless of whether the person is simultaneously accessing the program multiple times, the person counts only as a single Concurrent User. The program may be installed on any number of computers or servers, but licensee must obtain entitlements for the maximum number of Concurrent Users simultaneously accessing the program. Licensee must obtain an entitlement for each simultaneous Concurrent User accessing the program in any manner directly or indirectly (for example, via a multiplexing program, device, or application server) through any means.

Note: Some programs may be licensed where devices are considered users. In that case, the following applies. Any computing device that requests the execution of or receives for execution a set of commands, procedures, or applications from the program or that is otherwise managed by the program is considered a separate user of the program and requires an entitlement as if that device were a person.

Install

Install is a unit of measure by which the program can be licensed. An install is an installed copy of the program on a physical or virtual disk made available to be executed on a computer. Licensee must obtain an entitlement for each install of the program.

Resource Value Unit (RVU)

RVU is a unit of measure by which the program can be licensed. RVU Proofs of Entitlement (PoEs) are based on the number of units of a specific resource used or managed by the program. Licensee must obtain sufficient entitlements for the number of RVUs required for licensee's environment for the specific resources as specified in the program specific table. RVU entitlements are specific to the program and the type of resource and may not be exchanged, interchanged, or aggregated with RVU entitlements of another program or resource. Refer to the program specific RVU table.

Notes :

- Some programs may require licenses for the resources available to **and** the resources being managed by the program. In that case, the following applies. In addition to the entitlements required for the resources used by the program directly, licensee must obtain entitlements for this program sufficient to cover the resources managed by the program.
- Some programs may be licensed on a managed basis **only** . In that case, the following applies. Instead of the entitlements required for the resources used by the program directly, licensee must obtain entitlements for this program sufficient to cover the resources managed by the program.

The following components of the Platform LSF program are licensed based on Value Unit-Based pricing:

Program number	Program name	Value Unit exhibit
5725-G82	Platform LSF - Express Edition Standard Edition Advanced Edition License Scheduler RTM Data Collectors	VUE139

For these components, the resource for the purpose of the RVU calculation are Activated Processor Cores managed by the program. An Activated Processor Core is a processor core that is available for use in a physical or virtual server, regardless of whether the capacity of the processor core can be or is limited through virtualization technologies, operating system commands, BIOS settings, or similar restrictions. Licensee can deploy the program using either full capacity licensing or virtualization capacity (sub-capacity) licensing according to the Passport Advantage Sub-Capacity Licensing Terms (see webpage below). If using full capacity licensing, each Activated Processor Core in the physical hardware environment managed by the program

must be counted, except for those servers from which the program permanently no longer manages. If using virtualization capacity licensing, the Virtualization Capacity License Counting Rules define how many Activated Processor Cores must be counted. The rules can be found at

http://www.ibm.com/software/lotus/passportadvantage/Counting_Software_licenses_using_specific_virtualization_technologies.html

Resource Value Unit conversion table:

- From 1 to 2,500 Resources, 1.0 (RVU/UVU) per Resource
- From 2,501 to 10,000 Resources, 2,500 RVUs plus 0.8 RVUs per Resource above 2,500
- From 10,001 to 50,000 Resources, 8,500 RVUs plus 0.6 RVUs per Resource above 10,000
- From 50,001 to 150,000 Resources, 32,500 RVUs plus 0.4 RVUs per Resource above 50,000
- For more than 150,000 Resources, 72,500 RVUs plus 0.2 RVUs per Resource above 150,000

Passport Advantage

Program name/Description	Part number
English Media Pack:	
IBM Platform License Scheduler V9.1 Multiplatform	AJ011EN
IBM Platform Process Manager V9.1 Multiplatform	AJ012EN
IBM Platform RTM V9.1 Multiplatform	AJ013EN
IBM Platform RTM Data Collectors V9.1 Multiplatform	AJ014EN
IBM Platform Application Center Standard Edition V9.1 Multiplatform English Media Pack	AJ015EN
Media packs description	Part number
IBM Platform LSF Express Edition v9.1.1 Multiplatform	AJ00UEN
IBM Platform LSF Standard Edition v9.1.1 Multiplatform	AJ00VEN
IBM Platform LSF Advanced Edition v9.1.1 Multiplatform	AJ00WEN
IBM Platform LSF Dynamic Cluster v9.1.1 Multiplatform	AJ00YEN

Passport Advantage customer: Media pack entitlement details

Customers with active maintenance or subscription for the products listed are entitled to receive the corresponding media pack.

Entitled maintenance offerings description	Part number
IBM PLATFORM LSF EXPRESS ED RVU INITL FT LIC+S&S 12 MO	D0Q0GLL
IBM PLATFORM LSF EXPRESS ED RVU LIC + SW S&S 12 MO	D0Q1DLL
IBM PLATFORM LSF EXPRESS ED RVU SW S&S REINSTATE 12 MO	D0Q1ELL
IBM PLATFORM LSF EXPRESS ED RVU SUBSQ FT LIC+S&S 12 MO	E0DX4LL
IBM PLATFORM LSF EXPRESS ED RVU ANNUAL SW S&S RNWL	E0DXLLL
IBM PLATFORM LSF STANDARD ED RVU INITL FT LIC+S&S 12 MO	D0Q0FLL
IBM PLATFORM LSF STANDARD ED RVU LIC + SW S&S 12 MO	D0Q0KLL
IBM PLATFORM LSF STANDARD ED RVU SW S&S REINSTATE 12 MO	D0Q0LLL
IBM PLATFORM LSF STANDARD ED RVU SUBSQ FT LIC+S&S 12 MO	E0DX3LL
IBM PLATFORM LSF STANDARD ED RVU ANNUAL SW S&S RNWL	E0DX7LL
IBM PLATFORM LSF ADVANCED ED RVU INITL FT LIC+S&S 12 MO	D0VBRLl
IBM PLATFORM LSF ADVANCED ED RVU LIC + SW S&S 12 MO	D0VBULL
IBM PLATFORM LSF ADVANCED ED RVU SW S&S REINSTATE 12 MO	D0VBVLL
IBM PLATFORM LSF ADVANCED ED RVU SUBSQ FT LIC+S&S 12 MO	E0F6NLL
IBM PLATFORM LSF ADVANCED ED RVU ANNUAL SW S&S RNWL	E0F6RLL
PLAT LSF STD ED FROM PLAT LSF EX ED TRDUP LIC+SW S&S 12MO	D0Q1PLL

Platform LSF Ad Ed RVU fr Platform LSF Std Ed RVU Trdup Lic D0VBWLL
Platform LSF Ad Ed RVU fr Platform LSF Exp Ed RVU Trdup Lic D0VBXLL

IBM Platform LSF Session Scheduler RVU Lic + SW S&S 12 Mo D0VC2LL
IBM Platform LSF Session Scheduler RVU Annual SW S&S Rnw1 E0F6TLL
IBM Platform LSF Session Scheduler RVU SW S&S Reinste 12 Mo D0VC3LL
IBM Platform LSF Sessn Sched RVU FTL Initl FT Lic+S&S 12 Mo D0VBTL
IBM Platform LSF Sessn Sched RVU FTL SubsQ FT Lic+S&S 12 Mo E0F6QLL

IBM Platform LSF Dynamic Cluster RVU Lic + SW S&S 12 Mo D0VBZLL
IBM Platform LSF Dynamic Cluster RVU Annual SW S&S Rnw1 E0F6SLL
IBM Platform LSF Dynamic Cluster RVU SW S&S Reinstate 12 Mo D0VCOLL
IBM Platform LSF Dynam Clust RVU FTL Initl FT Lic+S&S 12 Mo D0VBSLL
IBM Platform LSF Dynam Clust RVU FTL SubsQ FT Lic+S&S 12 Mo E0F6PLL

IBM PLAT APPL CTR STD ED CONC USR INITL FT LIC+S&S 12MO D0Q06LL
IBM PLATFORM APPL CTR STD ED CONC USR LIC + SW S&S 12 MO D0Q11LL
IBM PLAT APPL CTR STD ED CONC USR SW S&S REINSTATE 12MO D0Q12LL
IBM PLAT APPL CTR STD ED CONC USR SUBSQ FT LIC+S&S 12MO E0DWULL
IBM PLATFORM APPL CTR STD ED CONC USR ANNUAL SW S&S RNWL E0DXFLL

Media packs description	Part number
IBM Platform LSF Express Edition v8.3 Multiplatform	AJ000EN
IBM Platform LSF Standard Edition v8.3 Multiplatform	AJ001EN
IBM Platform Process Manager v8.3 Multiplatform	AJ002EN
IBM Platform License Scheduler v8.3 Multiplatform	AJ003EN
IBM Platform RTM v8.3 Multiplatform	AJ004EN
IBM Platform RTM Data Collectors v8.3 Multiplatform	AJ005EN
IBM Platform Application Center Standard Edition v8.3 Multiplatform English Media Pack	AJ007EN
IBM Platform LSF Session Scheduler v9.1 Multiplatform	AJ00XEN

Terms and conditions

The information provided in this announcement letter is for reference and convenience purposes only. The terms and conditions that govern any transaction with IBM are contained in the applicable contract documents such as the IBM International Program License Agreement, IBM International Passport Advantage Agreement, and the IBM Agreement for Acquisition of Software Maintenance.

This product is only available via Passport Advantage . It is not available as shrinkwrap.

Licensing

IBM International Program License Agreement including the License Information document and PoE govern your use of the program. PoEs are required for all authorized use. Part number products only, offered outside of Passport Advantage , where applicable, are license only and do not include Software Maintenance.

These programs are licensed under the IBM Program License Agreement (IPLA) and the associated Agreement for Acquisition of Software Maintenance, which provide for support with ongoing access to releases and versions of the program. IBM includes one year of Software Subscription and Support (also referred to as Software Maintenance) with the initial license acquisition of each program acquired. The initial period of Software Subscription and Support (also referred to as Software Maintenance) can be extended by the purchase of a renewal option, if available. These programs have a one-time license charge for use of the program and an annual renewable charge for the enhanced support that includes telephone assistance (voice support for defects during normal business hours), as well as access to updates, releases, and versions of the program as long as support is in effect.

License Information form number

License number	Product ID	Program name
L-YCHW-8YGPMP	5725-G85	Platform Appl Ctr
L-YCHW-8XWTHK	5725-G82	Platform LSF
L-YCHW-8YSQUZ	5725-G82	Platform RTM

The program's License Information will be available for review on the IBM Software License Agreement website

<http://www.ibm.com/software/sla/sladb.nsf>

Limited warranty applies

Yes

Limited warranty

IBM warrants that when the program is used in the specified operating environment, it will conform to its specifications. The warranty applies only to the unmodified portion of the program. IBM does not warrant uninterrupted or error-free operation of the program or that IBM will correct all program defects. You are responsible for the results obtained from the use of the program.

IBM provides you with access to IBM databases containing information on known program defects, defect corrections, restrictions, and bypasses at no additional charge. For further information, consult the IBM Software Support Handbook found at

<http://www.ibm.com/support/handbook>

IBM will maintain this information for at least one year after the original licensee acquires the program (warranty period).

Money-back guarantee

If for any reason you are dissatisfied with the program and you are the original licensee, you may obtain a refund of the amount you paid for it, if within 30 days of your invoice date you return the program and its PoE to the party from whom you obtained it. If you downloaded the program, you may contact the party from whom you acquired it for instructions on how to obtain the refund.

For clarification, note that (1) for programs acquired under the IBM International Passport Advantage offering, this term applies only to your first acquisition of the program and (2) for programs acquired under any of IBM's On/Off Capacity on Demand (On/Off CoD) software offerings, this term does not apply since these offerings apply to programs already acquired and in use by you.

Other terms**Volume orders (IVO)**

No

IBM International Passport Advantage Agreement**Passport Advantage applies**

Yes, and through the Passport Advantage website at

<http://www.ibm.com/software/passportadvantage>

Software Subscription and Support applies

Yes. Software Subscription and Support (also referred to as Software Maintenance) is included with licenses purchased through Passport Advantage and Passport Advantage Express . Product upgrades and Technical Support are provided by the Software Subscription and Support offering as described in the Agreements. Product upgrades provide the latest versions and releases to entitled software and Technical Support provides voice and electronic access to IBM support organizations, worldwide.

IBM includes one year of Software Subscription and Support with each program license acquired. The initial period of Software Subscription and Support can be extended by the purchase of a renewal option, if available.

While your Software Subscription and Support is in effect, IBM provides you assistance for your routine, short duration installation and usage (how-to) questions, and code-related questions. IBM provides assistance via telephone and, if available, electronic access, only to your information systems (IS) technical support personnel during the normal business hours (published prime shift hours) of your IBM support center. (This assistance is not available to your end users.) IBM provides Severity 1 assistance 24 hours a day, 7 days a week. For additional details, consult your IBM Software Support Handbook at

<http://www.ibm.com/support/handbook>

Software Subscription and Support does not include assistance for the design and development of applications, your use of programs in other than their specified operating environment, or failures caused by products for which IBM is not responsible under the applicable agreements.

For additional information about the International Passport Advantage Agreement and the IBM International Passport Advantage Express Agreement, visit the Passport Advantage website at

<http://www.ibm.com/software/passportadvantage>

IBM Operational Support Services - SoftwareXcel

No

System i Software Maintenance applies

No

Variable charges apply

No

Educational allowance available

Not applicable.

Statement of good security practices

IT system security involves protecting systems and information through prevention, detection, and response to improper access from within and outside your enterprise. Improper access can result in information being altered destroyed or misappropriated or can result in misuse of your systems to attack others. Without a comprehensive approach to security, no IT system or product should be considered completely secure and no single product or security measure can be completely effective in preventing improper access. IBM systems and products are designed to be part of a comprehensive security approach, which will necessarily involve additional operational procedures, and may require other systems, products, or

services to be most effective. IBM does not warrant that systems and products are immune from the malicious or illegal conduct of any party.

IBM Electronic Services

Electronic Service Agent™ and the IBM Electronic Support web portal are dedicated to providing fast, exceptional support to IBM Systems customers. The IBM Electronic Service Agent tool is a no-additional-charge tool that proactively monitors and reports hardware events, such as system errors, performance issues, and inventory. The Electronic Service Agent tool can help you stay focused on your company's strategic business initiatives, save time, and spend less effort managing day-to-day IT maintenance issues. Servers enabled with this tool can be monitored remotely around the clock by IBM Support all at no additional cost to you.

Now integrated into the base operating system of AIX V5.3, AIX V6.1, and AIX V7.1, Electronic Service Agent is designed to automatically and electronically report system failures and utilization issues to IBM, which can result in faster problem resolution and increased availability. System configuration and inventory information collected by the Electronic Service Agent tool also can be viewed on the secure Electronic Support web portal, and used to improve problem determination and resolution by you and the IBM support team. To access the tool main menu, simply type `smitty esa_main`, and select `Configure Electronic Service Agent`. In addition, ESA now includes a powerful Web user interface, giving the administrator easy access to status, tool settings, problem information, and filters. For more information and documentation on how to configure and use Electronic Service Agent, refer to

<http://www.ibm.com/support/electronic>

The IBM Electronic Support portal is a single Internet entry point that replaces the multiple entry points traditionally used to access IBM Internet services and support. This portal enables you to gain easier access to IBM resources for assistance in resolving technical problems. The My Systems and Premium Search functions make it even easier for Electronic Service Agent tool-enabled customers to track system inventory and find pertinent fixes.

Benefits

Increased uptime: The Electronic Service Agent tool is designed to enhance the Warranty or Maintenance Agreement by providing faster hardware error reporting and uploading system information to IBM Support. This can translate to less wasted time monitoring the symptoms, diagnosing the error, and manually calling IBM Support to open a problem record. Its 24 x 7 monitoring and reporting mean no more dependence on human intervention or off-hours customer personnel when errors are encountered in the middle of the night.

Security: The Electronic Service Agent tool is designed to be secure in monitoring, reporting, and storing the data at IBM. The Electronic Service Agent tool securely transmits either via the Internet (HTTPS or VPN) or modem, and can be configured to communicate securely through gateways to provide customers a single point of exit from their site. Communication is one way. Activating Electronic Service Agent does not enable IBM to call into a customer's system. System inventory information is stored in a secure database, which is protected behind IBM firewalls. It is viewable only by the customer and IBM. The customer's business applications or business data is never transmitted to IBM.

More accurate reporting: Since system information and error logs are automatically uploaded to the IBM Support center in conjunction with the service request, customers are not required to find and send system information, decreasing the risk of misreported or misdiagnosed errors. Once inside IBM, problem error data is run through a data knowledge management system and knowledge articles are appended to the problem record.

Customized support: Using the IBM ID entered during activation, customers can view system and support information in the My Systems and Premium Search sections of the Electronic Support website at

<http://www.ibm.com/support/electronic>

My Systems provides valuable reports of installed hardware and software using information collected from the systems by Electronic Service Agent . Reports are available for any system associated with the customer's IBM ID. Premium Search combines the function of search and the value of Electronic Service Agent information, providing advanced search of the technical support knowledgebase. Using Premium Search and the Electronic Service Agent information that has been collected from your system, customers are able to see search results that apply specifically to their systems.

For more information on how to utilize the power of IBM Electronic Services, contact your IBM Systems Services Representative, or visit

<http://www.ibm.com/support/electronic>

Prices

Information on charges is available at website

<http://www.ibm.com/support>

In the Electronic tools category, select the option for Purchase/upgrade tools.

Passport Advantage

For Passport Advantage and charges, contact your IBM representative or your authorized IBM Business Partner. Additional information is also available at

<http://www.ibm.com/software/passportadvantage>

Business Partner information

If you are an IBM Business Partner -- Distributor for Workstation Software acquiring products from IBM , you may link to Passport Advantage Online for resellers where you can obtain Business Partner pricing information. An IBM ID and password are required.

<https://www.ibm.com/software/howtobuy/passportadvantage/paoreseller>

IBM Global Financing

IBM Global Financing offers competitive financing to credit-qualified customers to assist them in acquiring IT solutions. Offerings include financing for IT acquisition, including hardware, software, and services, from both IBM and other manufacturers or vendors. Offerings (for all customer segments: small, medium, and large enterprise), rates, terms, and availability can vary by country. Contact your local IBM Global Financing organization or visit

<http://www.ibm.com/financing>

IBM Global Financing offerings are provided through IBM Credit LLC in the United States, and other IBM subsidiaries and divisions worldwide to qualified commercial and government customers. Rates are based on a customer's credit rating, financing terms, offering type, equipment type, and options, and may vary by country. Other restrictions may apply. Rates and offerings are subject to change, extension, or withdrawal without notice.

Financing from IBM Global Financing helps clients preserve cash and credit lines, enables more technology acquisition within current budget limits, permits accelerated implementation of economically attractive new technologies, offers

payment and term flexibility, and can help match client project costs to projected benefits. Financing is available worldwide for credit-qualified customers.

For more financing information, visit

<http://www.ibm.com/financing>

Order now

To order, contact your local IBM representative or your IBM Business Partner.

To identify your local IBM Business Partner or IBM representative, call 800-IBM-4YOU (426-4968). For more information, contact the Americas Call Centers.

Phone: 800-IBM-CALL (426-2255)
Fax: 800-2IBM-FAX (242-6329)

For IBM representative: callserv@ca.ibm.com

For IBM Business Partner: pwswna@us.ibm.com

Mail: IBM Teleweb Customer Support
ibm.com® Sales Execution Center, Americas North
3500 Steeles Ave. East, Tower 3/4
Markham, Ontario
Canada L3R 2Z1

Reference: YE001

The Americas Call Centers, IBM's national direct marketing organization, can add your name to the mailing list for catalogs of IBM products.

Note: Shipments will begin after the planned availability date.

Trademarks

GPFS, Power Systems and Electronic Service Agent are trademarks of IBM Corporation in the United States, other countries, or both.

IBM, LSF, Symphony, Express, Passport Advantage, System x, iDataPlex, AIX, POWER and [ibm.com](http://www.ibm.com) are registered trademarks of IBM Corporation in the United States, other countries, or both.

Linux is a registered trademark of Linus Torvalds in the United States, other countries, or both.

Windows is a trademark of Microsoft Corporation in the United States, other countries, or both.

UNIX is a registered trademark of The Open Group in the United States and other countries.

Adobe is a trademark of Adobe Systems Incorporated in the United States, and/or other countries.

Other company, product, and service names may be trademarks or service marks of others.

Terms of use

IBM products and services which are announced and available in your country can be ordered under the applicable standard agreements, terms, conditions, and prices in effect at the time. IBM reserves the right to modify or withdraw this announcement at any time without notice. This announcement is provided for your information only. Additional terms of use are located at

<http://www.ibm.com/legal/us/en/>

For the most current information regarding IBM products, consult your IBM representative or reseller, or visit the IBM worldwide contacts page

<http://www.ibm.com/planetwide/us/>