



# **TIBCO iProcess® Engine (Oracle) for Windows**

## **Release Notes**

Version 11.9.1 | March 2024

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# New Features

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The following features have been added since the last major release of TIBCO iProcess® Engine (Oracle) for Windows.

## Release 11.9.1

The following new features have been added in this release.

### **pthread Library**

New `pthread.dll` which is not dependent on `msvcr100.dll` is now available on download site.

### **Java Upgrade**

From this release, the Java software is upgraded to 11.0.22.

### **DataDirect Drivers**

Removal of dependency on DataDirect drivers.

## Release 11.9.0

The following features have been added in this release.

### **JMX is Now Disabled by Default (For Business Studio Users)**

From this release, by default, JMX is disabled in iProcess Engine. Connecting to a background process by using the JMX port is permanently disabled. With an exception, you can enable this feature in the `RPC_TCP_LI` process by setting the process attribute `ENABLE_JMX_LISTENER` to 1. This exception is to support the deployment of procedures especially

from the Business Studio. You must set the `ENABLE_JMX_LISTENER` process attribute first and then, restart the iProcess Engine.

## Support for Global Variables

From this release, the Global Variables feature is added with the following functionality:

- User-definable custom fields that can be accessed from within any procedure via the new `GLOBALVARIABLE` expression
- Developers to set configuration data external to the procedure and change it independently of the procedure definition
- `swadm` supports Set, Delete, Import, and Export of Global Variables
- The new iProcess Admin Console page to view, change, import, and export Global Variables

For more information, see *TIBCO iProcess® Engine Administrator's guide* and *TIBCO iProcess® Engine Admin Console Guide*.

## Encryption Improvements

From this release,

- Encryption for the RPC layer between the iProcess Workspace (Windows), Work Queue Server, and Work Item Server processes is improved
- Encryption protocol that is used between iProcess Server Objects and iProcess Objects Server is updated

## Support for Export and Import of iProcess Configuration

From this release, iProcess Engine supports export and import commands to easily replicate iProcess Engine environments. For more information, see *TIBCO iProcess® Engine Administrator's guide*.

# Release 11.8.0

The following new features have been added in this release.

## Updated Installer

From this release, the installer for iProcess Engine (Oracle) has been updated to the latest version of InstallShield2019.

## Support for Java 11

From this release, Java 11 Support for is provided.

## Migrate iProcess Engine to 64-bit

As of release 11.8, iProcess Engine (Oracle) has been migrated to a 64-bit architecture.

## Support for Platforms

In this release, support for the following platforms have been added:

- Microsoft Windows Server 2019 (64 Bit)

## Support for Databases

In this release, support for the following databases has been added.

- Oracle 18c database using Oracle 19c Client
- Oracle 19c database using Oracle 19c Client

## MEMO Efficiency Improvements

As of this release, the following enhancements have been made:

- USING\_BLOB flag allows a NULL value.
- In-place update of the MEMO is performed, instead of delete and insert.
- Memos are migrated in batches.

## IPAC enhancements

- Improved performance of Log Viewer Time Based filtering
- Handling of large numbers of Queues, Message Queue Messages and System Events has increased

- Filtering for Queues, Messages, and System Events has enhanced
- New filtering options to swadm and plist for Queues, Messages, and System Events has been added
- Existing Monitoring Graphs can be edited
- Support for more details has been added across all the nodes in a Node Cluster environment
- Support for Pagination from Server

## Customer Written Applications

If you have created any customized applications, such as SAL SDK, UVAPI plug-ins, NPSAL, or JAVA plug-in applications, you must update your applications to 64-bit, for the applications to run seamlessly.

## Release 11.7.0

The following new features have been added in this release.

### TIBCO iProcess<sup>®</sup> Engine Administration Console

TIBCO iProcess Engine Administration Console is a Graphical User Interface (GUI)-based tool that runs on the web. It can be used to perform the following administrative tasks:

- Control process operations (start, stop, pause, enable/disable, and delete).
- Configure resources such as process attributes, MBox queues, databases, port ranges, debug settings, and so on.
- Monitoring information, such as processes, queue information, logs, and so on.
- Monitoring performance based on CPU usage, memory usage, and so on.

For more information, see *TIBCO iProcess Engine Administration Console User's Guide*.

### Support for TIBCO iProcess Engine on Microsoft Azure

iProcess Engine can now be installed on the Microsoft Azure cloud platform. This enables you to host an existing installation or a completely new installation of iProcess Engine on

Microsoft Azure.

For more information, see *TIBCO iProcess Engine Configuration Guide for Cloud*.

## swadm METRICS

This is a new swadm utility that you can use to query and export statistical iProcess Engine information. For more information on how to use this utility, see *TIBCO iProcess Engine Administrator's Guide*.

## Monitoring of Undelivered Queue Items

The integration capabilities of TIBCO Hawk have been extended to include a new interface **getUndeliveredCount** which allows monitoring undelivered queue items in iProcess Engine.

## Performance Improvements to Case Data Searching

The case data searching functionality has been enhanced to reduce search time and return search results faster.

## Support Oracle 12c R2 Database 12.2 and DB2 11.1

iProcess Engine now supports Oracle 12c R2 Database 12.2 and DB2 11.1 database servers.

# Release 11.6.1

The following new features have been added in this release.

## Support for Amazon Web Services (AWS) for TIBCO iProcess Engine for cloud

From this release, TIBCO iProcess Engine is now supported on the cloud through Amazon Web Services (AWS).

See *TIBCO iProcess Engine for Configuration Guide for Cloud* for more details.



## Release 11.6.0

The following new features have been added in this release.

### Support for System Platform

- From this release, Microsoft Windows 10 (32-bit) is supported.

### Support for Java Version

From this release, Java Standard Edition 8 is supported. See *TIBCO iProcess Engine Installation guide* for details.

## Release 11.5.0

The following new features have been added in this release.

### System Events Management ([IPE-3416](#))

The following new functions have been added to manage system events:

- **Enable System Events Logging**

When installing TIBCO iProcess Engine, you can use the configuration item in the **Configuration Options** menu **Enable System Event Logging** configuration option in the **Configuration** dialog box to specify whether or not you want to log system events information.

For more information about how to use this configuration option, see "Configuration Dialog Box" in *TIBCO iProcess Engine Installation*.

The following tables are created to store information about system events logging:

- `system_event`: the table is used to store basic information about the system events.
- `system_event_conf`: the table is used to store system events configuration information.

- **Audit System Events**

You can use the `SYSTEM_EVENT_LOGGIN` process attribute to specify whether to audit system events after installing or upgrading to TIBCO iProcess Engine 11.5.0.

For more information, see "Activity Monitoring and Work Queue Delta Configuration" in *TIBCO iProcess Engine Administrator's Guide*.

- **Publish System Events**

You can use the `PUBLISH_SYS_EVENT_METHOD` process attribute to specify whether or not you want to publish system events. Before publishing a system event, ensure that the system event has been audited.

You can publish a system event by using Windows Event Viewer, TIBCO Hawk Agent, or the IAPJMS process.

- If you choose to publish a system event by using TIBCO Hawk Agent, you can use the `SE_WORKER_PORTNO` process attribute to specify a port number of the socket that is used for communications between the processes that audit the system events and the "worker" process. The "worker" process finally sends the events information to TIBCO Hawk Agent.
- If you choose to publish a system event by using the IAPJMS process, you can use the `SEJMS_TOPICNAME` attribute to specify the JMS topic name for the JMS destination that is used to publish the system event.

For more information, see "Activity Monitoring and Work Queue Delta Configuration" in *TIBCO iProcess Engine Administrator's Guide*.

- **Query System Events Information**

You can use the `plist -e` command to query information about a single or multiple system events.

For more information, see "System Event Information" in *TIBCO iProcess Engine Administrator's Guide*.

- **Turn Off System Events**

You can delete information about a single or multiple system events or clear information about system events ahead of a specified date from iProcess database by using the `swadm delete_system_event` command.

For more information, see "Removing System Events Information from the iProcess Database" in *TIBCO iProcess Engine Administrator's Guide*.

- **Import and Export System Events Configuration**

You can import a system event configuration file into TIBCO iProcess Engine by using the `swutil IMPEVENTCONF` command and export configuration information of a

system event from TIBCO iProcess Engine to a command line by using the `swutil EXPEVENTCONF` command.

For more information, see *TIBCO iProcess swutil and swbatch Reference Guide*.

## Optimize SQL Statements Execution ([IPE-3455](#))

You can use the `sqloptim` file, which is located in the `SWDIR/etc` directory, to optimize execution of SQL statements in the database.

For more information, see "SWDIR\etc\sqloptim" in *TIBCO iProcess Engine Administrator's Guide*.

## Reduce Log in Time ([IPE-3468](#))

The average time for a user to log in to TIBCO iProcess Engine node is now identical no matter how many user groups and users have been created in this TIBCO iProcess Engine node if other system conditions remain unchanged.

For example, the average time for the user to log in to an iProcess Engine node with 500 users registered is the same as the average time for the user to log in to the same iProcess Engine node with 15000 users registered, if the other system conditions remain the same.

## Unlock Work Items ([IPE-3472](#))

You can use the `MN_UNLOCKER` process attribute to specify which iProcess users can have permission to unlock work items.

For more information, see "Process Management Configuration" in *TIBCO iProcess Engine Administrator's Guide*.

## WRITELOG Function Introduced ( [IPE-3473](#))

You can use the `WRITELOG` function to write messages to a log file to trace and debug iProcess scripts issues.

For more information, see "Log Functions" in *TIBCO iProcess Expressions and Functions Reference Guide*.

## Define the Maximum Size of Log Files (IPE-3476)

You can use the `maxsize` parameter in the `DEBUG` process attribute to define the maximum size of log files, except the `sw_error`, `sw_warn`, `SWEntObjSvXX.log`, and `spodirectorXX.log` files.

When the log files reach the maximum size, if the `onfull` parameter in the `DEBUG` process is set to `save`, the log files are archived.

The default value of the `maxsize` parameter is 20 GB, and the default value of the `onfull` parameter is `save`.

For more information, see "Monitoring Log files" in *TIBCO iProcess Engine Administrator's Guide*.

## Define the Maximum Size of the `sw_warn` and `sw_error` Log Files (IPE-3477)

You can use the `WARN_ERROR_LOG_SIZE` process attribute to define the maximum size of the `sw_warn` and `sw_error` log files. The default value of the `WARN_ERROR_LOG_SIZE` process attribute is 2 GB.

For more information, see *TIBCO iProcess Engine Administrator's Guide*.

## Work Items Are Unique to Users (IPE-3480)

Add `requestid` as the unique identifier for each work item so that each work item can only be locked by one user.

## Change Field Data Type (IPE-3513)

The Long Raw data type in the `pm_objects`, `proc_defn`, and `user_setting` tables in the database has been changed to BLOB.

From TIBCO iProcess Engine 11.5.0, all the new case memo data is stored in the `nmemo` and `pack_nmemo` tables and the data type is BLOB.

You can migrate the old case memo data from the `memo` and `pack_memo` tables to the `nmemo` and `pack_nmemo` tables in one of the following ways:

- Use the **Migrate live cases** or **Migrate all cases** option in the **Upgrade or New Install** Dialog box when upgrading TIBCO iProcess Engine to 11.5. For more information, see *TIBCO iProcess Engine for Windows Installation*.

- Using the `swutil MIGRATEMEMOS ALL_CASES|LIVE_CASES|casenumrange` command after upgrading TIBCO iProcess Engine to 11.5. For more information, see "Migrating Old Case Memo Data" in *TIBCO iProcess swutil and swbatch Reference Guide*.

**Note:**

It might take a long time to complete the migration procedure. The time consumption depends on the volume of the memos in the `pack_memo` and `memo` tables.

## Delayed Release Has Been Enhanced ([IPE-3536](#))

The following features have been introduced to enhance the delayed release function:

- Add the `SW_DELAYED_RELEASE_ERR` stored procedure in the iProcess database. TIBCO iProcess BusinessWorks Connector can trigger the `SW_DELAYED_RELEASE_ERR` stored procedure to call and send the error message to the BG process if the iProcess Complete Delayed Release activity fails to complete delayed release of an EAI BusinessWorks step.

For more information, see "Delayed Release" in *TIBCO iProcess BusinessWorks Connector User's Guide*.

- Add the following system-defined message in the audit trail to trace the error message when performing delayed release of an EAI BusinessWorks step has failed:

088 *StepDescription* EAI delayed-release failed (*error code (failure\_count, BG\_action)* : *error message*)

For more information, see "Understanding Audit Trails" in *TIBCO iProcess Engine Administrator's Guide*.

## Support for Database

In this release, you can use Oracle client 12.1.0.1 to access Oracle 11g and 12c.

## Changes in Functionality

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The following functionality has been changed in this release of TIBCO iProcess® Engine (Oracle) for Windows.

Key	Version	Summary
IPE-5789	11.9.0	<p>The JMX or RMI dependency from the JMS Admin tool is removed. The JMS Admin tool now directly connects to a database and/or JMS instead of sending requests to the iProcess Engine.</p> <p><b>Note:</b> (For Business Studio only) There is an option to temporarily enable this feature by using the ENABLE_JMX_LISTENER process attribute.</p>

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# Deprecated and Removed Features

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This section describes any features that have been deprecated or removed since release 11.5.0 of this product.

For deprecated features, if relevant, useful alternatives to the deprecated features are listed. Any use of a deprecated feature must be discontinued as it might be removed in a future release. You must avoid depending on the deprecated features and become familiar with the suggested alternative features.

## Release 11.9.1

No features have been deprecated or removed in this release of TIBCO iProcess® Engine (Oracle) for Windows.

## Release 11.9.0

The following feature has been removed in this release of TIBCO iProcess® Engine (Oracle) for Windows.

### Removed Feature

From this release, the iProcess Server Manager is no longer supported.

## Release 11.8.0

### Deprecated Features

The following features are deprecated in this release:

- iProcess Decisions Server

- iProcess Decisions Studio
- iProcess Decisions Web Services

## Removed Features

From this release, Auto Forward functionality has been removed from the iProcess Objects Server (and the IPOS Configuration tool).

## Release 11.7.0

No features have been deprecated or removed as of this release of TIBCO iProcess Engine.

## Release 11.6.1

### Deprecated Features

The following features are deprecated in this release:

- TIBCO iProcess Objects (COM)
- TIBCO iProcess Objects (Java)

## Release 11.6.0

### Deprecated Features

The following features are deprecated in this release:

- TIBCO iProcess Client (ASP) and TIBCO iProcess Client (JSP) are deprecated and might be removed from a future release. You can use TIBCO iProcess Workspace (Browser) as an alternative client interface for TIBCO iProcess Suite.
- TIBCO iProcess Objects (C++) is deprecated and might be removed in a future release. You can use TIBCO iProcess Server Objects as an alternative interface for your iProcess applications.



## Removed Features

No features are removed in this release.

# Release 11.5.0

## Deprecated Features

No features are deprecated in this release.

## Removed Features

From this release, Microsoft Windows Server 2003 is no longer supported.

# Compatibility

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In addition to other versions of TIBCO iProcess® Suite components, the following TIBCO products have been successfully tested for compatibility with release 11.9.0 of TIBCO iProcess Engine.

Product	Version
iProcess Workspace (Browser)	11.9.0
iProcess Workspace Lite	1.2.0
TIBCO iProcess® Web Services Server Plug-in	11.9.0
TIBCO iProcess® Technology Plug-ins	11.9.0
TIBCO iProcess® Server Objects	11.9.0

For any queries regarding the product's compatibility with this version of iProcess Engine, contact TIBCO Support for further assistance.

# Closed Issues

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The following issues have been fixed since the last major release of TIBCO iProcess® Engine (Oracle) for Windows.

## Release 11.9.1

Defect #	Description
IPE-6416 (Parent JIRA IPE-6132)	iProcess Addin for Business Studio failed to connect to BW Server MBean.
IPE-6334 (Parent JIRA IPE-6124)	Slow GetACaseList after upgrade to 11.8.1.
IPE-6332 (Parent JIRA IPE-6113)	Existing sub-case taking newer version of sub-procedure.
IPE-6330 (Parent JIRA IPE-6142)	LDAP Sync issue (BG crash) - When LDAP Server reconnected from iPE.
IPE-6328 (Parent JIRA IPE-6085)	Crash of WIS process on purge workitem.
IPE-6325 (Parent JIRA IPE-6064)	LDAP Sync leading to BG crash.

Defect #	Description
IPE-6324 <i>(Parent JIRA IPE-6051)</i>	Proc import with memo fields resulting in duplicate memo-ids.
IPE-6296	During Engine restart, ports are reserved for process monitoring, Sentinels request for free ports, creating a new socket, binding, and closing it. In this gap of open and close there is a window for another process to grab the port. The fix is to reduce the gap between socket close and the consumption of this port by Child process. This change will reduce, but not eliminate, the possibility of another process grabbing the port.
IPE-6295	A memory leak occurred due to calls to encrypt/decrypt keys.
IPE-6172	Any expression defined in a client for example Business Studio, that once translated to the native iProcess expression language, if the resulting expression is longer than 245 characters, then the deployment will be aborted and "IPEXPDLXFRERR" error is returned back to the client.
IPE-6011	The SPO/WQS process crashes intermittently on updating keys and in the event of concurrent log-in sessions.
IPE-5891	The WQS process crashes in the event of concurrent log-in sessions.

## Release 11.9.0

Defect #	Description
IPE-5802 <i>(Parent JIRA IPE-5763)</i>	When reconnecting to the LDAP server, BG crashes during an LDAP synchronization.
IPE-5742	Unable to set few debug log parameters like log level, trace msg flag and so on for the SPO server via Process Attributes.

Defect #	Description
IPE-5689	When importing the configuration file, you cannot import the watcher or worker ports present in the <b>/etc/services</b> location.
IPE-5609 (Parent JIRA IPE- 4135)	When a case starts via SSOLITE that contains an SW_ADD_PACK_MEMO call, the memo data gets saved in the main case but, it does not pass that data into a sub-procedure.
IPE-5604	The log4j JAR file is upgraded to 2.17.2 version.
IPE-5593 (Parent JIRA IPE- 5579)	When a queue name contains hyphen (-) in it, the swutil CHECKITEM and swutil CLEANITEM commands do not return correct output.
IPE-5589	The EncodeToUTF8 function fails to identify the correct char-set when translating from US-ASCII to UTF8.
IPE-5563 (Parent JIRA IPE- 5388)	The SPODIRECTOR file crashes when parsing the Client version.
IPE-5532 (Parent JIRA IPE- 5524)	When memory consumption increases, user is unable to connect to the server and must reboot the server.
IPE-5498 (Parent JIRA IPE- 5492)	When trying to fetch the WorkQ list, iProcess Workspace Browser returns an invalid XML character.
IPE-5497 (Parent	When reopening a closed case by clicking the trigger event, iProcess Workspace Browser throws the " <b>Case number not found</b> " error.

Defect #	Description
<i>JIRA IPE-5494)</i>	
IPE-5455 (Parent <i>JIRA IPE-5452)</i>	When trying to create multiple groups via the SPO server, the SPO server generates a Unique Constraint error.
IPE-5429	When installing iPE 11.8.0 on Windows with both the iPEADMIN and iPESERVICE accounts, the iProcess Staffware Events64 COM+ application registers with iPEADMIN instead of the iPESERVICE account after installation.
IPE-5384	When you run the swinstall and swconfig files during installation, the segmentation fault occurs.
IPE-5358 (Parent <i>JIRA IPE-5333)</i>	When you run an iProcess Engine upgrade on Windows Cluster from any version to 11.8.0, the installer crashes while fetching the cluster machine details.
IPE-5328	The WIS session do not release the lock after publishing the <b>JMS WQD</b> message error.
IPE-5327	When you run the following <b>plist</b> commands in socket mode, dumps are created <div> <pre> plist -Px plist -Px &lt;procname&gt; ALLVERS </pre> </div>
IPE-5152	When you pass the EMPTY_BLOB function in the ReadOciLob function call, you open LOB with the OCILobOpen function but, cannot close it properly.

# Release 11.8.1

Defect #	Description
IPE-5535	Addressed the Apache Log4J vulnerability (CVE-2021-44228).
IPE-5524	When memory consumption increases, user cannot connect to the server and the server must be rebooted.
IPE-5505	When getting the subcase audit message, iProcess Objects Server crashes.
IPE-5494	When you try to reopen a case by selecting a trigger event, TIBCO iProcess Workspace (Browser) returns an error.
IPE-5485	When a user creates multiple groups via the Staffware Process Objects (SPO) Server, an error occurs.
IPE-5434	iProcess Objects Server crashes when getting subcase audit message, while installing iProcess Engine on Windows platform.
IPE-5396	The cache procedure for the iProcess Objects Server fails with multiple errors due to the Composite field.
IPE-5375	When loading some imported procedure definitions, iProcess Objects Server crash.
IPE-5330	IAPJMS to connect with EMS over SSL.
IPE-5296	iProcess Objects Server crashes and dump files are created when JUMPTO operation is performed between sub procedure and main procedure.
IPE-5295	iProcess Objects Server crashes and dump files are created when case history is viewed.
IPE-5294	iProcess Objects Server crashes and dump files are created when a participant is removed.
IPE-5404	Windows Slave upgrade generates response file with incorrect entry.

Defect #	Description
IPE-5403	iProcess Engine Schema-only upgrade is either unavailable, or fails.
IPE-5402	Windows Slave iProcess Engine upgrade creates 64-bit DSN. But the DSN Configuration is changed to Integrated Windows Authentication.
IPE-5347	Issue in creating 64-bit ODBC with Integrated Windows authentication, while installing iProcess Engine.
IPE-5346	In silent upgrade, Node_Cluster table is not updated with Cluster Name.
IPE-5333	iPE Installer crashes while getting the cluster machine name during the upgrade, irrespective of the number of nodes when run on the Windows Cluster.

## Release 11.8.0

Key	Summary
IPE-5153	The line feed in the case description might cause SPO to fail intermittently .
IPE-5152	Open LOBs exist at transaction commit - warnings in sw_error
IPE-4816	CLONE - improve performance for writing blob type data into database
IPE-4769	performance improvement for upgrading memo tables
IPE-4996	Use the ldapconf command line to set groupname, rolename, Qsupervisors and Userflags
IPE-15	The CDQP QINFO command imports fieldname in lowercase when the control file does not use R at the beginning of the file.
IPE-4947	IPE - Rename registry names from "Staffware" to TIBCO iProcess or appropriate ProductName.



Key	Summary
IPE-4987 (Parent JIRA IPSE-260)	BG memory usage increases whenever LDAP FULL SYNC is performed in LDAPCONF.
IPE-4953 (Parent JIRA IPSE-4952)	WIS crashes while filtering work items if you use an asterisk (*) as a filter string.
IPE-4936	iProcess Engine startup status message for RPC_UDP_LI is not updated from STARTING to RUNNING.
IPE-4919 (Parent JIRA IPSE-4512)	In iProcess Workspace Browser, when users filter data with an asterisk (*), relevant records are not filtered and displayed.
IPE-4869 (Parent JIRA IPSE-4850)	The iProcess database connects times out overnight due to the IDLE_TIME setting. RCP_TCP_LI crashes with a core dump.
IPE-4868 (Parent JIRA IPSE-4866)	WQS crash caused by socket id corrupted the call stack and impacted the users severely.
IPE-4036	Performance improvement for the fix for losing participants when performing full ldapsync.

## Release 11.7.0

Defect #	Description
IPE-4526	SW_DELAYED_RELEASE displayed an error on executing a stored procedure with DelayedReleaseId that has no failed count.

Defect #	Description
IPE-4525 (Parent JIRA IPE- 4501)	If you add multiple users in TIBCO iProcess Engine version 11.6.1 HF-011 via TIBCO iProcess Objects Server, a SAL system error occurs.
IPE-4485 (Parent JIRA IPE- 4474)	The parsing logic of a major and minor version of a procedure by the iProcess Objects Server was incorrect.
IPE-4443 (Parent JIRA IPE- 4442)	If you performed a full LDAP server synchronization, all participants were lost.
IPE-4429 (Parent JIRA IPE- 4411)	The JumpTo function on a closed case was stopped/restricted.
IPE-4419 (Parent JIRA IPE- 4418)	Background processes were suspended if a sub procedure with a failed withdrawal step was released.
IPE-4410 (Parent JIRA IPE- 4403)	The Unlock Workitem option does not work in a UTF-8 enabled iProcess Engine instance. As a result, the iProcess Objects Server returns the "item not found" error.
IPE-4401 (Parent JIRA IPE-)	After completing the first step in a case, by using the KEEP option from java clients like the iProcess Workspace (Browser) or iProcess Server Objects, results in the iProcess Objects Server inserting the data into both pack_data and case_data tables.

Defect #	Description
4393)	
IPE-4381 (Parent JIRA IPE- 4380)	In cases when the background (BG) failed to process sub-cases, it did not roll back and continued purging cases and committed the transaction.
IPE-4375 (Parent JIRA IPE- 4367)	Watcher and worker do not stop during restart as the iProcess Objects Director does not send a shutdown notification to the sentinel.
IPE-4355 (Parent JIRA IPE- 4354)	TIBCO iProcess Engine can not fetch a Request ID due to lack of support for an older DelayedReleaseID format. This has been fixed by adding backward support for the older DelayedReleaseID format.
IPE-4305 (Parent JIRA IPE- 4297)	When recompiling the SAL SDK brokers, the interface to the Work Queue Server did not work returning the following error:  (count is 0 on sal_queues_count) and -11 ER_NOTFOUND
IPE-4287	TIBCO iProcess Engine encountered an error when loading an extremely high number of cases due to insufficient memory allocation to the iProcess Objects Server.
IPE-4244 (Parent JIRA IPE- 4243)	A new parameter "proc_id" was added to the SW_GETCASE_STATUS stored procedure. This did not allow closing cases through SSOLITE.SW_CLOSE procedure on the iProcess Engine upgraded environment.  To fix this, the change to SW_GETCASE_STATUS has been reverted and SW_GETCASE_STATUS_EX that takes proc_id and casenum as input has been added.
IPE-4233 (Parent	The sw_casenum was not available in the first steps of the initial (init) script.

Defect #	Description
JIRA IPE-3360)	
IPE-4232 (Parent JIRA IPE-3963)	A memory leak occurs when trying to free the cache of the user member list.
IPE-4231 (Parent JIRA IPE-3962)	A memory leak occurs in the SPO when tested by valgrind.
IPE-4223 (Parent JIRA IPE-4189)	For a non-array memo field, the stored procedure was being saved as an array field.
IPE-4210 (Parent JIRA IPE-4209)	While removing participants from the Work Queue Server, the queue record is locked causing the iProcess Objects Server process to be unresponsive.
IPE-4180 (Parent JIRA IPE-4179)	Any CASENUM greater than 2G resulted in a "case not found" error.
IPE-4178	In iProcess Workspace (Browser), if you clicked the Use Default button in the column selector under the View menu, and then logged out from iProcess Workspace (Browser), the iProcess Objects Server crashed.

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Defect #	Description
IPE-4138	When a case data was set by TIBCO iProcess Objects Server, the numeric value got changed to a decimal value.
IPE-4128	An orphaned item is left in the queue until WIS restart.
IPE-4097	If there were any trailing spaces for input values in text and memo fields, TIBCO iProcess Objects Server deleted these spaces automatically.
IPE-3969 (Parent JIRA IPE- 3968)	When an additional user was added to the groupusers/iPrGroupUsers in Active Directory, the output and the LDAP server synchronization returned unreliable data.
IPE-3903	TIBCO iProcess Engine had returned an error when connecting to TIBCO iProcess Objects Server if the hostname was longer than 64 characters.
IPE-3897 (Parent JIRA IPE- 3899)	The Work Item Server (WIS) had a problem with sorting work item lists that contained both very low and very high CASENUMs.
IPE-3895	When upgrading TIBCO iProcess Engine, the upgrade failed when migrating process definition data (proc-defn).
IPE-3894	If you performed a swutil PROC RELEASE, and chose to migrate all cases (-m ALL) when there was no released version of the procedure, the cases were not migrated.
IPE-3893 (Parent JIRA IPE- 3879)	<p>The <i>swutil USERINFO</i> - command failed to remove a user from a group. For example, for a user Usr00001 and group Grp00002, the command and corresponding error are:</p> <p><b>Command:</b> <i>swutil USERINFO</i> - M-Usr00001,Grp00002</p>

Defect #	Description
	<p><b>Error:</b> Line 1: User Usr00001 is not a member of group Grp00002; line ignored</p> <p>^Z</p> <p>0 lines successfully processed</p>
IPE-3891	TIBCO iProcess Engine did not import queues if there were leading spaces, trailing spaces, and control characters, such as Carriage Return/Line Feed.
IPE-3890	The Work Queue Server crashed if there were leading spaces in the queue names.
IPE-3868 (Parent JIRA IPE- 3876)	<p>If you shut down TIBCO iProcess Engine and migrated cases to a new PROC RELEASE by using swutil, the pstafffc file crashed. The pstafffc01.log file listed the following errors:</p> <p><i>[P=06576][T=01668]160517212511.370102:O001: slist_add (): failed to reallocate object list (70, 4)</i></p> <p><i>[P=06576][T=01668]160517212511.370383:C001: lselect_casenum : Failed to add case number to slist</i></p> <p><i>[P=06576][T=01668]160517212511.370699:O001: slist_add (): failed to reallocate object list (70, 4)</i></p> <p><i>[P=06576][T=01668]160517212511.371000:C001: lselect_casenum : Failed to add case number to slist</i></p>
IPE-3866 (Parent JIRA IPE- 3836)	The silent installer crashed when upgrading TIBCO iProcess Engine from 11.4.1 to 11.4.1.10.2.
IPE-3864 (Parent JIRA IPE- 3831)	The RPCBG crashed when TIBCO iProcess Engine was shut down.
IPE-3863	Cases that were suspended, are displayed as active in the work queues.

Defect #	Description
(Parent JIRA IPE- 3857)	
IPE-3862 (Parent JIRA IPE- 3828)	SQL statement 36 cannot execute successfully when the case number is 2500009010.
IPE-3856 (Parent JIRA IPE- 3858)	The SSOLITE Stored Procedure SW_UNPACKRELEASEID did not get the procedure information by using case number, even when the procedure's version was in delayreleaseid.
IPE-3851	If you tried purging cases with a million sub-cases, the background process returned a memory error.
IPE-3846 (Parent JIRA IPE- 3848, IPE- 3850, IPE- 3854)	If you used the wrong password when you logged in to TIBCO iProcess Workspace (Browser) the first time, and then used the correct password to log in, the following error occasionally occurred:  <i>client connection refused; too many clients</i>
IPE-3845	TIBCO iProcess Engine admin user was not notified when sw_error and sw_warn logs were created.
IPE-3838	When upgrading from TIBCO iProcess Engine 11.5 to 11.6, with "Upgrade files only" selected, the installation failed.
IPE-3833 (Parent JIRA IPE- 3920)	The sentinel could not be started by using the swstart -p command when UTF-8 was enabled and UTF-8 database was used.

Defect #	Description
IPE-3825	The EAI Database (EAIDB) could not build the parameter mapping in case of a numeric input parameter, and an integer value above the default maximum.
IPE-3824	The features of the SE_WORKER_PORTNO parameter could not be disabled when required.
IPE-3821	The move_server command failed when executed from secondary servers.
IPE-3799	The database scripts failed when upgrading TIBCO iProcess Engine to version 11.5.
IPE-3674	When a queue was created with a space in the queue name, the swutil CLEANITEM command failed.
IPE-3670	When you started TIBCO iProcess Engine, it logged the message <i>set param.sticky_sal to 1</i> despite manually setting up STICKY_SAL initially.
IPE-3669	TIBCO iProcess Objects Server crashed when getting the memo data.
IPE-3659	When a background process debug string of ALL=255 was enabled, changing the IAPJMS_SIMPLETOPIC flag value in TIBCO iProcess Engine from 1 to 0 and back to 1 caused all background processes with debugging enabled to crash.
IPE-3598	TIBCO iProcess Objects Server's memory allocation increased rapidly and the server crashed when it was scanned for vulnerabilities by a third-party software.
IPE-3360 (Parent JIRA IPE- 4069)	The sw_casenum was not available in the first steps of the initial (init) script.
IPE-3275	The default configuration for EAI_MAIL cause the background process(BG) sockets to close and produce duplicate background processes.
IPE-2782	The Work Item Server (WIS) crashed when publishing the work queue delta message.



Defect #	Description
IPE-2750	Post upgrade from TIBCO Process Engine version 9.0 to TIBCO iProcess Engine version 11.1, a case could not be closed through the SSOLITE.SW_CLOSE case procedure.
IPE-2680	TIBCO iProcess Objects server set a hard-coded value (7) to the umask.
IPE-2556	The swentobjsv crashed if it received an LV message when the DB_ENABLED configuration parameter was set to 0.
IPE-2374	When trying to fetch the SAL session handle, if the number of SAL sessions went beyond 0xFFFF, the attempt to fetch the handle failed.
IPE-2333	TIBCO iProcess Engine could not be started due to lack of available AQ ports in the aq_port_range table.
IPE-2240	Some Work Item Server (WIS) filter expressions for a range of numerics did not work. Example: <ul style="list-style-type: none"> <li>NUM2=[50 60 70] - Failed with a SAL System Error</li> <li>NUM2=[50] - Failed with SAL System Error</li> <li>NUM2=["50" - "100"] - Did not return an error but fails to return items as the "100" appears to get truncated as the field length is only 2,0</li> </ul>
IPE-2222	When multiple cases were released, some or all deltas did not have the CDQP data.
IPE-2049	If an anonymous user tried to attempt an LQ (list user queue) of a user's queue to which they did not have access, the thread became unresponsive in the "acquire_user" stage.
IPE-2005	When the user started a new case, the undelivered work items for the case were not displayed in the Outstanding tab.
IPE-1965	When upgrading TIBCO iProcess Engine, with the IPEINSTALL user being different from the IPESERVICE user, the engine failed to start as some file permissions were not set correctly.

Defect #	Description
IPE-1919	The SSOLite calls failed when the database session had the parameter ANSI_NULL_DLFT_ON set to OFF.
IPE-1768	When upgrading from TIBCO Process Engine to TIBCO iProcess Engine, the upgrade process ended without any prompt, in case of warnings.
IPE-1657	The SQL statement which cached the case counts blocked the database.
IPE-1611 (Parent JIRA IPE-4034)	The background process had a memory leak when an event was published.
IPE-1548	In an EAI Database step, when you tried to call a procedure, the step was not executed and the following error was returned.  <i>Invalid Step Definition: No Stored procedure name</i>
IPE-1523	The Work Item Server (WIS) went into a deadlock if the parameter WIS_NEW_ITEM_BATCH_SIZE was not 0 and if a new work item arrived for an undelivered or test queue that did not exist.
IPE-1340	In instances where the Oracle server had to be restarted, some data in the background process was lost. This did not allow the processes to resume normally when the server was restarted.
IPE-1332	User authentication failed due to conflict between TIBCO iProcess Engine APIs and Active Directory APIs.
IPE-1301	When a user was deleted, the user's queue directory under \$SWDIR/queues was not removed.
IPE-1141	In the server manager under section queue management, the failed count/failout value for the messages for any queue were not correct.
IPE-1097	If there was a network error when connecting to the LDAP server, TIBCO iProcess Engine did not execute automatic reconnect attempts.

Defect #	Description
IPE-1085	The change password (chgpwd) process got locked if TIBCO iProcess Objects Server wrote MON at the time of fork.
IPE-1030	swadm and swconfig printed misleading messages on startup.
IPE-1029	The deadline tab for EAI Step Definitions was not disabled for non-delayed releases.
IPE-966	The case description was not updated in the CASE_INFORMATION field when the setCaseData () call was used.
IPE-947	Add Java library path to catalina.sh for the tomcat bundled with TIBCO iProcess Engine.
IPE-903	Work item did not appear in the Test work queue.
IPE-879	When TIBCO iProcess Objects Server was paused or resumed, the swsvrmgr did not show the correct server status until the server received a new TCP package.
IPE-841 (Parent JIRA IPE- 3880)	There was a timing issue between the background (BG) process and the Work Item Server (WIS) process which updated the staffo table. This resulted in the staffo entries with the locker column set but no locked bit set or expired auto-withdraw deadlines which did not let the Work Item Server (WIS) cache when deadlines recalculated.
IPE-745	The sal_xpc_list_filter_cases () function did not handle expressions with OR correctly.
IPE-690	The IAP monitor did not fully support the field in which an array was defined.
IPE-232 (Parent JIRA IPE- 884)	The port used by ORACLE AQ events could not be set up due to problems in the firewall environment.
IPE-167	The LDAP configuration or synchronization behavior was inconsistent when a

Defect #	Description
	user with an invalid MENUName existed.
IPE-112	<p>If an EAIDB stored procedure returned an output parameter that had a null value, the following error occurred and the EAIDB step failed.</p> <p><i>sw_warn:</i></p> <p>2010/08/25 16:27:08.027943(BG:2:18413:2:EAIDB1:2552:DB1:pro:/proeai.c:81845:3601): 1869-Procedure:EAIDB1 EAI Step:DB1 Case:2552 EAI plug-in EAIRun_Call() failed, error: SQL_SYS_ERR - MS-SQL error code :-99999 - [IBM][CLI Driver] CLI0110E Invalid output or indicator buffer specified. SQLSTATE=22002</p> <p>2010/08/25 16:27:08.195189 (BG:2:18413:0:EAIDB1:2552:DB1:pro:/cplmain.c:81512:2388): 1631-WARNING: &lt;CPLInstruction - Error&gt; &lt;-2&gt; &lt;RELEASE&gt; &lt;RELEASE^sw111db2a^5:0.7^1^sw111db2a,swadmin,5102,sw111db2a^2552^2552^sw111db2a^swadmin^S1^Step1^3^25/08/2010^16:27^5102^sw111db2a^swadmin^1^&gt;</p> <p>2010/08/25 16:27:08.195243 (BG:2:18413:2:EAIDB1:2552:DB1:pro:/swbgmbd.c:82103:1113): 1864-Transaction failure : Reason code = -2</p>

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Defect #	Description
IPE-621	If only one Case Data Queue Parameter (CDQP) was defined for a queue and the CDQP contained only 1 character, an error occurred when accessing the queue from iProcess Workspace (Browser).
IPE-3640 (Parent JIRA IPE-3626)	If you specified a different value for the SW_CP_VALUE property other than the Priority property in the <b>Input</b> tab of the iProcess Complete Delayed Release activity, the message priority was not changed to the value specified in the SW_CP_VALUE property after completing the delayed release.

Defect #	Description
IPE-3654 (Parent JIRA IPE- 3639)	If you had run the <code>manual_uorai_11_4_1_5.sql</code> script file first, and then run the <code>manual_uorai11_4_1_9.sql</code> script file, the following error message was displayed:  "PLS-00306:wrong number or type of arguments in call to 'SW_EVENT_MESSAGE'"
IPE-3686	The installer crashed when upgrading iProcess Engine from version 11.1.0.7 to 11.4.1.10.
IPE-3687	TIBCO iProcess Objects Server crashed when multiple threads concurrently called the UVAPI interface.
IPE-3688 (Parent JIRA IPE- 3634)	When using SPO to open a disabled queue, an infinite loop error occurred and the error messages were written to the log file continuously.  Corrected.
IPE-3697	When upgrading TIBCO iProcess Engine from an earlier version to 11.5.0 and running the upgrade script to check and drop constraints, if an index was created with a constraint and the index was not removed, the upgrade failed.  Corrected.
IPE-3698	The status of the WISMBD process was not correct when WIS processes were suspended and the WISMBD process was stopped.
IPE-3700 (Parent JIRA IPE- 3681)	When the BG process was used to publish audited activity messages to the IAPJMS process, the IAPJMS process spent a lot of time looking up a dynamic JMS topic; therefore, both the IAPJMS process and BG process worked very slowly.
IPE-3701 (Parent JIRA IPE-)	When you use the Case Data Queue Parameter (CDQP) field to filter items, if both the database and the iProcess engine environment used UTF-8, and the CDQP field contained empty values, the filter result was incorrect.

Defect #	Description
3684)	Corrected.
IPE-3708 (Parent JIRA IPE- 3705)	After processing the sub cases, the Chinese characters in the "step description" section of the audit message were missing or abnormally displayed.  Corrected.
IPE-3710 (Parent JIRA IPE- 3707)	When you use the <b>swutil EVENT</b> command with an abox file to update field data, if the abox file contained a numeric field and the value of this field contained a leading zero with no decimal point, after updating, the leading zero in the value was removed and replaced with a decimal point behind the value in the database table. For example, if the original value was "09", the value in the database table was updated to "9".
IPE-3720	When starting a case and executing a graft step use an sw_graft stored procedure or an iProcess Server Objects application, if the <b>auto-purge</b> option was enabled for the graft sub procedure, an error was returned to iProcess Workspace (Browser).
IPE-3724	Failed to start the iProcess Engine node after installing iProcess Engine with Hawk 5.1.x.  Corrected.
IPE-3727 (Parent JIRA IPE- 3726)	The IDX_ATTACHMENT_FK index was missing, which caused database deadlock.  Corrected
IPE-3739	When using the <b>SWBATCH</b> command to purge a batch of cases, if one of the specified cases did not exist, the subsequent cases within the specified case range were not purged.  Corrected.
IPE-3740	If the <b>password required</b> option was enabled when installing iProcess Engine, and the first step of a procedure was an EAI step, an error occurred when starting

Defect #	Description
(Parent JIRA IPE- 3719)	a case.  Corrected.
IPE-3741	The RPC_POOL process crashed when releasing an unreleased procedure that had configured case deadlines.
IPE-3749 (Parent JIRA IPE- 3730)	If the SQL statement was marked as cached, memo searches might look into the incorrect table, resulting in no data being found although a memo being assigned.  This issue affected systems with memo data in both the MEMO and NMEMO tables and either type of memo.  Corrected.
IPE-3750 (Parent JIRA IPE- 3742)	When using TIBCO ActiveMatrix BusinessWorks or SSOLite to start a case with a memo value, if the procedure contained multiple EAI steps and the memo value was set to NULL in one of the EAI steps, the memo value was not NULL after starting the case.  Corrected.
IPE-3751 (Parent JIRA IPE- 3744)	If TIBCO iProcess Workspace (Browser) was used to start cases, unnecessary test logs were added to the SPO SAL logs.  Corrected.
IPE-3752 (Parent JIRA IPE- 3738)	If you upgraded iProcess Engine to version 11.5 without migrating any cases, an error occurred when running a TIBCO ActiveMatrix BusinessWorks process to issue an update event for a case that existed in any previous versions of iProcess Engine.  Corrected.
IPE-3753 (Parent JIRA IPE-)	When multiple users attempted to log in to TIBCO iProcess Objects Server through different client applications (.net/java), a "No response from SPO Server" error message was displayed for certain users.

Defect #	Description
3692)	
IPE-3754 (Parent JIRA IPE- 701)	Failed to upgrade an iProcess Engine node, if multiple iProcess Engine nodes with similar names, such as wx1234,wx12345, and wx12356, were installed on a machine.
IPE-3757 (Parent JIRA IPE- 3691)	If TIBCO iProcess Engine client connected to TIBCO iProcess Objects Server that had already exited, and it did not close the connection to TIBCO iProcess Objects Server, TIBCO iProcess Objects Server might crash.
IPE-3758	An error occurred by using the <b>save as &gt; new procedure</b> option to rename a procedure.
IPE-3759	The BG process crashed when running the SSOLITE stored procedure that contained graft steps.
IPE-3760 (Parent JIRA IPE- 3748)	The value format of the delayedreleaseID parameter was changed. Certain value parsing functions in TIBCO iProcess Objects Server could not parse the new format; therefore, an error occurred when parsing the values with the new format and failed to release the 'delayed release EAI step'.  Corrected.
IPE-3763	When switching iProcess Engine from one machine to another machine in a cluster environment, a database error like the following occurred:  ORA-02292: integrity constraint violated ORA-02292: integrity constraint violated error  Corrected.
IPE-3765 (Parent JIRA IPE- 3706)	If you updated the values of memo fields in the subprocedure through the SSOLITE interface, the updated values were not returned to the main procedure.  Corrected.



Defect #	Description
IPE-3794 (Parent JIRA IPE- 3785)	The WQS process updated the <code>wqs_index</code> table frequently during the startup of iProcess Engine, the WQS process consumed nearly 100% of the CPU and the WIS process was locked in a STARTING state.  Corrected.
IPE-3795	The standard file descriptor (for example, 0, 1, 2) was used in the RPC depository.

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Defect #	Description
IPE-701	When you used the <code>swstart</code> script located in the <code>\$SWDIR/bin</code> directory to start all the server processes in a node cluster, if multiple nodes had similar names, the server processes did not start.
IPE-1488	TIBCO iProcess Engine failed to start if one of the following conditions occurred:  ORA-28002: the password will expire within string days  ORA-28011: the account will expire soon; change your password now  Corrected.
IPE-3141	The <code>step_addr</code> column of the <code>predict</code> table displayed NOADDR when a new user was added to TIBCO iProcess Engine.
IPE-3394	When installing iProcess Engine, if you used JBoss EAP 6.1.0 as the JMS provider, the configuration information written to the <code>iapjms_classpath.properties</code> file that was located in the <code>\$SWDIR/etc</code> directory was incorrect.
IPE-3396	When calling the <code>triggerEvent()</code> method, TIBCO iProcess Objects Server process did not unlock the procedure cache if an error occurred.
IPE-3399	When you used TIBCO iProcess Objects Server process to cache a specified version of the procedure definition that did not exist in TIBCO iProcess Engine, the following error message was displayed in TIBCO iProcess Objects Server log

Defect #	Description
	<p>file:</p> <p>SPO did not unlock every read/write lock.</p>
IPE-3400	When importing a procedure library by using the <code>swutil IMPORTLIB</code> command for the second time, if the description of the procedure exceeded 24 characters, the importing of the procedure library failed.
IPE-3407	<p>When you started more than 1000 cases by using the SSOLite stored procedures on SQL Server 2014, some cases were not started successfully.</p> <p>Corrected.</p>
IPE-3412 (Parent JIRA IPE-3013)	<p>After starting cases by using the SSOLite stored procedures, the values in the <code>casenum_gaps</code> table were incorrect.</p> <p>Implemented.</p>
IPE-3414	When you use the <code>swsvrmgr START_NEW</code> command to start a new instance of the BG process, the Process Sentinels crashed.
IPE-3416	<p>The following functions are introduced to manage system events:</p> <ul style="list-style-type: none"> <li>• Enable system events logging</li> <li>• Audit system events</li> <li>• Publish system events</li> <li>• Query information about system events</li> <li>• Turn off system events</li> <li>• Import configuration files of system events into iProcess Engine</li> <li>• Export configuration information of system events to a command line</li> </ul> <p>See <a href="#">System Events Management (IPE-3416)</a>.</p>
IPE-3421	When starting a case that contained a numeric field in iProcess Engine 11.4.1, if the <code>NLS_LANG</code> parameter was set to <code>en_US</code> and the decimal separator in the numeric field was set to the period character rather than the comma character, a

Defect #	Description
	warning message was displayed in the sw_warn file.
IPE-3424	A closed case was not opened by using SSOLite stored procedures.
IPE-3425	After successfully caching a version of a procedure definition by using iProcess Objects Server process, the following error message was displayed in TIBCO iProcess Objects Server log file:  g_proc_cache_rwlock was read-locked.  cache_the_procedure() SEO_node_namefind() failed.
IPE-3429 (Parent JIRA IPE- 3283)	A deadlock occurred when the m_IndexLock parameter was used in the CIndex::SetDeleted() and CIndex::IsDeleted() functions.  Corrected.
IPE-3430 (Parent JIRA IPE- 3348)	A deadlock occurred which caused all the "worker" threads and the update thread in the WIS process to suspend when more than one "worker" threads were processing the WIS session simultaneously.  Corrected.
IPE-3432 (Parent JIRA IPE- 3346)	More logs have been added to trace the information of the locks in the CIndex_MUTEX lock pool used by the WIS process.  Corrected.
IPE-3436	TIBCO iProcess Objects server process unlocked the read and write lock before locking the process cache.
IPE-3437 (Parent JIRA IPE- 3380)	When running a script, which called the markfieldchanged function, to release work items, the work items were locked.
IPE-3441	When calling the GetNextDeltaItem() method to retrieve a new or modified work

Defect #	Description
(Parent JIRA IPE-3417)	item from a work queue, the error message "invalid format of delta details from SAL" was recorded in TIBCO iProcess Objects Server log file.
IPE-3444	When reconnecting to an LDAP server that was performing synchronization, the BG process was suspended.  Corrected.
IPE-3445	When deploying a procedure in TIBCO Business Studio, the procedure inherited the access control settings of the deployer, instead of the predefined access control settings from the procedure library.
IPE-3455	Add the <code>sqloptim</code> file, which is located in the <code>SWDIR/etc</code> directory, to optimize SQL statements execution.  See <a href="#">Optimize SQL Statements Execution (IPE-3455)</a> .
IPE-3457	The <code>swutil EXPORT</code> command was case-sensitive for the iProcess users.  Corrected.
IPE-3459	When specifying values for fields in the <code>case_data</code> table, if <b>Support Unicode Encoding</b> was enabled and the length of the values exceeded the predefined size, the values were not truncated before they were stored in the table.
IPE-3460	When upgrading TIBCO iProcess Engine to 11.4.1 from any versions except for 11.4.0, an error occurred during creating indexes because the column name of <code>table_owner</code> in the <code>user_indexes</code> view was mistakenly replaced by the name of the database owner.  Corrected.
IPE-3463	When you use the <code>swutil PROC RELEASE</code> command to release a version of a procedure with the <code>-M ALL</code> option, if the required libraries and the EAI plug-in were not loaded because of an EAI failure, the specified version of the procedure was released, but all the active cases were not migrated to the new version.
IPE-3466	When installing TIBCO iProcess Engine 11.4.1, if you used the <code>TNSNames.ora</code> file to

Defect #	Description
	<p>connect to the database of which database type was Oracle Real Application Clusters, the following warning message was displayed in the sw_warn log file:</p> <p>Function loci_unsubscribe_event, Error Message OCISubscriptionUnRegister() failed.</p> <p>Corrected.</p>
IPE-3467	After forwarding work items to another queue, the Arrival-time attribute was not displayed correctly.
IPE-3468	<p>Reduce the average time for a user to log in to TIBCO iProcess Engine node with many user groups and users created.</p> <p>See <a href="#">Reduce Log in Time (IPE-3468)</a>.</p>
IPE-3472	<p>Add the MN_UNLOCKER process attribute to define who can have the permission to unlock work items.</p> <p>See <a href="#">Unlock Work Items (IPE-3472)</a>.</p>
IPE-3473	<p>Add the WRITELOG function to write messages to log files.</p> <p>See <a href="#">WRITELOG Function Introduced ( IPE-3473)</a>.</p>
IPE-3476	<p>Add support for defining the maximum size of log files.</p> <p>See <a href="#">Define the Maximum Size of Log Files (IPE-3476)</a>.</p>
IPE-3477	<p>Add the WARN_ERROR_LOG_SIZE process attribute to define the maximum size of the sw_warn and sw_error log files.</p> <p>See <a href="#">Define the Maximum Size of the sw_warn and sw_error Log Files (IPE-3477)</a>.</p>
IPE-3480	<p>Add the requestid as the unique identifier for each work item.</p> <p>See <a href="#">Work Items Are Unique to Users (IPE-3480)</a>.</p>
IPE-3486	When triggering a graft step, TIBCO iProcess Objects server crashed.
IPE-3491	When you use the SW_JUMPTO procedure to have a case jumped from its current

Defect #	Description
	step to another step in the sub-procedure if the case tag contained the main procedure name and the withdraw list was set to the asterisk (*) wildcard, the transaction failed and an error message was displayed in the sw_error file.
IPE-3494	<p>When upgrading TIBCO Process Engine version 9.0 to TIBCO iProcess Engine version 11.4.1.2, the <b>Upgrade Schema</b> check box was unselected, and if you continued the upgrade process without selecting the check box, the installer crashed.</p> <p>Corrected.</p>
IPE-3496	<p>The participation data within the WQS process was not unlocked after it was locked.</p> <p>Monitor logic is added in the WQS process to accurately trace the locations where participation data is locked.</p>
IPE-3497	The sw_partic_unlock_external() method was called to unlock a locker that was not created in the participation data.
IPE-3498	The sw_partic_unlock_external() method was not called to unlock a locker after the locker was created in the participation data.
IPE-3513	<p>Change field data type in the database.</p> <p>See <a href="#">Change Field Data Type (IPE-3513)</a>.</p>
IPE-3516	<p>When upgrading iProcess Engine to 11.4.1.8, the master server was incorrectly treated as a slave server, which caused the <b>Upgrade Schema</b> check box to be disabled and the database upgrade to fail.</p> <p>Corrected.</p>
IPE-3536	<p>Add the W_DELAYED_RELEASE_ERR stored procedure in the database and system-defined error message in the audit trail to trace delayed-release.</p> <p>See <a href="#">Delayed Release Has Been Enhanced (IPE-3536)</a>.</p>
IPE-3537	When installing TIBCO iProcess Engine, if you specified an incorrect password for

Defect #	Description
	the database user, no warning messages were displayed until the installation failed.
IPE-3538	When starting the iProcess Objects Server (SPO) process, the memory was rapidly consumed.
IPE-3544	The <code>plist -M</code> command did not work because the iProcess foreground user ( database user) was used to connect to the database.  Corrected.
IPE-3588	When migrating only live cases from swutil by running the <code>swutil PROC RELEASE -M</code> command, all cases (including close cases) were migrated.
IPE-3615	When the <code>MakeProc</code> function was called to return the minor version of a released procedure, if the major version and minor version parameters were both set to <code>-1</code> in the function, an incorrect procedure version was returned.
IPE-3624	The <code>CNUM_SEQ_CACHE</code> and <code>REQID_SEQ_CACHE</code> process attributes were not added into the upgrade scripts since TIBCO iProcess Engine 11.1.3.  Corrected.
IPE-3627	Upgrade Java 1.7 to new versions on the following platforms of iProcess Engine: <ul style="list-style-type: none"> <li>• Windows, Linux, and Solaris: 1.7.0.75</li> <li>• HP: 1.7.0.11</li> <li>• AIX: 7.0.0.195</li> </ul>
IPE-3629	When you use the <code>trigger event</code> function in a script step to change the value of a memo field, if the new value of the memo field exceeded 4096 characters, the memo data stored in the memo table was incorrect.
IPE-3633	When installing TIBCO iProcess Engine 11.4.1.8, if the <b>Upgrade NobleNet Portmapper</b> check box is selected in the <b>Select components to configure</b> dialog box, the installer was crashed or the "Failed to start the NobleNet Portmapper for TCP service or contact it once it had been started" error message was displayed.

Defect #	Description
	Corrected.
IPE-3641	When completing a delayed-release in TIBCO ActiveMatrix BusinessWorks, if the SW_CP_VALUE field was set to a value, the value of the message priority in TIBCO iProcess Engine was not changed.
IPE-3642	TIBCO iProcess Engine failed to insert the outstanding workitems information into the outstanding_addr table.
IPE-3650	Upgrade Tomcat to version 7.0.59.
IPE-3652 (Parent JIRA IPE- 3663)	<p>When a dynamic sub-procedure call step started more than 300 sub-cases of the main procedure, the following error message was displayed in the sw_error log file:</p> <pre>write_pprs() Unable to execute statement(non-select) (Statement ID - 298) (ORA-00001: unique constraint (PK_OUTSTANDING_ADDR) violated)</pre> <p>Corrected.</p>



# Restrictions

The table lists the known restrictions in this release.

Key	Summary and Workaround
IPE-3113	<p><b>Summary</b> An error occurs when loading XPDL for a procedure library with any new functionality into iProcess Workspace (Windows), if the procedure library is saved as XPDL from a later version of TIBCO iProcess Engine, and loaded into an earlier version of TIBCO iProcess Engine.</p> <p><b>Workaround</b> TIBCO does not recommend that you import procedures, which are exported from a later version of TIBCO iProcess Engine to an earlier version of TIBCO iProcess Engine.</p> <p>For more information, see <i>TIBCO iProcess swutil and swbatch Reference Guide</i>.</p>
MR 40988	<p><b>Summary</b> When a procedure is exported to an XPDL file from TIBCO iProcess Workspace (Windows), no list or table information is included.</p> <p><b>Workaround</b> None.</p>
MR 35194	<p><b>Summary</b> The iProcess Server Manager does not support language translation.</p> <p><b>Workaround</b> None.</p>
CR 19525	<p><b>Summary</b> A temporary file is always left behind when installing iProcess Engine, whether the installation is successful or not. The location of the file is defined by the TEMP system variable. The name of the file is <b>_ISTMPn.DIR</b> where <i>n</i> is a number that increments each time you install iProcess Engine. For example, <b>_ISTMP1.DIR</b>, <b>_ISTMP2.DIR</b> and so on.</p> <p><b>Workaround</b> Manually delete the temporary file(s) once the iProcess Engine installation is complete.</p>
CR 19301	<p><b>Summary</b> Installation fails if the username of the background user starts with a numeric, such as, <b>1swpro</b>.</p>

Key	Summary and Workaround
	<b>Workaround</b> Define the background user to start with an alphabetic character.
CR 19010	<p><b>Summary</b> If the WIS process handles an update event (such as, from a <code>SWDIR\bin\swutil EVENT -p</code> command) while a user has a work item open, the <b>Case Description</b> and <b>WQ Parameters</b> revert to the values they had before the update when the work item is kept.</p> <p><b>Workaround</b> None.</p>
CR 18799	<p><b>Summary</b> If lots of MOVESYSINFO operations are being performed by BG processes, then the other processes that must recache the user/group information might fail due to becoming deadlocked.</p> <p>It is also possible that the caching process might load group membership or attribute values that do not match the attributes or queues loaded. This is because the caching process would first load the queues, then the attributes, and finally the attribute values. If a MOVESYSINFO changed the attribute values before they were loaded then they might not match the attributes that were loaded before the MOVESYSINFO.</p> <p><b>Workaround</b> Once all operations have been completed, modify the user/group area and perform one last MOVESYSINFO.</p>
CR 18631	<p><b>Summary</b> If you have an outstanding test mail item for an unreleased procedure and you delete the step from the procedure that the outstanding mail refers to, the test mail item can no longer be accessed. This is to be expected as the step has been deleted from the procedure. However, if you then purge the case for this inaccessible step the case is purged but the item is never removed from the message queue.</p> <p><b>Workaround</b> Clean up the item by using the <code>swutil CLEANITEM</code> command.</p>
CR 18614	<p><b>Summary</b> When a user logs in to the iProcess Workspace (Windows) test queues are not displayed in Work Queue Manager. This is because the user's personal work queue (from which the test queues are created) has not been cached yet.</p> <p><b>Workaround</b> If a new work item is sent to a test queue this causes the <b>Rebuild List</b> button to appear. Alternatively, the user can select their personal work</p>

Key	Summary and Workaround
	<p>queue and press <b>F5</b>. This also causes the <b>Rebuild List</b> button to appear. Clicking <b>Rebuild List</b> displays the test queues.</p>
CR 18467	<p><b>Summary</b> TIMEZONE setting does not correctly handle daylight savings time on Windows for zones that do not use North American rules.</p> <p><b>Workaround</b> None.</p>
CR 17603	<p><b>Summary</b> The J2EE standard supports the use of different security credentials (username and password) for JNDI InitialContext and JMS connections.</p> <p>However, in this version of iProcess Engine, you can only define a single username and password for the <b>IAPJMS</b> process. The process uses these credentials for both JNDI InitialContext and JMS connections.</p> <p>Note that the <b>IAPJMSConnect.SecurityPrinciple</b> property defines the username. The <b>IAPJMSConnect.SecurityCredentials</b> property defines the password. Both properties are defined in the <b>iapjms.properties</b> file. See Chapter 9, “Administering Activity Monitoring”, in the TIBCO iProcess Engine Administrator’s Guide for more information.</p> <p><b>Workaround</b> None.</p>
CR 17466	<p><b>Summary</b> If you use iProcess activity monitoring, Monitor Event Detail (MED) messages with <b>ActivityIDs 16, 19, 20, 25, 26, and 28</b> do not display the name of the audit user in the <b>&lt;AuditUser&gt;</b> element. Instead, they display information that depends on the particular message.</p> <p>For example, when a sub-procedure is started a MED message with <b>ActivityID = 16</b> is generated. The <b>&lt;AuditUser&gt;</b> element in this case shows the SubCaseID of the sub-case that has been started, not the name of the audit user, as shown .</p> <pre data-bbox="431 1476 1360 1707">&lt;AuditMessage&gt;Sub-Case started from "SUBCALL1"&lt;/AuditMessage&gt; &lt;AuditStep Name="SUBCALL1"&gt;   &lt;Description&gt;SUBCALL1&lt;/Description&gt;   &lt;AuditDate Microseconds="545547"&gt;2005-08- 24T14:57:56&lt;/AuditDate&gt;   &lt;AuditUser&gt;iPEPublication4:SUBPROC:1:201:201&lt;/AuditUser&gt; &lt;/AuditStep&gt;</pre>

Key	Summary and Workaround
	<p><b>Workaround</b> None. If you require additional information about the contents of the &lt;AuditUser&gt; element for one of these messages, contact TIBCO Support.</p>
CR 16878	<p><b>Summary</b> Filtering a view of a case via TIBCO iProcess Objects Server with a filter expression that uses a Question mark (?) or Asterisk (*) wildcard character to match against SW_CASEREF causes an error. A 'SAL System Error' message is returned to TIBCO iProcess Objects (COM).</p> <p><b>Workaround</b> None.</p>
CR 15531	<p><b>Summary</b> Adding a numeric user attribute with decimal places creates an attribute with 24 Characters and no decimal places.</p> <p>This happens if the attribute is added by using the iProcess Administrator or via <i>SWDIR\bin\swutil USERINFO</i>. For example, if you add a numeric attribute with length 10.2, it is created as a numeric attribute with length 24.0.</p> <p><b>Workaround</b> None.</p>
CR 15444	<p><b>Summary</b> During the upgrade process, the iProcess Engine services are deleted and then re-created. If the <b>Services</b> window is open during this process, the system does not delete the service but marks it for deletion. Deletion is performed at the next reboot.</p> <p><b>Workaround</b> If this error occurs during the upgrade you must reboot the machine and re-run the upgrade process.</p>
CR 15334	<p><b>Summary</b> When you upgrade from a Version 9 Process Engine the entries in the <b>at_id</b> column of the <b>audit_trail</b> table are migrated to the <b>audit_usecs</b> column. <b>at_id</b> values that are greater than 1 million are truncated after the upgrade, which means that the correct ordering of audit trail rows is lost.</p> <p>This is only an issue when the number rolls over from 6 to 7 digits and the audit trail items are from the same case and have the same timestamp. If all the numbers are above 6 digits then all entries are truncated and ordering is preserved.</p> <p><b>Workaround</b> None.</p>
CR 15319	<p><b>Summary</b> If you change the date separator in the <i>SWDIR\etc\staffpms</i> file to a</p>

Key	Summary and Workaround
	<p>hyphen (-):</p> <ul style="list-style-type: none"> <li>when you enter a date field in a form the separators are displayed correctly, but change to backslash characters (/) when you tab off the field.</li> <li>when you release the form, one or more background processes crash.</li> </ul> <p><b>Workaround</b> None.</p>
CR 15311	<p><b>Summary</b> The following fields do not appear in the <b>Available Fields</b> list of fields in the <b>Inputs</b> or <b>Outputs</b> tab for iProcess Engine plug-ins:</p> <ul style="list-style-type: none"> <li>SW_IP* Fields</li> <li>SW_STEPNAME</li> <li>SW_STEPDESC</li> </ul> <p><b>Workaround</b> None.</p>
CR 14598	<p><b>Summary</b> When you map sub-procedure output parameters to main procedure fields, you can define a private <b>Output Mapping</b> script that runs after all the mappings have been performed (for example, to perform additional field manipulation). These output mapping scripts are ignored when performing case prediction.</p> <p><b>Workaround</b> None.</p>
CR 14597	<p><b>Summary</b> If a memo field is defined as an input or output parameter for a sub-procedure, it is ignored when performing case prediction - no data is passed for the field.</p> <p><b>Workaround</b> None.</p>
CR 14225	<p><b>Summary</b> When viewing cases, filter criteria that use the Question mark (?) (such as SW_CASENUM ? "2") or regular expressions use the same character (SW_CASENUM ? "1234?") fail.</p> <p><b>Workaround</b> Use one of the following two workarounds:</p> <ul style="list-style-type: none"> <li>Use the Equal sign (=) instead, such as, SW_CASENUM = "2", or</li> </ul>

Key	Summary and Workaround
	<ul style="list-style-type: none"> <li>• Use an Asterisk (*) wildcard character in the regular expression, such as "1234*". This succeeds, but produces a wider range of results than the ? character must; any case number that starts with 1234 matches.</li> </ul>
CR 12037	<p><b>Summary</b> You must not use any of the following special characters when naming new groups, roles, lists or tables:</p> <p>" \ / [ ] : ;   = , + * ? &lt; &gt; @ \0 "</p> <p><b>Workaround</b> None.</p>
CR 12001	<p><b>Summary</b> The iProcess Engine's <b>DNS Host Name</b> must be identical (including case) to its <b>Computer Name</b>. If these names are different, the users cannot log in to this iProcess Engine from TIBCO iProcess Workspace (Windows).</p> <p><b>Workaround</b> To ensure that the names are identical:</p> <ol style="list-style-type: none"> <li>1. In <b>Control Panel</b>, double-click the <b>System</b> icon. The <b>System Properties</b> dialog box is displayed.</li> <li>2. On the <b>Network Identification</b> tab, click <b>Properties</b>. The <b>Identification Changes</b> dialog box is displayed.</li> <li>3. Click <b>More</b>. The <b>DNS Suffix and NetBIOS Computer Name</b> dialog box is displayed.</li> <li>4. Note the <b>Primary DNS suffix of this computer</b>. If it is not already the same, change this name to match the <b>NetBIOS computer name</b>.</li> </ol>
CR 11428	<p><b>Summary</b> During the starting or stopping of iProcess Engine, there can be a pause of 60 seconds between a process (once shutdown) publishing an event and all the subscribers receiving it. This makes it look like the system has not fully shutdown or started up. This is a problem with the COM+ Events system and a resolution is being sought from Microsoft.</p> <p><b>Workaround</b> None.</p>

# Known Issues

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The following issues exist in this release of TIBCO iProcess Engine.

## Summary and Workaround

**Summary** LDAP over SSL is not working. No problem with non-SSL LDAP.

**Workaround** None.

**Summary** The iProcess Administration Console service fails to start if .archive file does not exist in *SWDIR*.

**Workaround** Ensure that you have .archive file in %SWDIR%\logs if the Administration Console service has to start from Windows Services.

**Summary** TIBCO iProcess Engine fails to be moved to another machine in the same Microsoft Windows cluster by using **Move To** option in the Failover Cluster Administrator.

**Workaround** Before moving TIBCO iProcess Engine to another machine in the same Microsoft Windows cluster in the Failover Cluster Administrator, run the following command at the command prompt:

```
SWDIR\util\swadm move_server machine_id machine_name
```

where:

- *machine\_id* is the server identifier of the source server, such as 1, 2, 3.
- *machine\_name* is the name of the Microsoft Distributed Transaction Coordinator resource (MSDTC). See "What is MSDTC" in *TIBCO iProcess Engine Architecture Guide* for more information.

**Summary** After installing TIBCO iProcess Engine on a Microsoft Windows platform, an iProcess Engine service user without the local administrator rights cannot start the iProcess Engine services if User Access Control (UAC) is enabled on the Microsoft Windows platform.

**Workaround** Disable User Access Control (UAC) on the Microsoft Windows platform.

**Summary** Work items cannot be seen in the work queue when configuring IAPJMS for JBoss.

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## Summary and Workaround

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**Workaround** Perform the following steps:

1. Copy `JBOSS_HOME/client/log4j.jar` to `$SWDIR/jar/thirdpart/`
2. Open the `SWDIR/etc/iapjms_classpath.properties` configuration file and replace `classpath.internal.log4j=thirdparty/log4j-1.2.8.jar` with `classpath.internal.log4j=thirdparty/log4j.jar`
3. Restart TIBCO iProcess Engine.

---

**Summary** The `PM_AUTO_BOOT` parameter must not be set in a cluster of the TIBCO iProcess Engine nodes.

**Workaround** Follow these steps to set the `PM_AUTO_BOOT` parameter and start the cluster:

1. Set the `PM_AUTO_BOOT` parameter to `0`.
2. Run `swstart -p` to start the sentinels on all nodes.
3. Run `swstart` to start TIBCO iProcess Engine on any node.

---

**Summary** If you select the option "User must change password at net logon" in Active Directory, and then sync to iProcess Engine, the user cannot log in to iProcess Engine.

**Workaround** None.

---

**Summary** Services are not removed correctly if the Microsoft Management Console dialog box is open.

If the **Microsoft Management Console** dialog box is open and a service is stopped and then deleted, the **Startup Type** of the service can be shown as **Disabled**. The service is removed when the **Microsoft Management Console** dialog box is closed.

The problem does not occur if you use the command line utilities. This is a known problem documented in the Microsoft Knowledge Base.

---

**Summary** Operating system dates later than 31st December 2037 are not supported.

Although designed to process dates up to the year 3000, the iProcess Suite has been modified - in the interests of data integrity - to shut down if the system date exceeds 31st December 2037.



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**Summary and Workaround**

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The iProcess Suite uses the `time()` system call to get the system date and time. This call returns the system date and time as the number of seconds since midnight, 1st January 1970 as a signed integer (32-bits). This means that the `time()` function (which is commonly referred to as UNIX time) is unable to return a time beyond 19th January 2038, 03:14:07 UCT.

To protect the integrity of your iProcess installation, the iProcess Engine creates a file `SWDIR\logs\sw_error` and shuts itself down if the system returns a date beyond 31 December 2037. Do not use operating system dates later than this. Potentially, ALL applications that use the time function are at risk beyond this date.

---

**Summary** Large Number of User Logins Might Cause Problems.

If your client application performs a large number of user logins to iProcess Engine, it might experience problems that are a result of running out of TCP ports, or attempting to connect to a TCP port above 5000. You might see one of the following problems in the client application or iProcess Engine:

- the system hanging or exhibiting unexpected behavior
- unable to create new connections to the server
- Event ID 2009 “Number of sessions exceeds 2048” might be written to the event log
- the local computer responds with a WSENOBUFS (10055) error

For information about resolving these issues, see Microsoft Knowledge Base articles Q149532 and Q196271. These can be found at: <http://support.microsoft.com>.

---

**Summary** Same user logged on multiple times causes degradation/possible errors.

The same user logging on multiple times to the same iProcess Engine might result in performance degradation. iProcess Engine allows only one transaction to be processed at a time for users that are logged on multiple times to that server, resulting in slower processing.

---

**Summary** Locking work items.

The SAL SDK allows long locking multiple times by the same user name. Consequently, in iProcess Engine, it is possible to lock the same work item from a work queue by using a different login session if there are two or more clients logged in as the same user name.

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**Summary** Text field attribute lengths stored in multiples of 24.

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### Summary and Workaround

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All attributes except for text fields are set to a length of 24 if a length is not specified or if some length (up to 24) is specified. Decimal places are not stored.

For text fields, length is set to 24 if no length is specified. If a length is specified, the actual length is the next multiple of 24, up to the maximum length of 255. For example, creating a text field 25 characters long results in the field being 48 characters long.

---

**Summary** Audit filtering limitations on sub-cases.

When specifying an audit filter for a sub-case, or a parent case that contains a sub-case, the following limitation applies. If your filter criteria do not match the sub-case started audit entry in the parent case, no audit entries are returned for the sub-case, regardless of whether the filter criteria matches audit entries of the sub-case.

The workaround for this is to specify the following in your AuditFilterExpr filter expression:

```
FILTER_FLAGS=[AF_ALL_SUBSTART]
```

---

## Other Information

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### Use SWDIR\util\plist

You can use the `SWDIR\util\plist X` option to provide backward compatibility with Staffware 2000. For example, use `plist -pv` does not report counts, but you can use `plist -pvX` to specify Staffware 2000 compatibility so that counts are derived. Enter `SWDIR\util\plist` at the command line to display a full list of options.

### Must Normalize Case Data to View Cases

When you install iProcess Engine, there is a check box in the Configuration window that is used to enable a feature called CaseData Normalization. If you use an application developed with iProcess Objects or iProcess Server Objects, you *must* enable case data normalization. If it is not enabled, cases do not appear in the case list.

Case data normalization can be enabled during the installation or at a later time by using the Case Data Normalization utility, `swnormcd`.

For more information about case data normalization and how to use `swnormcd`, see *TIBCO iProcess Engine Administrator's Guide*.

### Upgrading from Earlier Version Might Cause Error Messages in Log File

Upgrading from an earlier version of iProcess Engine to version i10.0 (0.0) or later might cause error messages similar to the following error messages to appear in the iProcess Engine log file:

```
ERROR|error in sal_pver_audlist procname($EMAIL) err(0) curridx(1)
ERROR|error in sal_pver_audlist procname($SYSTEM) err(0)
curridx(1)
```

```
ERROR|error in sal_pver_audlist procname(CARPOOL) err(0)  
curridx(1)
```

These messages are a result of the upgrade, but an error has not occurred. Disregard the messages.

# TIBCO Documentation and Support Services

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For information about this product, you can read the documentation, contact TIBCO Support, and join TIBCO Community.

## How to Access TIBCO Documentation

Documentation for TIBCO products is available on the [Product Documentation website](#), mainly in HTML and PDF formats.

The [Product Documentation website](#) is updated frequently and is more current than any other documentation included with the product.

## Product-Specific Documentation

The documentation for this product is available on the [TIBCO iProcess® Engine Product Documentation](#) page.

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- To create a Support case, you must have a valid maintenance or support contract with a Cloud Software Group entity. You also need a username and password to log in to the [product Support website](#). If you do not have a username, you can request one by clicking **Register** on the website.

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