IBM Tivoli License Manager

Readme File for Fix Pack 1.1.1–TIV-TLM–FP0002

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First Edition (December 2004)

This edition applies to Fix Pack 02 for version 1, release 1, modification 1 of IBM Tivoli License Manager (program number 5724-D33).

IBM welcomes your comments.

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Readme File for Fix Pack 1.1.1–TIV-TLM–FP0002

This readme provides important information about Fix Pack 1.1.1–TIV-TLM–FP0002 for IBM® Tivoli® License Manager version 1.1.1. This section is the most current information for the fix pack and takes precedence over all other documentation.

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

Note: This section uses the Windows® convention for variables and directory notation, unless the context is specifically a UNIX® one. See "Operating system-dependent notation" on page 29 for information about applying the instructions to UNIX environments.

This section includes the following topics:
- "About this release"
- "Installation, migration, upgrade, and configuration information" on page 15

About this release

This section includes the following topics:
- "Product fix history"
- "Problems fixed" on page 2
- "Backward compatibility" on page 14
- "Other changes as a result of this fix pack" on page 14

Product fix history

This is the second fix pack to be issued for Tivoli License Manager, Version 1.1.1.

It fixes the following APARs:
>   IY58344
>   IY61080
>   IY62161
>   IY62291
>   IY62488
>   IY63893
>   IY65120
>   IY64898

This fix also includes the following APARS from the previous fix pack and interim fixes issued:
>   IY44786
>   IY45495
>   IY46294
>   IY46975
>   IY47457
>   IY48133
>   IY49281
>   IY49454
>   IY49698
>   IY50092
>   IY50094

IY50187
IY50491
IY51221
IY52226
IY53138
IY53694
IY54139
IY54884
IY55165
IY55407
IY55908
IY57127
IY57440

Problems fixed

The following is the complete list of problems found since the GA of Tivoli License Manager, version 1.1.1 and fixed with this Fix Pack:

- "For both the administration and the runtime servers"
- "For the administration server" on page 3
- "For the runtime server" on page 4
- "For the runtime server and agent" on page 6
- "For the agent" on page 7
- "For the Catalog manager Tool" on page 13

For both the administration and the runtime servers

APAR IY44786

When you created an account for a server, the GUI did not limit the length of the password you were asked to supply. However, if the password was longer than 8 characters, when you tried to log on the password was not accepted, and an error was given as if the password had been typed incorrectly.

After you have installed the fix, the GUI now prevents you from creating an account with a password longer than 20 characters. Any characters can be used in the password.

APAR IY48133

If the bootstrap port used by the WebSphere® Application Server was not at the default setting the Tivoli License Manager servers were not able to start.

For Tivoli License Manager servers you have already installed, and with which you are still experiencing the problem, you will need to manually configure WebSphere Application Server for the first time, install the fix pack, and then start the servers.

To manually configure the WebSphere Application Server, refer to Chapter 9, paragraph "WebSphere Application Server configuration" of the *IBM Tivoli License Manager: System Administrator's Guide*, for details of how to do this.

If you have already manually configured the WebSphere Application Server, then after installing the fix pack, after any future installations of Tivoli License Manager servers, all the servers will be able to start, even if the bootstrap port is not at the default setting.

APAR IY49281

If an agent has an operating system name longer than 40 characters, the agent plugin failed. The runtime server log file showed the following error:

```
errors.com.ibm.it.rome.slm.runtime.data.AgentHandler
ERROR  COM.ibm.db2.jdbc.DB2Exception: IBM CLI Driver DB2/6000
SQL0433N  Value "Windows NT 5.0 - Service Pack 4, RC 4.66" is too long.
SQLSTATE=22001
```

This was because in the runtime server database, the AGENT table field for the operating system was too small.

After applying the fix the database table field (AGENT.OS_VERSION) is increased to 60 characters, and the problem does not occur.

APAR IY54884

Startup of the Tivoli License Manager administration or runtime servers needed adjusting to create errors if startup encountered problems. During the startup of the Tivoli License Manager administration or runtime server, if the initialization of the database failed or a failure occurred before tracing was initialized, there was insufficent information to perform problem determination. If Tivoli License Manager tracing failed to initialize, there were no log files.

After installing the fix, an error should be logged in the WebSphere Application Server logs that clearly directs the user to the cause of the problem, and the servers should not start.

For the administration server

APARS fixed:

APAR IY47457

In the **Manage License Settings** panel, trying to set the **Expiration date** greater than 2022 and lower than 2050 returned an internal error 9891 and the date was not saved in the database. If the expiration date was set or changed to a date greater than 2050, this date was saved incorrectly.

After installing the fix these dates are saved correctly in the future. However, if you have already set dates on these panels that have been saved incorrectly, you should go into those panels and correct the dates after the fix has been installed.

APAR IY49698

If the administration server is installed on an AIX® platform, and its DB2® database is on another computer, (which means that the AIX computer has only the DB2 client software installed on it), the administration server could not start. The error shown in the stdout.txt file in the directory *<INSTALL_DIR>**<SERVER_TYPE>*\was is the following:

```
Failed to load servlet:
java.lang.NoClassDefFoundError:sqlj/runtime/ref/ConnectionContextImpl
   the class ConnectionContextImpl is part of the runtime.zip archive.
The classpath for runtime.zip is not correct.
```

After installing the fix, the problem is resolved and the server starts.

APAR IY61080

The average use calculation used in the Detail window of the Software Usage Trend Analysis report is incorrect. The calculation assumed that all intervals were equal, which is not true.

After installing the fix, the calculation is correct.

APAR IY62161

If the Software Usage Trend Analysis Report is requested on a UNIX server that cannot access X Server, a Java™ exception occurs.

After installing the fix, if there is no access to X Server, the chart cannot be shown and an appropriate error message is displayed.

Defects fixed:

Java out-of-memory exception

It was possible to cause a Java out-of-memory exception in the Java virtual machine of the administration server if a backup of the database was restored and the restored database was older than 30 days. The administration server consumes all the memory allocated to the Java virtual machine, finally causing a Java out-of-memory exception.

After installing the fix, it is possible to restore a database older than 30 days.

For the runtime server

APARs fixed:

APAR IY46975

The values of the `updateAgentEnabled` parameter in the `system.properties` file were limited to **no** and **yes**, but the documentation of those values in the *IBM Tivoli License Manager: System Administrator's Guide* reports them as **No** and **Yes**. Supplying the incorrect values could mean that some product functions did not work correctly, as the parameter value was not recognized by the product. For example, a scheduled scan might not be performed on the agents belonging to that division. The following error messages were reported in the `traceagt.log` file if you used **Yes** instead of **yes**:

```
ERROR - Bad update enable string 'Yes'
ERROR - No parameters downloaded
```

After installing the fix the parameter values can be written in any of the following ways: "YES", "Yes", "yes", "NO", "No", "no".

APAR IY55165

The agent sends a list of unknown files that were detected when they started. When this list of unknown applications included a corrupted entry, the runtime server gave an error and incorrectly rolled back all the entries already added into the UNKNOWN table.

After applying the fix, the runtime server ignores the corrupted entry and complete the processing of all the other entries.

APAR IY53694

After an upgrade of the agent code on the runtime server, even if the value of the parameter `updateAgentEnabled` was changed from **yes** to **no** in the runtime's `system.properties` file, it was possible that the agents would still download any update available on the runtime server. This happened if the new agent parameter was downloaded to the agent after the **updateAgent** service was performed.

After the Fix Pack installation the runtime server double-checks the value of this parameter in the `system.properties` file before allowing any agent to be upgraded.

Defects fixed:

Runtime server or HTTP server unexpected stop

Every thread that runs in the runtime server locks the resource it is processing. If another request arrives, the server thread waits for the resource to become available. If many requests arrive in a short space of time, or if a thread needs to keep the resource locked for a long time, either the runtime server or the HTTP server, or both, may stop, or go into an endless loop.

After you have installed the fix, the runtime server allows a thread to wait for a maximum of 60 seconds for a requested resource to be made available. If the request cannot be satisified within this period, an event of type "internal error" is sent to the agent. The agent has processes for handling such an event, and the load on the runtime server and HTTP server is lightened.

Unhandled Java exception

If an HTTP request arrived without a body, the Java exception was not correctly managed by the runtime server. This error was particularly evident when the server received many requests from agents in a short space of time. In this case, the error log contained the following error:

```
10-03-10.55.29 {Communication#142} com.ibm.it.rome.slm.scp.ServiceHandler
[ERROR] java.lang.NumberFormatException: null
    at java.lang.Long.parseLong(Long.java(Compiled Code))
    at java.lang.Long.parseLong(Long.java(Compiled Code)
```

After installing the patch these Java exceptions are handled correctly.

Scheduling of the runtime server services

It was not possible to customize a start time for certain services which the runtime server runs to perform some internal activities, and for certain services which make requests to the administration server. By default, these services are started at midnight, GMT, regardless of the timezone of the runtime server. The affected services all have customizable frequencies, but without a customizable start time you could not ensure that the running of these services avoids times of the day when the runtime server is busy communicating with agents.

After installing this fix you can choose the time of day when all these services start. The installation of the fix adds a new parameter: `runtimeBaseTime` to the `system.properties` file on the runtime server. The default value of this parameter is 23:00 (11 pm), according to the clock of the runtime server. After you have installed the fix, the service requests are made according to this parameter, and each is satisfied in turn. The existing individual frequency parameters determine when the service is next run. For example, if the frequency interval of a service is 1440 minutes (24 hours), and you leave the `runtimeBaseTime` at its default value, the service will start at 23:00 (11 pm) every day. The server uses the `runtimeBaseTime` parameter only immediately after it has started; from that point on it determines the next service start by adding the appropriate frequency to the time of the previous service start.

Note: There is no particular advantage in staggering the frequency interval of the services. If they all have the same frequency they are started in a pre–determined sequence, and each service request is satisfied in turn. However, you should schedule them to take place at a time when the workload of the runtime server is low.

After installing the fix, the following parameters in the system.properties file on the runtime server have default values, different from those documented in the *IBM Tivoli License Manager: System Administrator's Guide*:

```
# Time interval for internal inventory update (minutes)
inventoryUpdatePeriod=1440
# Time interval for internal cache update (minutes)
cacheUpdatePeriod=1440
# Time interval for data transfer (download) with admin server (minutes)
adminDownloadPeriod=1440
# Time interval for data transfer (upload) with admin server (minutes)
adminUploadPeriod=1440
# Time interval for license cleanup checking (minutes)
licenseCleanupPeriod=1440
# Time interval for usage data resynch with admin server (minutes)
usageSnapshotPeriod=1440
```

Note: During the fix installation, if you have modified any of these values from the original defaults, the changed values are not changed to the new ones.

For the runtime server and agent

APARs fixed:

APAR IY63893

The software use monitoring functionality of the agent includes the capability to collect information about unknown executable files. When the agent detects the starting of an executable file it attempts to match it to a product in the catalog. If the executable file does not match a catalog entry, it adds it to the list of unknown files to be sent to the runtime server and eventually to the administration server, where they are stored in the administration server database and can be processed using the catalog manager tool.

This feature has caused performance problems when the agent is installed on a system where an application that generates a large number of transient executable files is running. In such a case, the agent and the runtime server are forced to store and process very large numbers of unknown files. In addition to the storage and performance problems this causes to the agent and runtime server, it also populates the list of unknown files with a large number of executable files that the user will not want to add to the catalog. This reduces the usefulness of the unknown files list.

The solution implemented in the fix pack is to exclude executable files that start in certain directories from the list of unknown files. This is implemented partly on the agent and partly on the runtime server. The agent excludes the following relative paths from collection of unknown file information:

Windows
- *\temp*
- *\TEMP*
- *\tmp*
- *\TMP*

UNIX
- */tmp/*
- */TMP/*

On the runtime server, an additional configuration file, `unknownFiles.properties` is added. You can use this file to define other paths for which unknown file information is not of interest. The runtime server rejects any executable files that started from the specified paths and they are not included when unknown files are transmitted to the administration server. The properties file is stored in the following location:

`<INSTALL_DIR>/runtime/conf`

It includes the following properties:

windowsPathToSkip
> The relative paths that are to be excluded from unknown module monitoring on Windows systems.

unixPathToSkip
> The relative paths that are to be excluded from unknown module monitoring on UNIX systems.
>
> UNIX paths are case-sensitive.

Notes:
1. Wildcards are not permitted in the definitions of the paths to be skipped.
2. If multiple paths are specified, you must form a concatenated string within which the relative paths are separated by the character **;**.
3. The server must be stopped and restarted before the changes take effect.

For the agent

APARs fixed:

APAR IY45495
> A memory leak has been solved on agents running on Windows platforms, which, over a period of time, was causing excessive resource consumption.
>
> After installing the fix, the problem is resolved.

APAR IY46294
> On the agent there were a large number of sockets opened by the `tlmagent` executable, and hanging in listening state.
>
> After installing the fix, the problem is resolved.

APAR IY49454
> On the Windows platforms detailed below, the agent contacted the domain server to determine information about the user of a Windows application too frequently. This was causing performance problems.
>
> The Windows agent platforms to which this problem applies are as follows:
> > Windows 2000 Professional
> > Windows 2000 Server
> > Windows 2000 Advanced Server
> > Windows NT® 4.0 Server (service packs 6 and 6a)
> > Windows NT 4.0 Workstation (service packs 6 and 6a)
> > Windows XP (32–bit only)
>
> After installing the fix, the agent will store the user information in its cache memory after the initial contact with the domain server.

APAR IY50092

On SUN platforms some scripts were prevented from running by the agent's kernel extension. For example, if you run the following command:

```
export DISPLAY=`who -m | awk -F"(" {'print $2'} | awk -F")" {'print $1'}`:0
```

the following error is received:

```
awk can not be executed
```

After installing the fix, the kernel extension no longer prevents such scripts from running.

APAR IY50094

On AIX platforms, the agent caused the operating system to loop if more than 15 different processes failed in less than 8 seconds. An operator cannot telnet or log in to the console.

After installing the fix, the agent correctly manages large numbers of failing processes in a short time.

APAR IY50187

On Windows, AIX and SUN platforms, under heavy system stress and in exceptional circumstances, a system kernel panic could occur during the unload of the Tivoli License Manager agent kernel extension. An unload occurred when the agent code was uninstalled, upgraded, or reinstalled, by any method (Web registration, the **installagent** command, or the agent self–update option on the runtime server).

The agent platforms to which this problem applies are as follows:
  All AIX platforms
  All SUN platforms
  Windows 2000 Professional
  Windows 2000 Server
  Windows 2000 Advanced Server
  Windows NT 4.0 Server (service packs 6 and 6a)
  Windows NT 4.0 Workstation (service packs 6 and 6a)
  Windows XP (32–bit only)

Other platforms are not affected by the problem that this fix resolves.

The fix requires the upgrading of the agent code on the runtime servers that serve agents running on the above–listed operating systems. It then requires you to upgrade the agent code at each agent by first applying a utility provided with the fix, and then updating or re–installing the agent code. Full details are provided in "Fix pack Installation" on page 16.

After installing the fix, the agent software can be unloaded without causing a kernel panic.

APAR IY50491

On Windows 9x platforms, after the agent is installed, some in–house programs, for example those developed using Power Builder version 4 or Sybase version 11.0.3, could not run.

After installing the fix these programs can run.

APAR IY53138

The following problem on SUN Solaris platforms only has been fixed:

A kernel driver conflict was found between IBM Tivoli Access Manager for Operating Systems and Tivoli License Manager If both kernel extensions

are loaded into memory at the same time, the Tivoli License Manager kernel extension may be rendered incapable of being enabled or disabled. Interim fixes must be applied to both Tivoli License Manager and Tivoli Access Manager for Operating Systems if both applications are installed. The problem is solved only after both have been fixed and the corresponding agent software has been updated.

Attention: The fix for Tivoli Access Manager for Operating Systems must be installed on the computers before the fix for Tivoli License Manager. For your information, the minimum fix pack level for Tivoli Access Manager for Operating Systems is:

- Tivoli Access Manager for Operating Systems, version 3.8
  3.8–PDO–FP06
- Tivoli Access Manager for Operating Systems, version 4.1
  4.1–PDO–FP06
- Tivoli Access Manager for Operating Systems, version 5.1
  5.1–PDO–FP01

APAR IY54139

An agent cannot plug–in to the runtime server because the **gethostbyname** system call used to retrieve the hostname of the machine returns an empty string as the name. One of the required values to plug–in is empty and the plug–in service fails.

Solution: The agent, if it is not able to retrieve the hostname from a machine, can also use an alias or the IP address as the parameter to send, instead of the hostname.

APAR IY55407

In very specific timing conditions, a defect in the licensing process caused the TLM agent to hang, taking 99% CPU.

After installing the fix, the problem is resolved.

APAR IY57127

The Tivoli License Manager agent on Windows platforms prevented the starting of embedded applications on Windows. These applications started with a delay of about one minute. An embedded application is an application that has been added through the OLE interface.

After installing the fix the agent allows these applications to start.

APAR IY57440

Under very heavy process load, on AIX platforms only, a defect in the TLM agent licensing process caused the agent to hang, using 99% CPU.

After installing the fix, the problem is resolved.

APAR IY58344

On Solaris platforms, an incorrect return code is generated when the command **/etc/init.d/tlm start** or **/etc/init.d/tlm stop** is issued.

After installing the fix, the problem is resolved.

APAR IY62291

On all Windows platforms, a memory leak may occur if the agent is not able to load the `psapi.dll` system library. This can happen if the system library is missing or if the library file is corrupted.

This can happen if the `psapi.dll` library is missing on the system or if the library file is corrupted. The `psapi.dll` is used by the Tivoli License

Manager agent to manage the process list of the products running on the system and, consequently, the library is needed to correctly track the usage of the products.

On Windows NT 4.0, the library is not installed by default as part of the base operating system installation, but many Windows NT applications install it.

However, for Windows 2000 and Windows XP, this system library is a part of default installation. Therefore, the memory leak is not likely to occur on these operating systems.

After installing the fix, the problem is resolved. However, you should install the system library on all Windows NT 4.0 systems that are monitored by the Tivoli License Manager agent.

To download the library, follow this link:

http://support.microsoft.com/dllhelp/default.aspx?dlltype=file&l=55&alpha=psapi.dll&S=1&x=8&y=9

Select a download from the results table. The version that has been used in tests is 4.0.1371.1.

APAR IY64898
The agent on AIX (64 bit) does not detect the start of 32 bit applications. When a 32 bit product is started without using the absolute path name, it is not detected by the 64 bit agent.

After installing the fix, the problem is resolved.

APAR IY65120
On Windows platform, if the agent is not stopped before the system is shut down, information in the agent cache is lost. This can cause an overload on the runtime server if agents are restarted within a short time frame.

After installing the fix, the problem is resolved.

Defects fixed:

Inventory scan transmission algorithm
On all platforms, if a large number of agents belong to the same division, the inventory scans cannot be handled by the runtime server because they are occurring in too short a time frame.

After receiving a request for a scan from the runtime server, the agent determines when to send the scan by using an algorithm that generates a random time for the transmission, based in part, on the number of agents, information supplied to it by the runtime server. This algorithm has a maximum time frame of 9 hours. If there are many agents in the division, the runtime server experiences a severe backlog of requests from agents, which affects its capability to respond immediately to license requests.

After installing the fix, the algorithm no longer has this limitation, and correctly schedules the scan transmission so that the runtime server can handle all requests.

Agent self–update on Windows NT
On Windows NT platforms, the self–update of the agent did not work after installing the TLM–1.1.1–0002 interim fix (agent version 1.1.1.10). Agents attempting to self–upgrade terminated abnormally.

After installing this fix, the agent should self–update without problems.

Agent self–update on Windows 98 and ME
Agents on Windows 98 and ME platforms can now use the self–update facility, which did not work prior to the fix.

Deploying agents on unsupported platforms
It is possible to attempt the Web deployment of an agent on the unsupported Windows 2003 platform. The deployment appears to have worked, but as there is no kernel extension available to these agents, no license enforcement is possible..

After installing the fix, a Web deployment request for the Windows 2003 platform is refused by the runtime server.

Specific scenario on AIX where an IBM Tivoli License Manager agent was running
During ITLM internal testing at IBM, a problem was identified on AIX in a very specific scenario where an IBM Tivoli License Manager agent was running. The AIX APAR IY52121 documents this problem. All the information about the problem is reported at the following link:

http://www-1.ibm.com/support/docview.wss?uid=swg21158147.

A check has been added in the agent code to not install the kernel extension if the APAR IY52121 is not installed on AIX 5.1 platforms.

Agent writes too much data to trace file, causing the agent to fail
An agent can fail if the agent writes lots of data in the trace at a very high speed. The file trace has a defined size; when the `traceagt.log` is full it is copied to the `traceagt.log.bck` file. This event is not synchronized with all agent threads and in a very particular situation the agent can fail. After installing the fix, the trace is synchronized with all the threads of the agent.

Agent on AIX does not detect the start of some applications.
This problem occurred in the following circumstances:

- When a 32 bit product is started without using the absolute path name, it is not detected by the 64 bit agent.
- When a product is run from the korn shell and a very long value is assigned to the PATH variable, the agent does not detect the start of the product.

After installing the fix, these problems are resolved.

Products installed on UNIX remote file systems were included in the inventory scan of a node.
The inventory scan function of the agent was not able to distinguish between the local and remote file systems. This led to products installed on remote file systems that were shared between several monitored nodes being counted more than once.

After installing the fix, this problem is resolved.

Problem fixed:

Agent "out–of–sync" monitoring
The runtime server stores the kernel extensions of the latest agent version that needs to be downloaded by the agents at installation time. The kernel extension can also be downloaded by the agents if their local kernel extension gets corrupted. After you have upgraded the agent code on the runtime server by installing a maintenance fix, it is possible for an agent to become "out–of–sync" with the available kernel extension on the runtime

server, and to be forced to run without a kernel extension. The agent is "out of sync" because the version of the agent code on the agent no longer matches the version of the agent and the relative kernel extension available on the runtime server.

This problem impacts the agent's ability to perform accurate usage monitoring and any kind of license enforcement. A full description of how this problem can occur, and the measures you can take to avoid it and to correct affected agents, is provided in *IBM Tivoli License Manager: Release Notes (revised December 2003)*, which is available from the Tivoli Software Information Center Web site. The Tivoli Software Information Center is located by using the following Web address:

http://www.ibm.com/software/tivoli/library/

An important aspect of recovering from this problem is discovering which agents are affected. After you have installed this fix, every time a runtime server is unable to supply an agent with a kernel extension file, a notification flag is set in the agent table of the runtime database. This information is propagated to the administration server, together with the rest of the agent information.

To list the agents running without a kernel extension, issue the following SQL command from the DB2 command line on the administration server:

```
select hostname,ip_address,os_version,storage as kernel_status
        from adm.agent where storage <> 0
```

This query displays the following fields:

hostname
> The hostname of the agent

ip_address
> The IP address of the agent

os_version
> The operating system name at the agent, and its version

kernel_status
> The possible values are -1, 0, 1, 2, 3, 4, 5, 6, 7,8.
>
> > kernel_status=-1
> > > This status can indicate the following conditions:
> > > - The **tlmagent –p** command has been run on the identified agent and this causes the agent flag to be reset to -1.
> > >
> > >   If you know or believe this to be the case, stop and start the agent, and wait the appropriate interval for the data to be propagated to the administration server (the maximum time to wait is determined by the `adminUploadPeriod` parameter in the `system.properties` file on the runtime server). Then rerun the query. This gives the true status of the agent kernel extension.
> > > - The agent version is 1.1.1.20 or earlier. You can upgrade the agent to return the kernel status to a normal status (0). See "Upgrading the agents" on page 17 for more information.
> >
> > kernel_status=0
> > > Agents with this value as kernel status are filtered out by

the query as this indicates that the kernel extension has been download correctly and that the agent is not reporting any problem with it.

kernel_status=1
>The agent has tried to download the kernel extension from the runtime server but the agent version is prior to the one available on the runtime server. This can happen because:
>
>- You manually installed the agent using the **installagent** command with a version of the agent code prior to the one available on the runtime server. In this case you will need to upgrade the agent installation package in any copy, zip, tar or distribution package that you are using to install the agent code.
>- An installed agent had problems with the kernel extension and tried to download a new copy from the runtime server but the agent version is prior to the agent version available on the runtime server. In this case you will need to ensure that you take all the appropriate steps to upgrade the agent, as described in the original product documentation and *IBM Tivoli License Manager: Release Notes (revised December 2003)*.

kernel_status=2
>This indicates that the agent is running on an unsupported platform. You should uninstall the agent, as its behavior on an unsupported platform cannot be guaranteed, and the functions that require the kernel extension will not work.

kernel_status=7
>The agent cache is corrupted.

kernel_status=8
>This indicates that the `psapi.dll` library is not installed. See APAR IY62291 for more information about this problem.

kernel_status=3, 4, 5, 6
>These values report internal errors that should be reported to IBM Software Support.

For the Catalog manager Tool

APAR IY52226
>In the panel of the catalog manager tool **IBM Tivoli License Manager, 1.1.1 – Unknown file Manager**, click on **Search**. A warning message should be displayed if the number of unknown files extracted from the administration server is higher that 1000. Instead the following message was displayed:
>```
>Denied access to UnknownFilesManager.properties or file missing
>```
>
>After installing the fix the correct warning message is displayed:
>```
>The search returned too many results. Only the first 1000 will be displayed.
>Please refine the search criteria.
>```

APAR IY55908
>The catalog manager tool does not show the **unknown files manager**

panel if the file `catalog.data` (which is used to manage signatures) contained an unknown file that has a very large size (greater than 1 GB).

After installing the fix, the problem is resolved.

Backward compatibility

Fix pack 1.1.1–TLM–FP01 and the following interim fixes were superseded by this fix pack:

- 1.1.1–TLM–0001LA
- 1.1.1–TLM–0002
- 1.1.1–TLM–0003LA
- 1.1.1–TLM–0004LA
- 1.1.1–TLM–0005
- 1.1.1–TLM–0006LA
- 1.1.1–TLM–0007LA
- 1.1.1–TLM–0008LA
- 1.1.1–TIV–TLM–0009LA
- 1.1.1–TIV–TLM–LA0011
- 1.1.1–TIV–TLM–LA0013
- 1.1.1–TIV–TLM–LA0014

Dependencies:

- IBM Tivoli License Manager, Version 1.1.1
- IBM DB2 Version 7.2 fix pack 11
- IBM WebSphere 4 fix pack 7

Other changes as a result of this fix pack

This fix pack creates or updates a file called `<INST_DIR>`\product.xml (where `<INST_DIR>` is the directory where Tivoli License Manager is installed), which keeps track of the current Tivoli License Manager version. After applying the fix, servers and agents, as indicated in this file, will have a new version number of 1.1.1.40. However, the displayed version in the GUI and CLI of the servers will remain at version 1.1.1. The individual agents' software will be updated only when you specifically re–install the agent software, or after you have used the agent self–update facility in the agent configuration file, as described in the *IBM Tivoli License Manager: System Administrator's Guide*.

Note: The `product.xml` file already exists and will be updated if you have already installed the previous fix pack 1.1.1–TLM–FP01 or one of the previous interim fixes: 1.1.1–TLM–0002, 1.1.1–TLM–0005, 1.1.1–TLM–0007LA, or 1.1.1–TLM–0008LA, 1.1.1–TIV–TLM–0009LA, 1.1.1–TIV–TLM–LA0011, 1.1.1–TIV–TLM–LA0013, 1.1.1–TIV–TLM–LA0014.

After installing this fix, most of the agent's kernel extension files associated with the various operating systems will be updated. The final kernel extension files are as follows:

Windows 9x
    \slmruntime\agent\win9x\tlmkagent.dll

Other Windows
    \slmruntime\agent\win32\tlmkagent-1_1_1_3.sys

SUN

```
/slmruntime/agent/sun/tlmkagent-1_1_1_4.conf
/slmruntime/agent/sun/tlmkagent-1_1_1_4
```

AIX

```
/slmruntime/agent/aix/Aix43/tlmkagent1.1.1C
/slmruntime/agent/aix/Aix43/tlmkreg1.1.1A
/slmruntime/agent/aix/Aix43/tlmkstub
/slmruntime/agent/aix/Aix51/tlmkagent1.1.1C
/slmruntime/agent/aix/Aix51/tlmkreg1.1.1A
/slmruntime/agent/aix/Aix51/tlmkstub
```

> **Note:** The `tlmkstub` file is refreshed.

> **Note:** The list of the original agent files and their corresponding kernel extension files is available in Chapter 5 of the *IBM Tivoli License Manager: System Administrator's Guide*.

Installation, migration, upgrade, and configuration information

This section includes the following topics:
- "Hardware and software requirements"
- "Fix pack Installation" on page 16
- "Tips" on page 23
- "Verify that the fix pack has been correctly applied" on page 17
- "Upgrading the agents" on page 17
- "Revert to the previous version" on page 19

Hardware and software requirements

This section includes the following topics:
- "Supported platforms"
- "System requirements" on page 16

Supported platforms

Supported platforms at the time of the release are detailed in the *IBM Tivoli License Manager: Release Notes*. There are no known changes since the release. See "Publications" on page 23 for details of how to locate the latest version of this document.

The list of supported platforms could change outside the release cycle. For the most recent information, consult the supported platforms matrix on the IBM software support Web site, as follows:

http://www.ibm.com/software/sysmgmt/
products/support/Tivoli_Supported_Platforms.html

Click the **Tivoli Platform and Database Support Matrix** link. You will be asked for your IBM registration ID and password.

> **Note:** If you use a proxy server for HTTP communications, ensure that you set the appropriate proxy server name and port also for secure communications before accessing this site. For example, on the Proxy Settings panel on Windows 2000 (**Start > Settings .> Control Panel > Internet Options > Connections > LAN Settings > Advanced**), provide a proxy server name and port for **Secure**, as well as for **HTTP**.

System requirements

Hardware and software prerequisites are detailed in the Installing Tivoli License Manager chapter of the *IBM Tivoli License Manager: System Administrator's Guide*. There are currently no changes to the information included in the guide.

Fix pack Installation

The fix pack installation upgrades all the Tivoli License Manager components installed on the machine. Depending on the components you have installed on your machine, different initial steps must be performed.

Once you have installed the fix pack, you cannot uninstall it automatically. For details of how to revert to the previous version see "Revert to the previous version" on page 19.

To install the fix pack, perform the following steps on every machine where you have at least a Tivoli License Manager server, a Tivoli License Manager database, or the Tivoli License Manager catalog manager tool installed:

1. Log on to the computer using the 'Administrator' account on Windows system or as 'root' user on AIX systems.
2. Only if you have Tivoli License Manager servers installed on the machine. Ensure that WebSphere Application Server is up and is running.

   If you apply the fix pack with the WebSphere Application Server not running, the fix pack might not be correctly installed.
3. If you have the Tivoli License Manager databases installed. Ensure that the DB2 server or client installed on the machine is up and is running.

   The fix pack will not be installed correctly if DB2 is not running.
4. If you are upgrading servers or databases. Stop the TLM servers on this machine and remote Tivoli License Manager servers connected to the database installed on this machine.

   To do this:

   a. If the computer is running a Tivoli License Manager administration server.

      Stop the server by issuing the command:

      <INSTALL_DIR>**admin****cli****srvstop**

   b. If the computer is running a Tivoli License Manager runtime server.

      Stop the server by issuing the command:

      <INSTALL_DIR>**runtime****cli****srvstop**
5. If the computer is running a Tivoli License Manager runtime server. Check that the agent self update parameter is disabled, by taking the following steps:

   a. Ensure the runtime server is stopped

   b. Edit the file `<INSTALL_DIR>\runtime\conf\system.properties`

   c. Check that the following parameter is set to **no**, modifying it, if necessary:

      ```
      #Agent self-update enablement
      updateAgentEnabled=no
      ```
6. To install the fix pack, run one of the following, depending on your platform:
   Windows   setupwin32.exe
   AIX   setupaix.bin

   During the installation you will need to choose a valid directory where you want to back up the changed files. The default path is:

<INSTALL_DIR>\1.1.1–TIV–TLM–FP002, where 1.1.1–TIV–TLM–FP002 is a directory created by the backup process. This directory will subsequently referred to in this document as <BACKUP_DIR>.

In this directory you will find all the changed files in the same tree structure as they are in the product. To avoid any confusion with the product files, a tilde (~) has been suffixed to each file name in this directory.

The fix pack installation creates (or upgrades if the file was already present) a file called product.xml in the <INSTALL_DIR> directory. This file contains information about product and fix pack versions. In order to verify that the fix pack is correctly installed check that entries that show the installation date in the timestamp are present for each TLM installed component. An install.log file is also created in the <INSTALL_DIR> directory if any error or warning is generated during the fix pack installation.

Any changes to the configuration files that you have made prior to installing this fix pack will be preserved by the install process.

7. After the fix pack is installed, the runtime server configuration parameter parm.useproxy is set to **n**. If you are using a proxy server between your runtime server and its agents, set this parameter to **y**. The parameter parm.useproxy is in the agent_install.properties file in the <INSTALL_DIR>\runtime\conf directory, and the only valid values are **y**, **Y**, **n** and **N**.

8. If you stopped Tivoli License Manager servers restart them:

   a. If the system has a Tivoli License Manager administration server installed, restart the server by issuing the command:

      <INSTALL_DIR>**admin\cli\srvstart**

   b. If the system has a Tivoli License Manager runtime server installed, restart the server by issuing the command:

      <INSTALL_DIR>**runtime\cli\srvstart**

Verify that the fix pack has been correctly applied

Verify that the fix pack has been installed correctly on each computer where it has been installed, as follows:

1. Verify that the file product.xml in the <INSTALL_DIR> directory specifies:

```
<Product>
        <Name>IBM Tivoli License Manager</Name>
        <Version>1.1.1.40</Version>
```

2. Verify that no errors have been logged in the ITLM_install.log file in the computer's <TEMP> directory.

Upgrading the agents

The following details the steps required to upgrade the agents:

1. If the agent has a version prior to 1.1.1.20 (the agent has not been upgraded with the fix pack FP01 or with interim fix 1.1.1–TLM–0005 or later maintenance fixes) then run the **kfixer** utility before the agent code is upgraded or uninstalled. The **kfixer** utility is provided with this fix pack, or in the interim fix 1.1.1–TLM–0005 package available on the IBM Support Web site. This utility prevents the agent kernel extension from being unloaded while the fix pack is applied, and ensures that when the agent code is upgraded, the kernel extension will be safely upgraded, as well. The kfixer utility MUST be used before any agent's software is upgraded, by any method.

This utility is only required to upgrade existing agents. After you have applied the fix pack to the runtime server, any new agents can be deployed, by any method, *WITHOUT* using the `kfixer` utility.

The `kfixer` utility comes with a readme file telling you how to run it.

2. Update the agent software, WITHOUT uninstalling the agent first. This can be done by any of the methods available to you:

   - Use the Web registration facility at the agent, as described in "Deploying an agent on a node", in the section "Defining a monitoring structure for a customer" in the chapter "Managing a customer infrastructure" in *IBM Tivoli License Manager: License Administrator's Guide*. In this case you would leave the agent self–update facility disabled.

   - Run the **installagent** command at the agent, as described in "Deploying an agent manually", in the section "Agent deployment and upgrade", in Chapter 5: "The agent", in *IBM Tivoli License Manager: System Administrator's Guide* (page 49 in the English language pdf of the guide). In this case you would leave the agent self–update facility disabled.

   - Use the agent self–update facility at each runtime server. This facility can be used ONLY if you have run the `kfixer` utility at ALL the agents registered with the runtime server. To use this facility, perform the following steps:

     a. Stop the runtime server by issuing the command: `<INST_DIR>\runtime\cli\`**srvstop**.

     b. Edit the file `<INST_DIR>\runtime\conf\system.properties`

     c. Modify the following parameters to the shown values:
        ```
        # Agent self-update enablement
        updateAgentEnabled=yes
        # Time interval for self-update checking (seconds)
        updateAgentPeriod=43200
        ```

        The period you have set is 12 hours.

        Note: The `updateAgentPeriod` default setting is higher than that given in the readme files for some prior interim fixes.

     d. Restart the runtime server by issuing the command: `<INST_DIR>\runtime\cli\`**srvstart**.

     e. Verify that the version number of the agents becomes '1.1.1.40' within a reasonable period of time. The agents will be upgraded automatically as each is contacted by its runtime server, but depending on the number of agents and the `updateAgentPeriod` setting, this process could take several days. The `updateAgentPeriod` setting is defined in the `<INSTALL_DIR>\runtime\conf\system.properties` file.

        To check the version, review the details of selected agents on the Web interface of the administration server. For details, see "Reviewing and deleting agents" in the section "Managing components" in *IBM Tivoli License Manager: License Administrator's Guide*. Alternatively, run the command **tlmagent –v** on the agent computer. The command is described fully in the section on agent commands in the *IBM Tivoli License Manager: System Administrator's Guide*.

        Note: If you use the self–update facility, you should be aware that if an agent is rebooted between running the `kfixer` utility and enabling the agent self–update facility, the agent will not regain its full functionality until the self–update has taken place.

f. When you are sure that all agents have been updated, perform these steps to disable the self–update function so that it does not degrade performance unnecessarily:

  1) Stop the runtime server by issuing the command:
     `<INST_DIR>\runtime\cli\`**`srvstop`**.

  2) Edit the file `<INST_DIR>\runtime\conf\system.properties`

  3) Modify the following parameter to the shown value:

```
# Agent self-update enablement
updateAgentEnabled=no
```

  4) Restart the runtime server by issuing the command:
     `<INST_DIR>\runtime\cli\`**`srvstart`**.

Using a software distribution program for bulk updating

If you have a software program that allows you to install and run programs remotely, like the Software Distribution component of IBM Tivoli Configuration Manager, you can create a software package that runs the `kfixer` utility and distribute it to all your registered agents. When the software distribution program has reported that the utility has been successfully run on ALL agents, you can enable the agent self–update facility at the runtime server.

Alternatively, you can create a software package that runs the `kfixer` utility followed by the **installagent** command, and distribute it to all agents. The software distribution package should contain all of the files required by the **installagent** command for the platform to which it is being distributed. In this case you would leave the agent self–update facility at the runtime server disabled.

Revert to the previous version

You can revert to the previous version of the product (undo the fix pack) but if updates of the agent software have taken place you must also revert those updates. See "Reverting the agents to the previous version" on page 22 for instructions on reverting updated agents to the previous version.

The following instructions for reverting to the previous version of the servers refer to WebSphere 4.0.x. (see "Reverting to the previous version when WebSphere application server, version 4.0.x is installed"). If you have installed WebSphere 3.5 please contact IBM Customer Support for instructions on how to revert to the previous version.

Reverting to the previous version when WebSphere application server, version 4.0.x is installed

The steps must be performed on all systems where the administration server, the runtime server, or both are installed, and are as follows:

1. Log on to the system with administration authority.
2. Stop the Tivoli License Manager servers from the WebSphere Application Console.
3. Copy the backed–up original files from the backup directories to their original locations. The files are listed below, and they must be copied from the backup directory (that you defined in step 6 on page 16 of the install procedure) to the product's install directory, maintaining the same subdirectory structure, and removing the final tilde (~). For example, copy
`<BACKUP_DIR>\admin\conf\agent_install.properties~` to
`<INSTALL_DIR>\admin\conf\agent_install.properties`.

The files to be copied depend on the components installed on the system where you want to revert to the previous version.

Administration server on Windows

```
<BACKUP_DIR>\admin\cli\
        srvstart.bat~
        srvstop.bat~
        tlmcli.bat~
```

```
<BACKUP_DIR>\admin\conf\
        agent_install.properties~
```

```
<BACKUP_DIR>\admin\db\db2\
        create_tbl.sql~
        dump_db.sql~
```

```
<BACKUP_DIR>\admin\setup\
        deleteAdmin.bat~
        setupAdmin.bat~
        slm_admin.ear~
        uninstallAdmin.bat~
```

If you have already installed interim fix 1.1.1–TLM–0002 or 1.1.1–TLM–0005, or fix pack FP01 the following files will have also been backed up, and should now be restored:
```
        installAdmin.bat~
        stopAdmin.bat~
```

Runtime server on Windows

```
<BACKUP_DIR>\runtime\cli\
        srvstart.bat~
        srvstop.bat~
        tlmcli.bat~
```

```
<BACKUP_DIR>\runtime\conf\
        agent_install.properties~
        system.properties~
```

> **Note:** You must delete the unknownFiles.properties file from the <INSTALL_DIR>\conf directory.

```
<BACKUP_DIR>\runtime\db\db2\
        create_tbl.sql~
        dump_db.sql~
```

```
<BACKUP_DIR>\runtime\setup\
        deleteAdmin.bat~
        setupAdmin.bat~
        slm_admin.ear~
        uninstallAdmin.bat~
```

If you have already installed interim fix 1.1.1–TLM–0002 or 1.1.1–TLM–0005, or fix pack FP01 the following files will have also been backed up, and should now be restored:
```
        installAdmin.bat~
        stopAdmin.bat~
```

Catalog manager on Windows

```
<BACKUP_DIR>\catmgr\
        catmgr.jar~
```

```
<BACKUP_DIR>\catmgr\resources\
        CatalogManager_it.properties~
```

Administration server on AIX

```
<BACKUP_DIR>/admin/cli/
        srvstart~
        srvstop~
        tlmcli~

<BACKUP_DIR>/admin/conf/
        agent_install.properties~

<BACKUP_DIR>/admin/db/db2/
        create_tbl.sql~
        dump_db.sql~

<BACKUP_DIR>/admin/setup/
        deleteAdmin.sh~
        setupAdmin.sh~
        slm_admin.ear~
        uninstallAdmin.sh~
```

If you have already installed interim fix 1.1.1–TLM–0002 or 1.1.1–TLM–0005, or fix pack FP01 the following files will have also been backed up, and should now be restored:
```
        installAdmin.sh~
        stopAdmin.sh~
```

Runtime server on AIX

```
<BACKUP_DIR>/runtime/cli/
        srvstart~
        srvstop~
        tlmcli~

<BACKUP_DIR>/runtime/conf/
        agent_install.properties~
        system.properties~

<BACKUP_DIR>/runtime/db/db2/
        create_tbl.sql~
        dump_db.sql~

<BACKUP_DIR>/runtime/setup/
        deleteAdmin.sh~
        setupAdmin.sh~
        slm_admin.ear~
        uninstallAdmin.sh~
```

If you have already installed interim fix 1.1.1–TLM–0002 or 1.1.1–TLM–0005, the following files will have also been backed up, and should now be restored:
```
        installAdmin.sh~
        stopAdmin.sh~
```

Catalog manager on AIX

```
<BACKUP_DIR>/catmgr/
        catmgr.jar~

<BACKUP_DIR>/catmgr/resources/
        CatalogManager_it.properties~
```

4. Run the following scripts to remove the directories containing the uncompressed `.ear` files. The script names depend on your operating system:

Windows

From a command prompt, run the following scripts:

Administration server:
        `<INSTALL_DIR>\admin\setup\uninstallAdmin.bat`

Runtime server:
        `<INSTALL_DIR>\runtime\setup\uninstallRuntime.bat`

AIX

From any directory, run the following scripts:

Administration server:
        `<INSTALL_DIR>/admin/setup/uninstallAdmin.sh`

Runtime server:
        `<INSTALL_DIR>/runtime/setup/uninstallRuntime.sh`

5. Run the following scripts to uncompress the backed–up `.ear` files in the backup directories and move them into the live directories. The script names depend on your operating system:

Windows

From a command prompt, run the following scripts:

Administration server:
        `<INSTALL_DIR>\admin\setup\installAdmin.bat`

Runtime server:
        `<INSTALL_DIR>\runtime\setup\installRuntime.bat`

AIX

From any directory, run the following scripts:

Administration server:
        `<INSTALL_DIR>/admin/setup/installAdmin.sh`

Runtime server:
        `<INSTALL_DIR>/runtime/setup/installRuntime.sh`

6. Start the Tivoli License Manager servers from the WebSphere Application Console.

Reverting the agents to the previous version

To revert any updated agents, the same process applies, regardless of the version of the WebSphere Application Server in use.

You need to follow these steps:

1. Revert the administration server and all runtime servers, as described above.
2. Identify the agents that have been updated by viewing the agent details in the GUI. Upgraded agents will have a version of 1.1.1.40.
3. Manually uninstall the new agent software from the systems to which it has been distributed, following the instructions for uninstalling the agent given in the installation chapter of the *IBM Tivoli License Manager: System Administrator's Guide*.
4. Register the agents again with their runtime servers, either using the Web registration described in the *IBM Tivoli License Manager: License Administrator's Guide*, or by issuing the **installagent** command from the agent system's command line (using the **installagent** package created with the version of code that was installed before this fix pack was installed), as documented in the agent chapter of the *IBM Tivoli License Manager: System Administrator's Guide*.

Tips

Occasionally, when installing this fix pack, even if WebSphere Application Server is running, on the the last panel of the GUI you may receive this error:

```
Errors occurred: IBM WebSphere could be not be configured or was not running.
Refer to the install log for additional information. Refer to the installation
instructions for manual configuration.
```

If this message is displayed, you must manually configure the administration or runtime server again. To configure the administration or runtime server, refer to WebSphere Application Server configuration, in the Common Problems section in the Problem Determination chapter of the *System Administration Guide*. Refer to the symptom "A Tivoli License Manager server is missing from the WebSphere Application Server list of application servers".

General information

This section contains the following general information that might have changed since these products were made available:

- "Publications"
- "Accessibility" on page 25
- "Tivoli technical training" on page 25
- "Contacting software support" on page 25
- "Conventions used in this readme file" on page 28

Publications

This section lists publications in the Tivoli License Manager, version 1.1.1, library and related documents. It also describes how to access Tivoli publications online and how to order Tivoli publications.

Tivoli License Manager library

The Tivoli License Manager, version 1.1.1, library comprises the following books:

- *IBM Tivoli License Manager: License Administrator's Guide*, GC23-4833

  Provides support for using the Tivoli License Manager Web interfaces.

- *IBM Tivoli License Manager: System Administrator's Guide*, GC23-4834

  Provides information about planning, installing, and managing Tivoli License Manager.

- *IBM Tivoli License Manager: Data Dictionary*, GC23-4835

  Provides information about the Tivoli License Manager database.

- *IBM Tivoli License Manager: Warehouse Enablement Pack Implementation Guide*, SC32-1244

  Provides instructions and other information related to enabling the use of the Tivoli Enterprise™ Data Warehouse with Tivoli License Manager.

- *IBM Tivoli License Manager: Release Notes*, SC23-4848

  Provides a summary of changes made in Tivoli License Manager, version 1.1.1, documents known errors and workarounds, and includes information about any product changes that could not be included in the main documentation.

Related publications

The following document also provides useful information:

- *IBM Tivoli Enterprise Data Warehouse: Release Notes*, GI11-0857

Provides a summary of changes made in the latest release of Tivoli Enterprise Data Warehouse, documents known errors and workarounds, and includes information about any product changes that could not be included in the main documentation.

The *Tivoli Software Glossary* includes definitions for many of the technical terms related to Tivoli software. The *Tivoli Software Glossary* is available, in English only, at the following Web site:

www.ibm.com/software/tivoli/library/

Access the glossary by clicking the **Glossary** link on the left pane of the Tivoli software library window.

Accessing publications online

The Tivoli License Manager documentation CD contains the publications that are in the product library, other than the *IBM Tivoli License Manager: Release Notes*, in all supported languages. The format of the publications is PDF, HTML, or both. To access the publications using a Web browser, open the `allpubs.htm` file. The file is in the `root` directory on the documentation CD. Select the language of your choice, and an Information Center for the product in that language is displayed. Select the publication and the format in which you want to view it.

Note: On Windows platforms, an autorun opens the `allpubs.htm` file in your default browser.

IBM posts publications for this and all other Tivoli products, as they become available and whenever they are updated, to the Tivoli Software Information Center Web site. Access the Tivoli Software Information Center by first going to the Tivoli software library at the following Web address:

www.ibm.com/software/tivoli/library/

Scroll down and click the **Product manuals** link on the left pane of the Tivoli software library window. In the Tivoli Technical Product Documents Alphabetical Listing window, click the IBM Tivoli License Manager link to access the product library at the Tivoli Information Center.

Note: If you print PDF documents on other than letter-sized paper, set the option in the **File → Print** window that allows Adobe Reader to print letter-sized pages on your local paper.

Ordering publications

You can order many Tivoli publications online at the following Web site:

www.elink.ibmlink.ibm.com/public/applications/publications/cgibin/pbi.cgi

You can also order by telephone by calling one of these numbers:
- In the United States: 800-879-2755
- In Canada: 800-426-4968

In other countries, see the following Web site for a list of telephone numbers:

www.ibm.com/software/tivoli/order-lit/

Accessibility

Accessibility features help users with a physical disability, such as restricted mobility or limited vision, to use software products successfully. With this product, you can use assistive technologies to hear and navigate the interface. You can also use the keyboard instead of the mouse to operate all features of the graphical user interface.

This product is operated using a Web browser, which has certain built-in accessibility features, and has been provided with specific shortcut keys for navigating the Web interface, starting tasks, and performing toolbar actions.

Tivoli technical training

For Tivoli technical training information, refer to the following IBM Tivoli Education Web site:

www.ibm.com/software/tivoli/education/

Contacting software support

IBM Software Support provides assistance with product defects.

Before contacting IBM Software Support, your company must have an active IBM software maintenance contract, and you must be authorized to submit problems to IBM. The type of software maintenance contract that you need depends on the type of product you have:

- For IBM distributed software products (including, but not limited to, Tivoli, Lotus®, and Rational® products, as well as DB2 and WebSphere products that run on Windows or UNIX operating systems), enroll in Passport Advantage® in one of the following ways:
  - **Online**: Go to the Passport Advantage Web page and click **How to Enroll** . The Web address is the following:

    www.lotus.com/services/passport.nsf/WebDocs/Passport_Advantage_Home

  - **By phone**: For the phone number to call in your country, go to the IBM Software Support Web site (techsupport.services.ibm.com/guides/contacts.html) and click the name of your geographic region.
- For IBM eServer™ software products (including, but not limited to, DB2 and WebSphere products that run in zSeries®, pSeries®, and iSeries™ environments), you can purchase a software maintenance agreement by working directly with an IBM sales representative or an IBM Business Partner. For more information about support for eServer software products, go to the IBM Technical Support Advantage Web page (www.ibm.com/servers/eserver/techsupport.html).

If you are not sure what type of software maintenance contract you need, call 1-800-IBMSERV (1-800-426-7378) in the United States or, from other countries, go to the contacts page of the IBM Software Support Handbook on the Web (techsupport.services.ibm.com/guides/contacts.html) and click the name of your geographic region for phone numbers of people who provide support for your location.

Follow the steps in this topic to contact IBM Software Support:
1. "Determine the business impact of your problem" on page 26

2. "Describe your problem and gather background information"
3. "Submit your problem to IBM Software Support"

Determine the business impact of your problem

When you report a problem to IBM, you are asked to supply a severity level. Therefore, you need to understand and assess the business impact of the problem you are reporting. Use the following criteria:

Severity 1	**Critical** business impact: You are unable to use the program, resulting in a critical impact on operations. This condition requires an immediate solution.
Severity 2	**Significant** business impact: The program is usable but is severely limited.
Severity 3	**Some** business impact: The program is usable with less significant features (not critical to operations) unavailable.
Severity 4	**Minimal** business impact: The problem causes little impact on operations, or a reasonable circumvention to the problem has been implemented.

Describe your problem and gather background information

When explaining a problem to IBM, be as specific as possible. Include all relevant background information so that IBM Software Support specialists can help you solve the problem efficiently. To save time, know the answers to these questions:

- What software versions were you running when the problem occurred?
- Do you have logs, traces, and messages that are related to the problem symptoms? IBM Software Support is likely to ask for this information.
- Can the problem be recreated? If so, what steps led to the failure?
- Have any changes been made to the system? (For example, hardware, operating system, networking software, and so on.)
- Are you currently using a workaround for this problem? If so, please be prepared to explain it when you report the problem.

Submit your problem to IBM Software Support

You can submit your problem in one of two ways:

- **Online**: Go to the "Submit and track problems" page on the IBM Software Support site (www.ibm.com/software/support/probsub.html). Enter your information into the appropriate problem submission tool.
- **By phone:** For the phone number to call in your country, go to the contacts page of the IBM Software Support Handbook on the Web (techsupport.services.ibm.com/guides/contacts.html) and click the name of your geographic region.

If the problem you submit is for a software defect or for missing or inaccurate documentation, IBM Software Support creates an Authorized Program Analysis Report (APAR). The APAR describes the problem in detail. Whenever possible, IBM Software Support provides a workaround for you to implement until the APAR is resolved and a fix is delivered. IBM publishes resolved APARs on the IBM product support Web pages daily, so that other users who experience the same problem can benefit from the same resolutions.

For more information about problem resolution, see "Searching knowledge bases" on page 27 and "Obtaining fixes" on page 27.

Searching knowledge bases

If you have a problem with your IBM software, you want it resolved quickly. Begin by searching the available knowledge bases to determine whether the resolution to your problem is already documented.

Search the information center on your local system or network: IBM provides extensive documentation that can be installed on your local machine or on an intranet server. You can use the search function of this information center to query conceptual information, instructions for completing tasks, reference information, and support documents.

Search the Internet: If you cannot find an answer to your question in the information center, search the Internet for the latest, most complete information that might help you resolve your problem. To search multiple Internet resources for your product, expand the product folder in the navigation frame to the left and select **Support on the Web**. From this topic, you can search a variety of resources including:

- IBM technotes
- IBM downloads
- IBM Redbooks™
- IBM DeveloperWorks
- Forums and newsgroups
- Google

Obtaining fixes

A product fix might be available to resolve your problem. You can determine what fixes are available for your IBM software product by checking the product support Web site:

1. Go to the IBM Software Support Web site (www.ibm.com/software/support).
2. Under **Products A - Z**, select your product name. This opens a product-specific support site.
3. Under **Self help**, follow the link to **Search all Downloads**, where you will find a list of fixes, fix packs, and other service updates for your product. For tips on refining your search, click **Search tips**.
4. Click the name of a fix to read the description and optionally download the fix.

To receive weekly e-mail notifications about fixes and other news about IBM products, follow these steps:

1. From the support page for any IBM product, click **My support** in the upper-right corner of the page.
2. If you have already registered, skip to the next step. If you have not registered, click register in the upper-right corner of the support page to establish your user ID and password.
3. Sign in to **My support**.
4. On the My support page, click **Edit profiles** in the left navigation pane, and scroll to **Select Mail Preferences**. Select a product family and check the appropriate boxes for the type of information you want.
5. Click **Submit**.
6. For e-mail notification for other products, repeat Steps 4 and 5.

For more information about types of fixes, see the *Software Support Handbook* (techsupport.services.ibm.com/guides/handbook.html).

Updating support information

Information centers typically include one or more *support information plug-ins*. These plug-ins add IBM technotes and other support documents to the information center. The following steps describe how to update your support information plug-ins:

1. Go to the IBM Software Support Web site (www.ibm.com/software/support).
2. Under **Products A - Z**, select your product name. This opens a product-specific support site.
3. Under **Search support for this product**, type the keyword phrase: `com.ibm.support`. Click the **Download** check box, and click **Submit**.
4. Check the search results for updates to support information plug-ins. All support information plug-ins follow the naming convention, "com.ibm.support.*product*.doc." If an update is available, select it from the list and view the download instructions.
5. Save the attached zip file to a temporary location on your hard drive.
6. Unzip the downloaded file, making sure that you retain the subfolders.
7. From the location where you unzipped the file, copy the support information plug-in folder to your Eclipse plug-ins folder. For example, if your IBM software product is installed at *c:\IBM\WebSphere*, copy the updated plug-in folder (com.ibm.support.*product*.doc) to *c:\IBM\WebSphere\eclipse\plugins*.
8. To see the updated support information, start the information center (or shut it down and restart it), and expand the **Support information** node in the navigation tree.

Conventions used in this readme file

This readme file uses the following typeface conventions:

Bold

- Lowercase commands and mixed case commands that are otherwise difficult to distinguish from surrounding text
- Interface controls (check boxes, push buttons, radio buttons, spin buttons, fields, folders, icons, list boxes, items inside list boxes, multicolumn lists, containers, menu choices, menu names, tabs, property sheets), labels (such as **Tip:**, and **Operating system considerations:**)
- Column headings in a table
- Keywords and parameters in text

Italic

- Citations (titles of books, diskettes, and CDs)
- Words defined in text
- Variables and values you must provide

`Monospace`

- Examples and code examples
- File names, programming keywords, and other elements that are difficult to distinguish from surrounding text
- Message text and prompts addressed to the user
- Text that the user must type
- Values for arguments or command options

`<text>`

- Indicates a variable in a path name. For example in the path `<INSTALL_DIR>/admin/conf`, *INSTALL_DIR* depends on the location where you have installed the component, while `/admin/conf` is constant.

Operating system-dependent notation

This book uses the Windows convention for environment variables and directory notation.

When using the UNIX command line you should do the following:

Environment variables
First verify the correct value for the UNIX variable name, as many Windows and UNIX variables that perform the same task have different names (for example, %TEMP% in Windows is equivalent to $tmp in UNIX). Then replace **%***Windows_variable***%** with **$***UNIX_variable*

File and directory paths
Replace each backslash (\ ) with a forward slash (/).

Note: If you are using the bash shell on a Windows computer, you can use the UNIX conventions.

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