IBM General Parallel File System V4.1 enhances security, performance, and usability (Passport Advantage)

Table of contents

At a glance

IBM® General Parallel File System (GPFS™) V4.1 delivers a fast, highly available, highly scalable shared file system for clustered systems.

- Allows users access to files spanning multiple disk drives on multiple nodes
- Offers security enhancements, performance improvements, and usability enhancements over previous releases
- Offers a change in the licensing metric and options for GPFS editions

Overview

GPFS is a cluster file system designed for high-performance parallel file transfers and parallel I/O to single or multiple files. GPFS delivers proven reliability, multicluster support, scalability, and performance with automated failure recovery, and decentralized data management for simplifying administration.

IBM GPFS V4.1 delivers software-defined storage for cloud, big data and analytics, and data-intensive technical workflows, with enhanced security, flash accelerated performance, and usability. GPFS V4.1 enhancements include the following:

- Security
  - Native encryption, designed for both secure storage and secure deletion of data
  - NIST SP 800-131A compliance
- Performance
  - Solid-state drive (SSD) read-only cache
  - Network performance monitoring
  - Active File Management (AFM) parallel read and write
- Usability
  - AFM-based NFS data migration
  - Backup/restore improvements
  - File Placement Optimizer (FPO) enhancements
  - AFM operation
  - Reliability, availability, and serviceability

GPFS V4.1 offers three levels of function and three licensing options: Express® Edition, Standard Edition, and Advanced Edition, each of which can be licensed by GPFS Client, GPFS Server, and FPO.

Note: GPFS V4.1 Advanced Edition is not supported running on the Microsoft™ Windows™ operating system.

License metrics for GPFS V4.1 is changed. The metric for licensing is based on the number of sockets on the server, or virtual server, available to GPFS. Refer to the license or Charge metric section for a complete definition.

Key prerequisites

GPFS V4.1 is supported on IBM Power Systems™ servers running the AIX® or Linux™ operating systems, and IBM System x® and other rack-based servers, as well as non-IBM x86 and x64 servers, running the Linux or Microsoft Windows operating systems with a minimum of 1 GB of system memory.

Note: GPFS V4.1 Advanced Edition is not supported running on the Microsoft Windows operating system.

Planned availability date

- May 2, 2014: Electronic download
- May 16, 2014: Physical media (DVD)

Description

Enhanced security

- Native encryption, designed for both secure storage and secure deletion
  - GPFS V4.1 encryption is designed to protect data on a disk from most security breaches, unauthorized access, or being lost, stolen, or improperly discarded. GPFS V4.1 uses cryptographic erase intended for fast, simple, and secure drive retirement.
- NIST SP 800-131A
  - GPFS complies with the publication NIST SP 800-131A, "Recommended Security Controls for Federal Information Systems and Organizations," which specifies recommended encryption methods.

Note: GPFS V4.1 Advanced Edition is not supported running on the Microsoft Windows operating system.

Performance improvements

- SSD read-only cache
  - The support of large local read-only cache using solid-state disks benefits many applications. Data is available with very low latency, and the cache serves to reduce the load on the shared network and on the backend disk storage, optimizing performance.
- Network performance monitoring
  - Optimal GPFS performance is dependent on proper network performance and behavior. GPFS V4.1 provides for monitoring of network performance in the form of RPC latency measurement to detect and troubleshoot networking issues that may affect GPFS operation.
- AFM Parallel read and write
  - Active File Management (AFM) environments can now support parallel reads and parallel writes. During parallel reads, multiple gateway nodes are used to prefetch a single file, designed to improve performance. During parallel writes,

multiple gateway nodes can be used to synchronize changes to small and large files, designed to improve performance.

Enhanced usability

- AFM operation

  – GPFS V4.1 includes a number of features optimizing AFM operation. These include prefetch enhancements that prepopulate the AFM cache so file data is resident locally before it is directly requested by an application. In addition to NFS, AFM now supports the native GPFS protocol for the AFM communication channel, providing for improved integration of GPFS features and attributes.

- AFM-based NFS data migration

  – GPFS now supports data migration. Data migration eases data transfer when upgrading hardware or buying a new system. GPFS data migration can minimize downtime for applications, move actual file data along with any permissions and ACLs associated with files, consolidate data from multiple legacy systems into a more powerful system, and may keep associated configuration data intact. Data migration can be done by Volume/Block/Disk level migration, Filesystem migration, backup/restore, and other methods.

- Backup/restore improvements

  – Backup and restore enhancements include a new Fileset Snapshot Restore tool designed to restore data from a fileset snapshot into the active file system. The tool can deal with files that have been removed, added, or changed since the snapshot was taken. Extended attributes saved at the snapshot are also restored. In addition, mmbackup now automatically adjusts its own work distribution and parallel access to IBM Tivoli® Storage Manager according to resources available and user-provided input parameters.

- FPO enhancements

  – File Placement Optimizer (FPO) enhancements include data locality-aware restripe improvements and fine-grained directory locking for directory operations supporting Hadoop/big data workloads that require a large number of directories to be created, deleted, or moved from under the same parent directory for each map and reduce operation.

- Reliability, availability, and serviceability (RAS)

  – GPFS V4.1 RAS enhancements include a possible reduction in the time to repair a file system using data replication by repairing only the data blocks that were changed during the time the disk was down.
  – GPFS configuration data is now managed by a quorum of nodes enhancing data availability. GPFS offers diagnostic data collection and enhanced protection against accidental misuse of GPFS disks.

GPFS V4.1 is available in three editions:

- Express Edition: Contains the base GPFS function.
- Standard Edition: Includes the base function plus Information Lifecycle Management, Active File Management, and Clustered NFS.
- Advanced Edition: Includes encryption and the features of Standard Edition.

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 General Parallel File System (GPFS) V4.1 is positioned as software-defined storage for cloud, and big data and analytics, with enhanced security, flash accelerated performance, and enhanced usability for broad adoption.

Statement of direction

IBM General Parallel File System for Linux on System z®

IBM intends to extend the General Parallel File System (GPFS) licensed program to support Linux on System z, providing a cluster file system with high-performance, high availability, and parallel file access for System z.

IBM's statements regarding its plans, directions, and intent are subject to change or withdrawal without notice at IBM's sole discretion. Information regarding potential future products is intended to outline our general product direction and it should not be relied on in making a purchasing decision. The information mentioned regarding potential future products is not a commitment, promise, or legal obligation to deliver any material, code, or functionality. Information about potential future products may not be incorporated into any contract. The development, release, and timing of any future features or functionality described for our products remains at our sole discretion.

Program number

Program number	VRM	Program name
5725-Q01	4.1.0	General Parallel File System

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

No publications are shipped with this program.

The following publications are available from the web:

- IBM GPFS Concepts, Planning, and Installation Guide (GA76-0441)
- IBM GPFS Administration and Programming Reference (SA23-1452)
- IBM GPFS Advanced Administration and Programming Reference (SC23-7032)
- IBM GPFS Problem Determination Guide (GA76-0443)
- IBM GPFS Data Management API Guide (GA76-0442)

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

IBM Knowledge Center is a worldwide central repository of IBM technical publications hosted in a single application, located at a single URL

http://www.ibm.com/support/knowledgecenter/

You can find and navigate technical content more efficiently and easily with improved search, filtering, and user experience. Create your own collections of IBM documents with PDF output on-demand.

The IBM GPFS product collection is located at

http://www.ibm.com/support/knowledgecenter/SSFKCN/welcome

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

GPFS V4.1 is supported on IBM Power Systems, IBM System x, and specified non-IBM rack-based servers including:

- Power Systems
- PureFlex™
- System x iDataPlex®
- Intelligent Cluster™
- Non-IBM x86 and x64 rack-based servers

Minimum hardware requirements:

- IBM POWER5 processors, or later
- AMD Opteron processors
- Intel™ EM64T processors
- 1 GB of system memory

Additionally, see the FAQs for supported connectivity, and formally qualified disk subsystems.

The GPFS FAQs are available at

http://publib.boulder.ibm.com/infocenter/clresctr/vxrx/index.jsp?topic=
%2Fcom.ibm.clust er.gpfs.doc%2Fgpfs_faqs%2Fgpfsclustersfaq.html

Software requirements

The minimum operating system requirements are:

- Red Hat Enterprise Linux (RHEL) 6.2
- SUSE Linux Enterprise Server (SLES) 11 SP 2
- IBM AIX V6 and V7
- Debian 6.0.3 and 7
- For Microsoft Windows, the following are supported:

- Windows Server 2008 x64 (SP 2) and R2, Windows 7 (Enterprise and Ultimate editions) x64 SP 1, Windows Server 2012 (Datacenter and Standard), and Windows 8.1

Note: GPFS V4.1 Advanced Edition is not supported running on the Microsoft Windows operating system.

GPFS V4.1 for Windows requires the installation of Cygwin. To download, go to

http://www.cygwin.com/

For all environments, it is suggested that you install the latest service update available at

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

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

When integrated with IBM Tivoli Storage Manager (TSM) or IBM Linear Tape File System™ (LTFS) Enterprise Edition, GPFS can uniquely manage the full data lifecycle, with the potential to deliver geometrically lower cost savings through policy-driven automation and tiered storage management.

Compatibility

GPFS V4.1 will co-exist with GPFS V3.5 in the same cluster. Use of new functions will require that all nodes be upgraded to GPFS V4.1.

GPFS V4.1 will interoperate with nodes from the prior release, but will limit the function to that of the older release. The GPFS V4.1 function will be made available when all nodes have upgraded to the newest code level.

Limitations

Current limitations of the GPFS encryption function, available with the GPFS V4.1 Advanced Edition, include:

- The encryption of directories is not supported.
- Encrypted backup requires the user to provide a separate tape solution.

Additionally, GPFS Native Encryption is not supported on Windows. The encryption function should be disabled when Windows nodes are in the cluster.

The GPFS FAQ will be updated to reflect any changes as they become available.

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/electronicsupport

Access the IBM Support Portal

http://ibm.com/support

Access the online Service Request tool

http://ibm.com/support/servicerequest

Planning information

GPFS V4.1 running in a Windows environment now requires you to install Cygwin for the shell execution environment. Subsystem for UNIX-based Applications (SUA) is no longer being used.

GPFS V4.1 is available in three editions:

- Express Edition: Contains the base GPFS function.
- Standard Edition: Includes the base function plus Information Lifecycle Management, Active File Management, and Clustered NFS.
- Advanced Edition: Includes encryption and the features of Standard Edition.

Packaging

GPFS V4.1 is distributed on multiple DVD media (Express, Standard, or Advanced Editions) and is available through electronic download as multiple eAssemblies. Included are:

- IBM International Program License Agreement in multiple languages
- Proof of Entitlement (POE)
- Product readme file that describes the program's specified operating environment and program specifications
- GPFS install images
  - Express Edition: gpfs.docs, gpfs.gpl, gpfs.msg, gpfs.gnr, gpfs.gskit
  - Standard Edition: gpfs.docs, gpfs.gpl, gpfs.msg, gpfs.gnr, gpfs.gskit, gpfs.ext
  - Advanced Edition: gpfs.docs, gpfs.gpl, gpfs.msg, gpfs.gnr, gpfs.gskit, gpfs.ext, gpfs.crypto

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

GPFS uses the security and auditability features of the system in 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.

Ordering information

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 (5725-Q01)

Product category: System Software
```

Passport Advantage

```
                                                              Part
Program name/Description                                      number

IBM GPFS Version 4.1 Express Media Package English            BH044ML
IBM GPFS Version 4.1 Standard Media Package English           BH043ML
IBM GPFS Version 4.1 Advanced Media Package English           BH045ML


IBM GPFS Express Client per Socket LIC + SW MAINT 12 MO       D148RLL
IBM GPFS Express Client per Socket ANNUAL SW MAINT RENEWAL    E0J9ZLL
IBM GPFS Express Client per Socket SWMA REINSTATE 12 MO       D148SLL

IBM GPFS Express Server per Socket LIC + SW MAINT 12 MO       D149DLL
IBM GPFS Express Server per Socket ANNUAL SW MAINT RENEWAL    E0JAKLL
IBM GPFS Express Server per Socket SWMA REINSTATE 12 MO       D149ELL

IBM GPFS Express FPO per Socket LIC + SW MAINT 12 MO          D14AHLL
IBM GPFS Express FPO per Socket ANNUAL SW MAINT RENEWAL       E0JBNLL
IBM GPFS Express FPO per Socket SW MAINT REINSTATE 12 MO      D14AILL

IBM GPFS Standard Client per Socket LIC + SW MAINT 12 MO      D148HLL
IBM GPFS Standard Client per Socket ANNUAL SW MAINT RENEWAL   E0J9WLL
IBM GPFS Standard Client per Socket SWMA REINSTATE 12 MO      D148ILL

IBM GPFS Standard Server per Socket LIC + SW MAINT 12 MO      D148KLL
IBM GPFS Standard Server per Socket ANNUAL SW MAINT RENEWAL   E0J9XLL
IBM GPFS Standard Server per Socket SWMA REINSTATE 12 MO      D148LLL

IBM GPFS Standard FPO per Socket LIC + SW MAINT 12 MO         D148NLL
IBM GPFS Standard FPO per Socket ANNUAL SW MAINT RENEWAL      E0J9YLL
IBM GPFS Standard FPO per Socket SW MAINT REINSTATE 12 MO     D148PLL

IBM GPFS Advanced Client per Socket LIC + SW MAINT 12 MO      D14ANLL
IBM GPFS Advanced Client per Socket ANNUAL SW MAINT RENEWAL   E0JBRLL
IBM GPFS Advanced Client per Socket SWMA REINSTATE 12 MO      D14APLL

IBM GPFS Advanced Server per Socket LIC + SW MAINT 12 MO      D14ASLL
IBM GPFS Advanced Server per Socket ANNUAL SW MAINT RENEWAL   E0JBSLL
IBM GPFS Advanced Server per Socket SWMA REINSTATE 12 MO      D14ATLL

IBM GPFS Advanced FPO per Socket LIC + SW MAINT 12 MO         D14AWLL
IBM GPFS Advanced FPO per Socket ANNUAL SW MAINT RENEWAL      E0JBTLL
IBM GPFS Advanced FPO per Socket SW MAINT REINSTATE 12 MO     D14AXLL

GPFS Adv Client fr GPFS Exp Client Sckt Trdup Lic+SW S&S 12 Mo  D14AQLL
GPFS Adv Server fr GPFS Exp Server Sckt Trdup Lic+SW S&S 12 Mo  D14AULL
GPFS Adv FPO from GPFS Exp FPO Socket Tradeup Lic+SW S&S 12 Mo  D14AYLL

GPFS Adv Client fr GPFS Std Client Sckt Trdup Lic+SW S&S 12 Mo  D14ARLL
GPFS Adv Server fr GPFS Std Server Sckt Trdup Lic+SW S&S 12 Mo  D14AVLL
GPFS Adv FPO from GPFS Std FPO Socket Tradeup Lic+SW S&S 12 Mo  D14AZLL

GPFS Std Client fr GPFS Exp Client Sckt Trdup Lic+SW S&S 12 Mo  D148JLL
GPFS Std Server fr GPFS Exp Server Sckt Trdup Lic+SW S&S 12 Mo  D148MLL
GPFS Std FPO from GPFS Exp FPO Socket Tradeup Lic+SW S&S 12 Mo  D148QLL
```

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.

A special bid will be required to migrate your license and entitlements from
Processor Value Units (PVUs) to Sockets.

```
Entitled maintenance offerings
description                                        Part number

GPFS on x86 Arch Client 10 PVU Lic+SW S&S 12 Mo    D091RLL
GPFS on x86 Arch Client 10 PVU SW S&S Renewal      E06VWLL
GPFS on x86 Arch Clt 10PVU SW S&S Reinstate 12Mo   D091SLL

IBM GPFS FPO 10 PVU Lic + SW S&S 12 Months         D0VEALL
IBM GPFS FPO 10 PVU Annual SW S&s Renewal 12 Mo    E0F83LL
IBM GPFS FPO 10 PVU SW S&S Reinstatement 12 Mo     D0VEBLL

GPFS on x86 Arch Server 10 PVU Lic+SW S&S 12 Mo    D091MLL
GPFS on x86 Archit Server 10 PVU SW S&S Renewal    E06VULL
GPFS on x86 Arch Svr 10PVU SW S&S Reinstate 12Mo   D091NLL


Entitled media packs
description                                        Part number

IBM GPFS on X-86 Architec V3.5 Eng CD ROM Med Pk   BH040EN
IBM GPFS on x86 Architec V3.4 Multiplat Eng M Pk   BH03VEN
```

The following media pack is available to customers with active maintenance or
subscription to bridge them to GPFS V4.1 prior to maintenance renewal.

```
Entitled media packs
description                                        Part number

IBM GPFS-Standard Edition V4.1 Eng CD ROM Med Pk   BH046EN
```

Charge metric

```
                Part number or
Program name    PID number          Charge metric

 GPFS           5725-Q01            Per socket
```

Socket

Socket is a unit of measure by which the program can be licensed. A socket is
electronic circuitry that accepts a processor chip. A *server* is a physical computer
that is comprised of processing units, memory, and input/output capabilities that
executes requested procedures, commands, or applications for one or more users
or client devices. Where racks, blade enclosures, or other similar equipment is being
employed, each separable physical device (for example, a blade or a rack-mounted
device) that has the required components is considered itself a separate server.
A virtual server is either a virtual computer created by partitioning the resources
available to a physical server or the unpartitioned physical server. Licensee must
obtain entitlements for each socket on the virtual servers made available to the
program.

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.

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 numbers

```
GPFS V4.1 Express Edition        L-LMUY-9GUSVF
GPFS V4.1 Standard Edition       L-LMUY-9GUSQP
GPFS V4.1 Advanced Edition       L-LMUY-9CZFHS
```

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

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.

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 24x7 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 via either the Internet (HTTPS or VPN) or modem, and can be configured to communicate securely through gateways to provide you a single point of exit from

your site. Communication is one way. Activating Electronic Service Agent does not enable IBM to call into your system. System inventory information is stored in a secure database, which is protected behind IBM firewalls. It is viewable only by you and IBM. Your business applications or business data is never transmitted to IBM.

More accurate reporting: Because system information and error logs are automatically uploaded to the IBM Support center in conjunction with the service request, you 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, you 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 your 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, you are able to see search results that apply specifically to your 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

For all local charges, contact your IBM representative.

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 Web Ordering System (WOS) or Partner Sales Support Center (PSSC).

An IBM ID and password are required.

- WOS

  > https://www-607.ibm.com/software/partners/jp/order/wos_i/top/boot.wss
- PSSC

  > https://www-304.ibm.com/partnerworld/mem/pat/pat_sol_ssc_jp.html

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

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 you 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 project costs to projected benefits.
Financing is available worldwide for credit-qualified customers.

AP distribution

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Country/Region              Announced

AP IOT
 ASEAN*                      Yes
 India/South Asia**          Yes
 Australia                   Yes
 People's Republic of China  Yes
 Hong Kong S.A.R of the PRC  Yes
 Macao S.A.R of the PRC      Yes
 Taiwan                      Yes
 South Korea                 Yes
 New Zealand                 Yes
Japan IOT
 Japan                       Yes


 * Brunei Darussalam, Indonesia, Cambodia, Lao People's Democratic
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**Bangladesh, Bhutan, India, Sri Lanka, Maldives, Nepal, and
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