



# IBM General Parallel File System V3.5 introduces File Placement Optimizer for Linux (PPA)

## Table of contents

1	Overview	4	Publications
2	Key prerequisites	4	Technical information
2	Planned availability date	7	Ordering information
2	Description	9	Terms and conditions
2	Product positioning	14	Prices
3	Program number	15	Order now

## At a glance

The new File Placement Optimizer feature, available with GPFS™ V3.5 for Linux™, extends GPFS for a new class of data-intensive applications, commonly referred to as *big data applications*. GPFS V3.5:

- Offers standard file system interfaces on UNIX™ and Microsoft™ Windows™ operating systems
- Allows concurrent reads and writes from multiple nodes
- Provides high-bandwidth data availability
- Supports failover and disaster recovery to minimize single points of failure
- Offers scalable information lifecycle management to enable flexible support of different disk classes through policy-driven automation and tiered storage management
- Provides multicluster support and use of multiple networks

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

The IBM General Parallel File System ( GPFS ) is a cluster file system designed for high-performance, parallel file access and management. GPFS delivers proven reliability, multicluster support, scalability and performance with automated failure recovery, and decentralized data management for simplifying administration. GPFS provides several essential services to allow you to effectively manage growing quantities of structured and unstructured data.

The new File Placement Optimizer (FPO) feature, available with GPFS V3.5 for Linux, extends GPFS for a new class of data-intensive applications, commonly referred to as *big data applications*. Big data applications involve processing massive amounts of data with a focus on semantically transforming the data. This class of applications is massively parallel and well suited for programming frameworks such as MapReduce that allow users to do large-scale data analysis where the application execution layer handles the system architecture, data partitioning, and task scheduling. A new license type is introduced for FPO nodes in a GPFS cluster that are sharing data with other FPO nodes, but not using GPFS for other usage that requires a GPFS Server license. You must purchase either a GPFS Server license or

the new GPFS FPO license for nodes in a GPFS cluster using the GPFS FPO function. GPFS FPO is an extension of GPFS that is designed to support this emerging class of workloads by applying five innovative optimizations:

- Locality awareness to allow compute jobs to be scheduled on nodes where the data resides
- Metablocks that allow large and small block sizes to co-exist in the same file system to meet the needs of different types of applications
- Write affinity that allows applications to dictate the layout of files on different nodes in order to maximize both write and read bandwidth
- Pipelined replication to maximize use of network bandwidth for data replication
- Distributed recovery to minimize the effect of failures on ongoing computation

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## Key prerequisites

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Refer to the [Hardware requirements](#) and [Software requirements](#) sections.

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## Planned availability date

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December 14, 2012

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## Description

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GPFS delivers file system services to parallel and serial applications. It gives parallel applications simultaneous access to the same or different files from any node that has the GPFS file system mounted, while managing a high level of control over all file system operations. GPFS is particularly appropriate in an environment where the aggregate peak need for data bandwidth exceeds the capability of a distributed file system server.

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### Accessibility by people with disabilities

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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](http://www.ibm.com/able/product_accessibility/index.html)

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### Section 508 of the US Rehabilitation Act

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GPFS is capable, as of December 14, 2012, when used in accordance with IBM's associated documentation, of satisfying the applicable requirements of Section 508 of the Rehabilitation Act, provided that any assistive technology used with the product properly interoperates with it. A US Section 508 Voluntary Product Accessibility Template (VPAT) can be requested at

[http://www.ibm.com/able/product\\_accessibility/index.html](http://www.ibm.com/able/product_accessibility/index.html)

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## Product positioning

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GPFS is ideal for a wide range of workloads where it is imperative to have high-speed, reliable access, or automated management of very large file sizes or a very large number of files:

- Scale-out data access. A high-performance scale-out file system for business applications that benefit from active/active data access from multiple nodes.
- A multicluster file system, providing a global namespace across clusters for parallel processing on compute clusters, featuring extreme scalability and throughput optimized for streaming workloads such as those common in Web

2.0, digital media, scientific, and engineering applications. Users entitled with a GPFS (Server, Client/FPO as appropriate) license are allowed shared access to files in either the cluster where the file system was created or other GPFS clusters. Each site in the network is managed as a separate cluster, while allowing shared file system access.

- HSM platform. The built-in policy engine supports multiple tiers of storage, including tape, with powerful policy-driven file placement, migration, deletion, and reporting. This makes GPFS the perfect base for a content library or archival system by mixing cost-effective storage of infrequently accessed data with the global namespace for easy accessibility.

The new File Placement Optimizer feature, available with GPFS V3.5 on Linux, extends GPFS for a new class of data-intensive applications, commonly referred to as *big data applications*. Big data applications involve processing massive amounts of data with a focus on semantically transforming the data. This class of applications is massively parallel and well suited for programming frameworks such as MapReduce that allow users to do large-scale data analysis where the application execution layer handles the system architecture, data partitioning, and task scheduling. A new license type is introduced for FPO nodes in a GPFS cluster that are sharing data with other FPO nodes, but not using GPFS for other usage that requires a GPFS Server license. You must purchase either a GPFS Server license or the new GPFS FPO license for nodes in a GPFS cluster using the GPFS FPO function. GPFS FPO is an extension of GPFS that is designed to support this emerging class of workloads by applying five innovative optimizations.

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## Reference information

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Refer to Software Announcement [212-472](#), dated December 11, 2012.

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## Program number

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Program number	VRM	Program name
5724-N94	3.5	IBM GPFS for Linux on x86 Architecture

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## Education support

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The following classes are available:

Course code	Course title	Course type
AN810	GPFS System Administration	Classroom
AX810	GPFS System Administration	Instructor Led-Online
AN820	GPFS Performance Tuning	Classroom
AX820	GPFS Performance Tuning	Instructor Led-Online

IBM training provides education to support many IBM offerings. Descriptions of courses for IT professionals and managers are on the IBM training website

<http://www.ibm.com/services/learning/>

Call IBM training at 800-IBM-TEACH (426-8322) for catalogs, schedules, and enrollments.

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## Offering Information

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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>

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## Publications

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No publications are shipped with this program.

The following publications are available from the web:

- IBM GPFS Concepts, Planning, and Installation Guide (GA76-0413)
- IBM GPFS Administration and Programming Reference (SA23-2221)
- IBM GPFS Advanced Administration and Programming Reference (SC23-5182)
- IBM GPFS Problem Determination Guide (GA76-0415)
- IBM GPFS Data Management API Guide (GA76-0414)

To access the above GPFS documentation, refer to the IBM Cluster Information Center website. This website contains the most recent GPFS documentation in PDF and HTML formats and is located at

<http://publib.boulder.ibm.com/infocenter/clresctr/vxrx/index.jsp>

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.

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## Technical information

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### Specified operating environment

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#### *Hardware requirements*

GPFS on x86 Architecture and the File Placement Optimizer function are supported on all IBM ServerProven® servers with the following minimum hardware requirements, unless stated otherwise in the GPFS FAQs:

- Intel™ EM64T processors, with a minimum of 1 GB of system memory
- AMD Opteron processors, with a minimum of 1 GB of system memory

To determine if a server is ServerProven, see the IBM ServerProven site at

<http://www-03.ibm.com/systems/info/x86servers/serverproven/compat/us/>

Additionally, see the FAQs for supported connectivity, formally qualified disk subsystems, and use of GPFS on compatible non-IBM hardware. The GPFS FAQs are available at

[http://publib.boulder.ibm.com/infocenter/clresctr/vxrx/topic/com.ibm.cluster.gpfs.doc/g\\_pfs\\_faqs/gpfsclustersfaq.html](http://publib.boulder.ibm.com/infocenter/clresctr/vxrx/topic/com.ibm.cluster.gpfs.doc/g_pfs_faqs/gpfsclustersfaq.html)

### **Software requirements**

For the File Placement Optimizer feature on Linux with GPFS V3.5, APAR IV28687 is required and an order for the FPO license must be placed.

It is suggested that you install the latest service update that is available at

<http://www-933.ibm.com/support/fixcentral/>

GPFS for Linux on x86 Architecture V3.5 is supported on the Red Hat Enterprise Linux (RHEL), SUSE Linux Enterprise Server (SLES), and Debian distributions. FPO is not supported on the Debian distribution.

For currently supported release levels of RHEL, SLES, and Debian distributions and the latest supported kernel levels, consult the GPFS FAQs at

[http://publib.boulder.ibm.com/infocenter/clresctr/vxrx/topic/com.ibm.cluster.gpfs.doc/g\\_pfs\\_faqs/gpfsclustersfaq.html](http://publib.boulder.ibm.com/infocenter/clresctr/vxrx/topic/com.ibm.cluster.gpfs.doc/g_pfs_faqs/gpfsclustersfaq.html)

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**

Related products to GPFS are:

- IBM DS and DCS disk arrays
- IBM Tivoli® Storage Manager
- IBM Tivoli Provisioning Manager
- IBM HPSS (High Performance Storage System)
- IBM System Storage® SAN Volume Controller

### **Compatibility**

The GPFS FPO license permits the licensed node to perform NSD server functions for sharing GPFS data with other nodes that have a GPFS FPO or GPFS Server license. This license cannot be used to share data with nodes that have a GPFS Client license or non-GPFS nodes.

Nodes running the GPFS File Placement Optimizer feature cannot coexist or interoperate with nodes running GPFS V3.4 or earlier releases of GPFS.

### **Limitations**

The File Placement Optimizer function is only available with GPFS V3.5 on the Linux operating system with APAR IV28687. An order for the FPO license must be placed. FPO is not supported on the Debian distribution.

The GPFS FPO license permits the licensed node to perform NSD server functions for sharing GPFS data with other nodes that have a GPFS FPO or GPFS Server license. This license cannot be used to share data with nodes that have a GPFS Client license or non-GPFS nodes.

Nodes running the GPFS File Placement Optimizer feature cannot coexist or interoperate with nodes running GPFS V3.4 or earlier releases of GPFS.

For complete and up-to-date information regarding GPFS specifications and capacities, refer to the GPFS on x86 Architecture (5724-N94) Sales Manual and to the GPFS FAQs available at

[http://publib.boulder.ibm.com/infocenter/clresctr/vxrx/topic/com.ibm.cluster.gpfs.doc/g\\_pfs\\_faqs/gpfsclustersfaq.html](http://publib.boulder.ibm.com/infocenter/clresctr/vxrx/topic/com.ibm.cluster.gpfs.doc/g_pfs_faqs/gpfsclustersfaq.html)

For additional information, refer to [Usage restrictions](#) section of this announcement, or to the License Information document that is available on the IBM Software License Agreement website

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

### **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**

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The File Placement Optimizer function is only available with GPFS V3.5 on the Linux operating system with APAR IV28687. An order must be placed for the FPO license.

The GPFS FPO license permits the licensed node to perform NSD server functions for sharing GPFS data with other nodes that have a GPFS FPO or GPFS Server license. This license cannot be used to share data with nodes that have a GPFS Client license or non-GPFS nodes.

Nodes running the GPFS File Placement Optimizer feature cannot coexist or interoperate with nodes running GPFS V3.4 or earlier releases of GPFS .

### **Customer responsibilities**

Refer to the [Limitations](#) and [Usage restrictions](#) sections.

### **Installability**

For installation information, refer to the *GPFS Concepts, Planning, and Installation Guide*.

### **Packaging**

IBM GPFS for Linux on x86 Architecture is distributed on an individual package containing the Linux installation files and GPFS Server, GPFS Client, and GPFS FPO ( Linux only) installation code or available for electronic download as follows:

- IBM International Program License Agreement (L-LMUY-8YAP3Y) in multiple languages.

GPFS V3.5 program filesets:

Linux :

- `gpfs_install_3.5.0-0_x86_64`

Publications are available online at

<http://publib.boulder.ibm.com/infocenter/clresctr/vxrx/index.jsp>

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**

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GPFS uses the security and auditability features of the operating system on which it is installed. The customer is responsible for evaluation, selection, and implementation of security features, administrative procedures, and appropriate controls in application systems and communication facilities.

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## **Software Services**

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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/>

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## **Ordering information**

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

Product group: Other Software

Product Identifier Description (PID)

General Parallel File System on x86 Architecture (5724-N94)

Product category: System Software

### **Charge metric**

Program name	Part number or PID number	Charge metric
GPFS on x86 Architecture	5724-N94	10 PVUs

### **Processor Value Unit (PVU)**

PVU is a unit of measure by which the program can be licensed. The number of PVU entitlements required is based on the processor technology (defined within the PVU table by processor value, brand, type, and model number at the website below) and the number of processors made available to the program. IBM continues to define a processor, for the purpose of PVU-based licensing, to be each processor core on a chip. A dual-core processor chip, for example, has two processor cores. The PVU table can be found at

[http://www.ibm.com/software/lotus/passportadvantage/pvu\\_licensing\\_for\\_customers.html](http://www.ibm.com/software/lotus/passportadvantage/pvu_licensing_for_customers.html)

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 (refer to the web page below). If using Full Capacity

licensing, Licensee must obtain PVU entitlements sufficient to cover all activated processor cores<sup>1</sup> in the physical hardware environment made available to or managed by the program, except for those servers from which the program has been permanently removed. If using Virtualization Capacity licensing, Licensee must obtain entitlements sufficient to cover all activated processor cores made available to or managed by the program, as defined according to the Virtualization Capacity License Counting Rules at

[http://www.ibm.com/software/lotus/passportadvantage/Counting\\_Software\\_licenses\\_using\\_specific\\_virtualization\\_technologies.html](http://www.ibm.com/software/lotus/passportadvantage/Counting_Software_licenses_using_specific_virtualization_technologies.html)

<sup>1</sup> 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.

#### Notes :

- Some programs may require licenses for the program and what is being managed. In that case, the following applies. In addition to the entitlements required for the program directly, licensee must obtain PVU entitlements for this program sufficient to cover the processor cores 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 program directly, licensee must obtain PVU entitlements for this program sufficient to cover the processor cores managed by the program.
- A few programs on an exception basis may be licensed on a referenced basis. In that case, the following applies. Rather than obtaining entitlements for the activated processor cores available to the program, licensee must obtain PVU entitlements for this program sufficient to cover the environment made available to the referenced program as if the program itself were executing everywhere the referenced program was executing, independent of the basis on which the referenced program is licensed.

The programs in this announcement all have Value Unit-Based pricing.

Program number	Program name	Value Unit exhibit
5724-N94	IBM GPFS on x86 Architecture	Processor

#### Passport Advantage

Server and Client as previously announced

Program name/Description	Part number
IBM GPFS on x86 Architecture v3.5	BH040EN
GPFS Server 10 Processor Value Unit Lic + SW S&S	D091MLL 12 Mo
GPFS Server 10 Processor Value Unit Annual SW S&S	E06VULL Rnw1
GPFS Server 10 Processor Value Unit SW S&S Reinstate	D091NLL 12 Mo
GPFS Client 10 Processor Value Unit Lic + SW S&S	D091RLL 12 Mo
GPFS Client 10 Processor Value Unit Annual SW S&S	E06VWLL Rnw1
GPFS Client 10 Processor Value Unit SW S&S Reinstate	D091SLL 12 Mo
GPFS FPO 10 Processor Value Unit Lic + SW S&S	D0VEALL 12 Mo
GPFS FPO 10 Processor Value Unit Annual SW S&S	E0F83LL Rnw1
GPFS FPO 10 Processor Value Unit SW S&S Reinstate	D0VEBLL 12 Mo



## 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.

Server and Client as previously announced

Entitled maintenance offerings Description	Part number
General Parallel File System Server 10 Processor Value Units LIC+SW MAINT 12 MO	D091MLL
General Parallel File System Server 10 Processor Value Units ANNUAL SW MAINT RNWL	E06VULL
General Parallel File System Server 10 Processor Value Units SW MAINT REINSTATE 12 MO	D091NLL
General Parallel File System Client 10 Processor Value Units LIC+SW MAINT 12 MO	D091RLL
General Parallel File System Client 10 Processor Value Units ANNUAL SW MAINT RNWL	E06VWLL
General Parallel File System Client 10 Processor Value Units SW MAINT REINSTATE 12 MO	D091SLL
General Parallel File System FPO 10 Processor Value Units LIC+SW MAINT 12 MO	D0VEALL
General Parallel File System FPO 10 Processor Value Units ANNUAL SW MAINT RNWL	E0F83LL
General Parallel File System FPO 10 Processor Value Units SW MAINT REINSTATE 12 MO	D0VEBLL
Media packs Description	Part number
IBM General Parallel File System V3.5 on x86 Architecture	BH040EN

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## Terms and conditions

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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 Proof of Entitlement (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.

This software license includes Software Subscription and Support (also referred to as 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 with the initial license acquisition of each program acquired. The initial period of Software Subscription and Support 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***

L-LMUY-8YAP3Y

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.

***Volume orders (IVO)***

No

## **Passport Advantage applies**

Yes, and through the Passport Advantage website at

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

## **Usage restrictions**

Yes.

GPFS has three types of licenses: a Server license, a Client license, and an FPO license. For each node in a GPFS cluster (see Permitted use of GPFS Server, GPFS Client, and GPFS FPO below), the customer determines the appropriate number of GPFS Server, GPFS Client, or GPFS FPO licenses that correspond to the way GPFS is used on that node. A node is defined as an individual operating system image that may appear on a single computer within a cluster, on a system within a cluster, or on a partition.

During GPFS cluster configuration, the customer is prompted to identify whether a particular node is a GPFS Server, GPFS Client, or a GPFS FPO. If a GPFS Client is chosen, function that requires a GPFS Server license will be disabled on this node. If a GPFS FPO is chosen, you will not be able to designate the node as quorum, file system manager, config manager, CNFS, or AFM gateway. This license cannot be used to share data with nodes that have a GPFS Client license or non-GPFS nodes. Because the node that acts as the GPFS cluster configuration server requires a GPFS Server designation, at least one node in the GPFS cluster requires a GPFS Server license.

## **Permitted use of GPFS Server, GPFS Client, and GPFS FPO**

### **Permitted use of GPFS Server**

The GPFS Server license permits the licensed node to perform GPFS management functions such as cluster configuration manager, quorum node, manager node, and Network Shared Disk (NSD) server. In addition, the GPFS Server license permits the licensed node to share GPFS data directly through any application, service protocol, or method such as Network File System (NFS), Common Internet File System (CIFS), File Transfer Protocol (FTP), or Hypertext Transfer Protocol (HTTP).

### **Permitted use of GPFS Client**

The GPFS Client license permits exchange of data between nodes that locally mount the same GPFS file system. No other export of the data is permitted. The GPFS Client may not be used for nodes to share GPFS data directly through any application, service, protocol, or method, such as NFS, CIFS, FTP, or HTTP. For these functions, a GPFS Server license would be required.

### **Permitted use of GPFS FPO**

The GPFS FPO license permits the licensed node to perform NSD server functions for sharing GPFS data with other nodes that have a GPFS FPO or GPFS Server license. This license cannot be used to share data with nodes that have a GPFS Client license or non-GPFS nodes.

**Note:** Refer to the GPFS FAQs available from the following website for more information, including example configurations and license definitions regarding the GPFS Server, GPFS Client, and FPO model

[http://publib.boulder.ibm.com/infocenter/clresctr/vrx/topic/com.ibm.cluster.gpfs.doc/g\\_pfs\\_faqs/gpfsclustersfaq.html](http://publib.boulder.ibm.com/infocenter/clresctr/vrx/topic/com.ibm.cluster.gpfs.doc/g_pfs_faqs/gpfsclustersfaq.html)

For additional information, refer to the License Information document that is available on the IBM Software License Agreement website

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

**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>

**System i Software Maintenance applies**

No

**Variable charges apply**

No

**Educational allowance available**

Not applicable.

**Additional information - Distributor terms**

For the products in this announcement, the previously announced remarketing terms remain unchanged as announced in Software Announcement [212-048](#), dated April 10, 2012 .

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**Statement of good security practices**

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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.

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## IBM Electronic Services

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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® 5.3, AIX 6.1, and AIX 7.1, 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.

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### Benefits

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**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 Web site 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>

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## Prices

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For additional information and current prices, contact your local IBM representative.

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