

IBM Tivoli Policy Driven Software Distribution



Readme File for Fix Pack 7.1.0-TIV-TPDSD-FP0004

Version 7.1

IBM Tivoli Policy Driven Software Distribution



Readme File for Fix Pack 7.1.0-TIV-TPDSD-FP0004

Version 7.1

Note

Before using this information and the product it supports, read the information in "Notices" on page 13.

This edition applies to fix pack 7.1.0–TIV-TPDSD-FP0004 for version 7, release 1 of IBM Tivoli Policy Driven Software Distribution (program number 5724–C06).

© **Copyright IBM Corporation 2009, 2011.**

US Government Users Restricted Rights – Use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM Corp.

Contents

Readme File for fix pack 7.1.0–TIV-TPDSD–FP0004	1
About this fix pack	1
New in Fix Pack 7.1.0–TIV-TPDSD–FP0004	1
Features and enhancements	1
Product fixes	2
Documentation fixes	8
Documentation enhancements	9
Installation, migration, upgrade, and configuration information	10
Installing the fix pack	10
Importing reports	10
Upgrading agents	11
Reverting to the previous version	11
Notices	13
Trademarks	14

Readme File for fix pack 7.1.0–TIV-TPDSD–FP0004

This readme provides important information about Fix Pack 7.1.0–TIV-TPDSD–FP0004 for IBM® Tivoli Policy Driven Software Distribution, version 7.1. This readme is the most current information for the fix pack and takes precedence over all other documentation.

Fix packs are cumulative, so you can apply them directly to the general availability version of the product, or on any previous fix pack version.

Please review this readme thoroughly before installing or using this fix pack.

This readme includes the following topics:

- “About this fix pack”
- “Installation, migration, upgrade, and configuration information” on page 10

Note: To install the fix pack, you must be logged on as Administrator (on Windows) to the computer where Tivoli Policy Driven Software Distribution is installed.

About this fix pack

Fix packs are cumulative, so this fix pack includes functionality, APARs and defects fixed in the previous fix packs.

This section includes the following topics:

- “New in Fix Pack 7.1.0–TIV-TPDSD–FP0004”
- “Features and enhancements”
- “Product fixes” on page 2
- “Problems fixed” on page 7
- “Documentation fixes” on page 8
- “Documentation enhancements” on page 9

New in Fix Pack 7.1.0–TIV-TPDSD–FP0004

. This subsection provides a summary of the functionality and fixes that have been added for fix pack 7.1.0–TIV-TPDSD–FP0004. It aims to help users who have installed the previous fix pack, 7.1.0–TIV-TPDSD–FP0003 to understand what changes they can expect from this fix pack. Fix Pack.

The following items are introduced in this fix pack:

- Fixes for APARs IV00709, IZ96593, IZ95656, IZ93237, IZ92766. See “Product fixes” on page 2

Features and enhancements

Support for agents

This fix pack provides support for agents on Windows 7 and on Windows 2008, Release 2.

Auditability using Tivoli Remote Control

With this fix pack, the integrated version of Tivoli Remote Control has

been enhanced to record information that can be used for audit purposes. To enable auditing and to have the Tivoli Remote Control send audit messages to the Tivoli Policy Driven Software Distribution server, do the following:

1. Update the existing version of Tivoli Remote Control. Proceed as follows:
 - Remove the existing Tivoli Remote Control target
 - Remove the Tivoli Remote Control policy
 - Remove the imported Tivoli Remote Control target software
 - Apply this fix pack to both the server and the agent
 - Import the Tivoli Remote Control software
 - Install the Tivoli Remote Control target
2. Configure Tivoli Remote Control for auditing the target. On the Tivoli Remote Control target edit the xml file for the corresponding policy, setting to yes the value for the variable *rc_def_force_audit*.
3. Read the audit information from the data base. The audit messages sent by the target are stored in the Tivoli Policy Driven Software Distribution server database, in the TRC_SESSIONAUDIT table.

Note: When connecting to the user interface, you must use the same server name that you used at installation time. You can check the exact name either by opening the *dtm_key.kdb* certificate in the configuration directory of the IBM HTTP server, or by using the Websphere Application Server console. To check the web server hostname in the console, click *Servers -> Web servers -> webserver1 -> Ports -> WEBSERVER_ADDRESS*. The *Host* field contains the server name.

Product fixes

This section lists APARs solved by this fix pack for Tivoli Policy Driven Software Distribution, version 7.1:

APAR IV00709

Problem: In Tivoli Policy Driven Software Distribution 7.1, the **Redeliver** action performed on a target of a Stage on Depot policy does not work correctly.

The fix pack resolves this problem.

APAR IZ96593

Problem: In Tivoli Policy Driven Software Distribution 7.1, if a set of computers is deleted from the Desktop Computers list without having removed them from the Computer Groups they belong to, you may experience a performance issue. If any policy is still active on the deleted computers, the server keeps processing the related entries, slowing down the activation of newly submitted policies.

The fix pack resolves this problem.

APAR IZ95656

Problem: In Tivoli Policy Driven Software Distribution 7.1, the agent may crash when running on computers disconnected from the company network for a long time with policies stored in its cache.

The fix pack resolves this problem.

APAR IZ93237

Problem: In Tivoli Policy Driven Software Distribution 7.1, if the agent is installed on a system having the SCSI adapter ID longer than 80 characters, it can not register to the Distribution Server. This way, the agent can not communicate with the Distribution Server and is not shown by the Tivoli Policy Driven Software Distribution administration user interface.

The fix pack resolves this problem.

APAR IZ92766

Problem: In Tivoli Policy Driven Software Distribution 7.1, the agent fails to start if Microsoft Forefront Threat Management Gateway (TMG) Client is installed on the same computer.

The fix pack resolves this problem.

APAR IZ90136

Problem: If the computer where the agent is running is not connected to the company Virtual Private Network (VPN), it might occur, in some particular cases, that the value for the Distribution Server host name in the `ita.ini` configuration file is overwritten with a wrong value returned by the network provider. For this reason, the agent cannot connect to the Distribution Server anymore. The only way to recover from that is to manually edit the `ita.ini` file, replacing the value in the `conn_host` parameter, and restarting the agent.

The fix pack resolves this problem.

APAR IZ89645

Problem: It is not possible to delete a computer if this computer is member of some computer groups. To successfully remove the computer, you must first remove it from all the computer groups which it belongs to.

The fix pack resolves this problem, allowing to delete a computer even if it is member of some computer groups.

APAR IZ85004

Problem: If the workstation where the agent is installed is not able to resolve the Distribution Server hostname, and it is the first time that this operation is performed after the agent restart, the agent crashes.

The fix pack resolves this problem.

APAR IZ80880

Problem: After installing the agent and running the agent discovery, the operative system description is overwritten by the hardware description.

The fix pack resolves this problem.

APAR IZ80334

Problem: If the browser used to access the user interface is opened from a computer running the Windows 7 operative system and Tivoli Remote Control sessions are started from there, the remote sessions hang with the message `Waiting for target connection` and it is not possible to open the sessions on the remote targets.

The fix pack resolves this problem.

APAR IZ79671

Problem: Using an agent configuration task it is possible to set to 0 the value for the agent configuration property *max_active_downloads*, but with this setting the agents are not able to start any threads to download files from the Distribution Server.

The fix pack resolves this problem overriding the wrong value with the default one.

APAR IZ78397

Problem: Duplicated entries within desktop computer groups can be generated if agents are registered twice in a very short time since changes occurred into the computer identity.

The fix pack resolves this problem.

APAR IZ77922

Problem: The Software Inventory report shows, in the Software list, also product entries that are no more associated to any registered workstation.

The fix pack resolves this problem.

APAR IZ77339

Problem: If the server is installed on top of a Maximo installation whose Language Pack is different from the English default, the Agent Status report is empty.

The fix pack resolves this problem.

APAR IZ77108

Problem: If the server is stopped while the publication of policy/task corequisite files is still in progress, the publishing cron task does not complete after the server is started again.

The fix pack resolves this problem.

APAR IZ76732

Problem: The depots, if configured in Tivoli Policy Driven Software Distribution environment, can randomly hang and, as a consequence, the agents can not download files from the depots.

The fix pack resolves this problem.

APAR IZ76080

Problem: If Tivoli Policy Driven Software Distribution 7.1 is installed from the administration user interface on top of a Maximo installation whose Language Pack is different from the English default, it is not possible to successfully complete the update of some built-in computer groups. This problem denies that new registered agents show up on the administration server console.

The fix pack resolves this problem.

APAR IZ76078

Problem: In the administrator user interface, in the Inventory and Task Tracking application, if the user tries to filter on the *Run Frequency* property, an error is generated. To avoid this problem, the option to filter on the *Run Frequency* property has been removed.

The fix pack resolves this problem.

APAR IZ75591

Problem: In Tivoli Policy Driven Software Distribution 7.1, it is possible to publish into the Self Service Catalog software not having a signature assigned. For this kind of software, the Self Service Catalog creates a software installation policy that can not be correctly managed by the server.

The fix pack resolves this problem.

APAR IZ75031

Problem: Users belonging to a Security Group which does not grant access to a particular application, are instead allowed to perform some tasks on that application because of another application for which they have access from their Start Centre.

The fix pack resolves this problem.

APAR IZ74556

Problem: Patch Management for Windows 7 cannot select product to filter.

The fix pack resolves this problem.

APAR IZ74374

Problem: Tivoli Policy Driven Software Distribution policies are not executed when a workstation is not connected.

The fix pack resolves this problem.

APAR IZ74310

Problem: Using *subgrouping* as the grouping method during the computer group population, multiple entries for the same computer are generated for computers that have both the Tivoli Policy Driven Software Distribution and TCM agents installed.

The fix pack resolves this problem.

APAR IZ74307

Problem: When using policy Inventory on Microsoft patches, the inventory gives wrong results about the installed patches.

The fix pack resolves this problem.

APAR IZ73563

Problem: After opening and then closing a Remote Control session using the Tivoli Policy Driven Software Distribution Administration Console, if a new session is started, this second session cannot start and randomly the Tivoli Policy Driven Software Distribution agent could crash. In this case, it is needed to restart it.

The fix pack resolves this problem.

APAR IZ73444

Problem: The installation fails if node and web server names are not the default ones.

The fix pack resolves this problem.

APAR IZ72085

Problem: On the Desktop Computer list, the user is not allowed to filter the entries to be displayed using the IP information. The IP column is present but the filter does not work.

The fix pack resolves this problem.

APAR IZ71816

Problem: The agent changes the GUID moving from VPN to NO VPN (and vice versa). The change of the GUID causes the Self Service Catalog to not work because the GUID used for the authentication is not updated. The GUID in the *DTM-UI.ini* file does not match the one in the updated *ita.ini* file.

The fix pack resolves this problem.

APAR IZ71791

Problem: In a multiple node environment with a MXServer and DI server in different time zones, there is a mismatched last service time entry. The agent last service time is correct in the DI database but not translated to the correct time zone on the MXserver.

The fix pack resolves this problem.

APAR IZ70490

Problem: Tivoli Policy Driven Software Distribution 7.1 agent fails to start *AgentService.exe* subagent, if a process with the same name is already running on the system.

The fix pack resolves this problem.

APAR IZ70489

Problem: If you activate a patch policy with a large number of patches, in the Policy and Compliance Tracking application you see an activation error because of the following SQL error:

```
BMXAA4210E - Database error number -805 has occurred. DB2 SQL error:  
SQLCODE:-805, SQLSTATE:51002, SQLERRMC:NULLID. SYSLH203 0X5359534C564C3031
```

The fix pack resolves this problem, but it must be noted that in the event the patch policy has a number of patches ranging between 100 and 1000, a modification is needed in the Distribution server database to avoid this error. In the DISTRIBUTION table, for the MESSAGE column, the *length* field must be set to 10 MB.

APAR IZ70488

Problem: Systems contain duplicate (multiple) GUIDs for the same workstation.

The fix pack resolves this problem.

APAR IZ67135

Problem: When a computer is configured to obtain an IP address automatically from the DHCP, if it is already defined as a Desktop Computer in the console and it changes the IP address, the old value remains displayed in several fields of the "Desktop Computers" panel (it is not updated with the new value).

The fix pack resolves this problem.

APAR IZ66212

Problem: The remote installation of an agent, using the Administrator UI, fails on Windows Vista and Windows 2008 if the target computer runs an old version of the CIT scanner (2.6.0.3 or earlier). Target computers running the Tivoli Configuration Manager endpoint might have this problem.

When this problem occurs, the following error can be seen in %TEMP%\dtm_cit_inst.log:

```
Exec '"C:\Program Files\tivoli\cit\bin\wscancfg.exe" -disable all 2>nul'  
returned 255  
Cannot stop CIT for update  
Exec '"C:\Program Files\tivoli\cit\bin\wscancfg.exe" -enable all 2>nul'  
returned 255  
*** Error: could not restart CIT
```

Furthermore, the Windows event log shows two abnormal events, for example:

```
Faulting application wscancfg.exe, version 0.0.0.0, time stamp  
0x4a0ca6ec, faulting module unknown, version 0.0.0.0, time stamp  
0x00000000, exception code 0xc0000005, fault offset 0x00000000,  
process id 0x958, application start time 0x01ca6c63e48ba4b8.
```

To bypass this problem on Windows Vista and Windows 2008 computers using a CIT scanner older than version 2.6.0.4, the agent must be deployed locally.

APAR IZ65995

Problem: Every time a custom policy containing scripts is activated or evaluated a black pop-up window is displayed for few seconds on the target computer screen.

The fix pack resolves this problem.

APAR IZ64399

Problem: The Software Inventory and Software Inventory by Agent reports are not generated properly in some cases.

The fix pack resolves this problem.

APAR IZ59587

Problem: in situations where the download of software to the agent is interrupted, when the download is restarted the software is downloaded again completely. This might be a problem on slow networks.

The fix pack resumes the download at the point where it got interrupted if a new property peer.enablecache is set to 1 in the dtm.ini file at <install_dir>\agent\dtmagent\core\config\dtm.ini.

APAR IZ58690

Problem: the agent might hang when it gets connected to the distribution server on slow networks.

The fix pack resolves this problem.

Problems fixed

This section lists defects solved by this fix pack for Tivoli Policy Driven Software Distribution, version 7.1:

Problem: Software inventory might not work correctly on Windows Vista and on Windows Server 2008.

The CIT scanner built into the product to collect inventory data has been fixed to resolve this problem.

Problem: The options used when a policy is activated or when a task is run are not tracked on the Administration UI.

The fix pack resolves this problem. Additional flags are now visible in the Target Computer Groups and Target Depot Computers Groups tabs of the Policy and Compliance Setup UI and of the Task and Inventory Setup UI. The new flags are **Is Urgent**, **Ignore Agent Obligations**, and **Deadline**.

Problem: The removal or upgrade of a policy with Undo Remediation set is not managed correctly from a reporting point of view.

The fix pack resolves this problem.

Problem: The depot list in the Agent Details tab of the Desktop Computers UI is not managed correctly when a new depot is added.

The fix pack resolves this problem.

Documentation fixes

The following documentation problems were found since the general availability of Tivoli Policy Driven Software Distribution, version 7.1:

APAR IZ86297

In the topic **Installation, migration, upgrade, and configuration information > Importing reports**, in the Readme File for Fix Pack 7.1.0-TIV-TPDSD-FP0004, a preliminary check is added:

To successfully import the updated BIRT reports, be sure that the password of the administrator user *maxadmin* is set to the default value *maxadmin*; in case this password is not set to the required value, change it to satisfy this requirement and keep this value until the import of the reports is completed.

APAR IZ75507

In the topic **Installing and configuring > Other configuration tasks > Enabling the use of the Self-service Catalog** a Note is added at the bottom, saying:

Note: If, for any reason, you need to run the wizard again to generate a new certificate, when you open the Self-service Catalog a window is displayed with the list of available certificates. In this situation, the correct certificate to use is the one whose name matches the Agent Identifier value of the About option that you can select by clicking the end-user UI icon.

APAR IZ73239

In the topic **Integrating > Integration with Tivoli Remote Control > Changing Tivoli Remote Control policies**, the information about policy settings is changed as follows:

The policy settings for the remote connection are stored in the following files at the target computer under the path: c:\Documents and Settings\All Users\Application Data\IBM\Tivoli\Remote Control\

For Full Takeover

policyset_1.xml

For Guidance Mode Only

policyset_2.xml

For Reboot Only

policyset_3.xml

APAR IZ71897

In the topic **Managing software and patches > Acquiring, approving, and deploying Microsoft patches**, the **Restriction** in section **Before you begin** is modified in the following way:

Restriction: Before applying patches for Windows target computers, you must disable the Automatic Updates service on each target computer. By default, the Automatic Updates service is enabled. If you do not disable it, both the operating system and Tivoli Policy Driven Software Distribution attempt to run the same updates, which blocks the update process.

To disable Automatic Updates:

1. Right-click **My Computer** and select **Properties**.
2. Select the **Automatic Updates** tab.
3. Check the option **Turn off Automatic Updates**.

APAR IZ70896

The last example in topic **Reference > Supported operators, functions, and variables > Software Installation Engine operators** is modified in the following way:

This is an example of an SPB that contains more than one file signature. During the import software package process, a file-based signature is created:

```
IsSPBInstalled("MySoftware.1.0") AND  
FileSize($(target_dir)/lib/abc.dll)==1234 AND  
FileSize("$(system_root)/system32/abcdriver.dll")==432199
```

APAR IZ66109

In the topic **End-to-end-scenarios > Defining software in the software and patch catalog > Defining deployment configurations**, for option **Target Path** a Note is added at the bottom, saying:

Note: If you are defining software that requires corequisite files to be located in the same directory for the installation, specify a path different from the default target path. This is because, if you use the default target path, the corequisite files are put in a different directory and this causes the installation to fail.

Documentation enhancements

The product information center, available at <http://publib.boulder.ibm.com/infocenter/tivihelp/v26r1/index.jsp?topic=/com.ibm.dtm.doc/welcome.htm>, has been extended to cover the following topics:

- Within the *Installing and configuring* topics:
 - Installing the agent using Tivoli® Configuration Manager
 - Installing the agent using Windows logon scripts
 - Installing the agent using RSH/SSH
- Within the *Administering* topics:
 - Information about managing customized reports

Installation, migration, upgrade, and configuration information

This section includes the following topics:

- “Installing the fix pack”
- “Importing reports”
- “Upgrading agents” on page 11
- “Reverting to the previous version” on page 11

Installing the fix pack

Before installing the fix pack, you must grant some permissions to the user (DIUSER) that the distribution server uses to connect to the database. You must carry out on the database the following actions:

1. CONNECT TO DIDB
2. GRANT ALTER ON DTMDI.TARGET_MACH_IDENTITY TO DIUSER
3. GRANT ALTER ON DTMDI.TARGET_REG_INFO TO DIUSER
4. DISCONNECT DIDB

After the above permissions are granted, you can proceed with the fix pack installation.

To install the fix pack:

1. Verify that the server, distribution server, and node agent are running; to check this open a command line interface of Websphere Application Server and type the following command: `serverStatus.bat -all -username <wasadmin_user> -password <wasadmin_password>`; they must have a status of Started. If not, start the node agent first, and then the other servers.
2. Copy 7.1.0-TIV-TPDSD-FP0004-servers.zip on a directory of your system and unzip it.
3. Run `launchpad.exe` and specify whether you are patching a server or a distribution server. Be prepared to enter a number of configuration parameters in a similar way to those provided at installation time.

As part of the fix pack installation, the server, distribution server, and node agent are registered as Windows services. When the fix pack installation completes, verify that server, distribution server, and node agent have a status of Started in the list of Windows services on which the services have these names:

Product component	Windows service name
Server	MXServer
Distribution server	IBM_TDTM_DI_Server
WebSphere node agent	NodeAgent

If not, start the node agent first, and then the other services.

Importing reports

To successfully import the updated BIRT reports, be sure that the password of the administrator user *maxadmin* is set to the default value *maxadmin*; in case this password is not set to the required value, change it to satisfy this requirement and keep this value until the import of the reports is completed. Then, proceed as follows:

1. Create a backup copy of the following folders:


```
<MAXIMO_BASE_DIR>\maximo\reports\birt\libraries  
<MAXIMO_BASE_DIR>\maximo\reports\birt\reports\DTMPOLICY  
<MAXIMO_BASE_DIR>\maximo\reports\birt\reports\DTMTASK  
<MAXIMO_BASE_DIR>\maximo\reports\birt\reports\DTMSYSTEM
```

2. Extract the content of the file 7.1.0-TIV-TPDSD-FP0004-REPORT.zip in a temporary directory and copy its content in the corresponding directories of the above point
3. Open a command line interface, go to this directory:
<MAXIMO_BASE_DIR>\maximo\reports\birt\tools

and type the following commands:

```
importreports.cmd libraries  
importreports.cmd app DTMPOLICY  
importreports.cmd app DTMTASK  
importreports.cmd app DTMSYSTEM
```

To run the imported reports, use the administrator user interface as follows:

1. Click *Go To -> Administration -> Reporting -> Report Administration*
2. Search all the Tivoli Policy Driven Software Distribution reports typing *DTM* in the *Application* field, and select them all
3. Click *Generate Request Pages*
4. Sign out and sign in from the administration user interface

Upgrading agents

To apply the fixes to agents that are already deployed, you can follow one of these procedures:

Upgrade the agent locally

On the agent computer:

1. Copy 7.1.0-TIV-TPDSD-FP0004-agent.zip on a directory of your system and unzip it.
2. Run pdsd_agent_setup.exe.

Upgrade the agent from the server

You can upgrade the agent from the server using the Desktop Computers application on the Administration UI. To do so, follow the procedure documented at: http://publib.boulder.ibm.com/infocenter/tivihelp/v26r1/topic/com.ibm.dtm.doc/installing/t_inst_agent_from_server.html

Reverting to the previous version

There is no automatic method for uninstalling this fix pack.

Before applying the fix pack, you might consider taking a virtual snapshot.

Notices

This information was developed for products and services offered in the U.S.A. IBM may not offer the products, services, or features discussed in this document in other countries. Consult your local IBM representative for information on the products and services currently available in your area. Any reference to an IBM product, program, or service is not intended to state or imply that only that IBM product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any IBM intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any non-IBM product, program, or service.

IBM may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not give you any license to these patents. You can send license inquiries, in writing, to:

IBM Director of Licensing
IBM Corporation
North Castle Drive
Armonk, NY 10504-178, U.S.A.

For license inquiries regarding double-byte (DBCS) information, contact the IBM Intellectual Property Department in your country or send inquiries, in writing, to:

Intellectual Property Licensing
Legal and Intellectual Property Law
IBM Japan Ltd.
1623-14, Shimotsuruma, Yamato-shi
Kanagawa 242-8502 Japan

The following paragraph does not apply to the United Kingdom or any other country where such provisions are inconsistent with local law:

INTERNATIONAL BUSINESS MACHINES CORPORATION PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Some states do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement might not apply to you.

This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. IBM may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

Any references in this information to non-IBM Web sites are provided for convenience only and do not in any manner serve as an endorsement of those Web sites. The materials at those Web sites are not part of the materials for this IBM product and use of those Web sites is at your own risk.

IBM may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation to you.

Licensees of this program who wish to have information about it for the purpose of enabling: (i) the exchange of information between independently created programs and other programs (including this one) and (ii) the mutual use of the information which has been exchanged, should contact:

IBM Corporation
2Z4A/101
11400 Burnet Road
Austin, TX 78758 U.S.A.

Such information may be available, subject to appropriate terms and conditions, including in some cases, payment of a fee.

The licensed program described in this document and all licensed material available for it are provided by IBM under terms of the IBM Customer Agreement, IBM International Program License Agreement or any equivalent agreement between us.

Any performance data contained herein was determined in a controlled environment. Therefore, the results obtained in other operating environments may vary significantly. Some measurements may have been made on development-level systems and there is no guarantee that these measurements will be the same on generally available systems. Furthermore, some measurement may have been estimated through extrapolation. Actual results may vary. Users of this document should verify the applicable data for their specific environment.

Information concerning non-IBM products was obtained from the suppliers of those products, their published announcements or other publicly available sources. IBM has not tested those products and cannot confirm the accuracy of performance, compatibility or any other claims related to non-IBM products. Questions on the capabilities of non-IBM products should be addressed to the suppliers of those products.

This information contains examples of data and reports used in daily business operations. To illustrate them as completely as possible, the examples include the names of individuals, companies, brands, and products. All of these names are fictitious and any similarity to the names and addresses used by an actual business enterprise is entirely coincidental.

Trademarks

IBM, the IBM logo, and [ibm.com](http://www.ibm.com)[®] are trademarks or registered trademarks of International Business Machines Corporation in the United States, other countries, or both. If these and other IBM trademarked terms are marked on their first occurrence in this information with a trademark symbol ([®] or [™]), these symbols indicate U.S. registered or common law trademarks owned by IBM at the time this information was published. Such trademarks may also be registered or common law trademarks in other countries. A current list of IBM trademarks is available on the Web at "Copyright and trademark information" at <http://www.ibm.com/legal/copytrade.shtml>.

Microsoft, Windows, Windows NT, and the Windows logo are trademarks of Microsoft Corporation in the U.S., other countries, or both.

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

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

Java and all Java-based trademarks and logos are trademarks or registered trademarks of Oracle and/or its affiliates.

Other product and service names might be trademarks of IBM or other companies.



Product Number: 5724-C06