



TIBCO iProcess® Engine

Administrator's Guide

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Controlling the iProcess Engine

This section describes basic operations for controlling iProcess Engine.

There are additional administrative tasks that can be performed on TIBCO iProcess Workspace (Windows), such as case monitoring, managing users, and group and case administration. They are all described in *TIBCO iProcess Workspace (Windows) Manager's Guide*.

i Note: You can also control, start and stop iProcess Engine Process Sentinels and server processes using the `swadm` and `swsvrmgr` utilities located in the `SWDIR\util` directory. For more information, see [Administering iProcess Engine Server Processes](#).

i Note: You can perform all the command line activities covered in this document using iProcess Administration Console. For more information, see iProcess Administration Console User's Guide .

Starting iProcess Engine

The iProcess Engine server processes are controlled by Process Sentinels. Process Sentinels must be started first, they then control the start-up of the server processes. If you are using more than one server to host iProcess Engine (a node cluster), Process Sentinels must be started on each server.

Before you can start iProcess Engine, you must ensure that:

1. The iProcess database instance is running.
2. All required message queues are running.
3. The event manager is running. (This means that the event queues and agents are running.)

You can view additional details of the system load stage when the processes and server start. These details help you to know what stage of loading the system has reached. The following screenshots illustrate how you get live updates of the system load stages.

```
Current System Status : 'RUNNING'
Machine ID  Proc Name  Proc Inst  Status      Comment
-----
1          BG          1          RUNNING     BG process started: 2020-03-10 00:07:30
1          BG          2          RUNNING     BG process started: 2020-03-10 00:07:30
1          BG          3          RUNNING     BG process started: 2020-03-10 00:07:30
1          BG          4          RUNNING     BG process started: 2020-03-10 00:07:30
1          BG          5          RUNNING     BG process started: 2020-03-10 00:07:30
1          BGPREDICT  1          RUNNING     BG process started: 2020-03-10 00:07:30
1          DIRECTOR   1          NOT RUNNING
1          DLMGR       1          RUNNING     DLMGR process started: 2020-03-10 00:07:30
1          IAPJMS      1          NOT RUNNING
1          RPCBG       1          RUNNING     RPCBG process started: 2020-03-10 00:07:42
1          RPC_TCP_LI  1          RUNNING     RPC listener process started: 2020-03-10 00:07:38
1          RPC_UDP_LI  1          RUNNING     RPC listener process started: 2020-03-10 00:07:40
1          SPO        1          RUNNING     SPO Server process started: 2020-03-10 00:07:46
1          WIS        1          RUNNING     WIS process started [Total Queue count: 1]: 2020-03-10 00:07:44
1          WIS        2          RUNNING     WIS process started [Total Queue count: 0]: 2020-03-10 00:07:44
1          WISMBD    1          RUNNING     WISMBD process started: 2020-03-10 00:07:45
1          WISMBD    2          RUNNING     WISMBD process started: 2020-03-10 00:07:45
1          WQS        1          RUNNING     WQS process started: 2020-03-10 00:07:40
2          BG          1          RUNNING     BG process started: 2020-03-10 00:06:19
2          BG          2          RUNNING     BG process started: 2020-03-10 00:06:19
2          SPO        1          STARTING    Stage 1 of 4: SPO Server process initializing: 2020-03-10 00:07:14

Current System Status : 'RUNNING'
```

```
[pro@hydxipxrhel72 util]$ swstop -f 1
Attempting to stop 19 processes
Machine ID  Proc Name  Proc Inst  Status      Comment
-----
1          WISMBD    2          SHUTTING DOWN WISMBD normal shutdown: 2020-03-10 00:10:38
1          WISMBD    1          SHUTTING DOWN WISMBD normal shutdown: 2020-03-10 00:10:38
1          SPO        1          SHUTTING DOWN Normal Shutdown: 2020-03-10 00:10:39
2          SPO        1          SHUTTING DOWN Normal Shutdown: 2020-03-10 00:09:28
2          BG          1          SHUTTING DOWN Normal Shutdown: 2020-03-10 00:09:29
2          BG          2          SHUTTING DOWN Normal Shutdown: 2020-03-10 00:09:29
1          WIS        2          SHUTTING DOWN WIS Normal shutdown: 2020-03-10 00:10:40
1          WIS        1          SHUTTING DOWN WIS Normal shutdown: 2020-03-10 00:10:40
1          RPCBG      1          SHUTTING DOWN Normal Shutdown: 2020-03-10 00:10:41
1          WQS        1          SHUTTING DOWN WQS Normal shutdown: 2020-03-10 00:10:42
1          RPC_UDP_LI 1          SHUTTING DOWN RPC server shutdown: 2020-03-10 00:10:43
1          RPC_TCP_LI 1          SHUTTING DOWN RPC server shutdown: 2020-03-10 00:10:45
1          DLMGR      1          SHUTTING DOWN main calling shutdown: 2020-03-10 00:10:45
1          BGPREDICT  1          SHUTTING DOWN Normal Shutdown: 2020-03-10 00:10:46
1          BG          3          SHUTTING DOWN Normal Shutdown: 2020-03-10 00:10:47
1          BG          5          SHUTTING DOWN Normal Shutdown: 2020-03-10 00:10:47
1          BG          4          SHUTTING DOWN Normal Shutdown: 2020-03-10 00:10:47
1          BG          2          SHUTTING DOWN Normal Shutdown: 2020-03-10 00:10:48
1          BG          1          SHUTTING DOWN Normal Shutdown: 2020-03-10 00:10:48
Current System Status : 'SHUTTING DOWN'
[pro@hydxipxrhel72 util]$
```

The following sections explain how to start the Windows (see [Windows Version](#)) and UNIX versions (see [UNIX Version](#)) of iProcess Engine.

Windows Version

In the Windows version, the iProcess Engine functions are provided by the iProcess *nodename* Process Sentinels service (where *nodename* is the name of your iProcess Engine installation).

By default, after having been started, Process Sentinel tests the event mechanism automatically and starts the iProcess Engine server auto-start processes.

i Note: This behavior is controlled by the [PM_AUTO_BOOT](#) process attribute, only the value of the PM_AUTO_BOOT attribute is set to 1, the processes will be started automatically. See [Administering Process Attributes](#) for more information.

You can start the Process Sentinels service in three different ways (unless you have installed iProcess Engine to a Windows cluster):

- At system startup - see [An operating system group that gives you permissions to start a service, normally the Administrators group..](#)
- Manually, from the Windows Control Panel - see [Manually Starting the Process Sentinels Service.](#)
- Using the swstart.bat script located in the SWDIR\bin directory- see [Using the swstart.bat Script.](#)

To be able to start iProcess Engine, you must be logged in as an iProcess Engine Administrator or as a user who is a member of both:

- The iProcess Administrators local group (which gives you permissions on files and directories in SWDIR).
- An operating system group that gives you permissions to start a service, normally the Administrators group.

! Warning: If you have installed iProcess Engine to a Windows cluster, use the Bring online service in the Microsoft Cluster Administrator to start iProcess Engine.

Do not attempt to start iProcess Engine on a Windows cluster by using Control Panel > Services or the swstart command located in the SWDIR\bin directory.


Configuring System Startup Behavior

When you install iProcess Engine, you choose whether or not the Process Sentinels service:

- Starts automatically on system startup (the default option).
- Needs to be started manually.
- Is disabled (cannot be started).

If you subsequently want to change this setting, do the following:


1. From the Start menu, select **Settings > Control Panel**.
2. Double-click the **Administration Tools** item.
3. Double-click the **Services** item. The Services dialog box appears.
4. Select the **iProcess *Nodename* Process Sentinels** service item (where *Nodename* is the name of your iProcess Engine installation) and click the **Startup** button. The Service dialog box appears.
5. Set the Startup Type item to:
 - Automatic, if you want the Process Sentinels service to start automatically on system startup.
 - Manual, if you want to manually start the Process Sentinels service (see the following).
 - Disabled, if you want to disable the Process Sentinels service.

 **Note:** Do not change any other options in the Service dialog box. Doing so might cause iProcess Engine to fail.

Manually Starting the Process Sentinels Service

To manually start the Process Sentinels service:

1. From the Start menu, select **Settings > Control Panel**.
2. Double-click the **Administration Tools** item.
3. Double-click the **Services** item. The Services dialog box appears.
4. Select the **iProcess *Nodename* Process Sentinels** service item (where *Nodename* is the name of your iProcess Engine installation).
5. Click the **Start** button. This will start the Process Sentinels service and the iProcess Engine server processes.

 **Note:** You can use the **Processes** tab of the Windows Task Manager to view the processes as they start. See [Server Processes](#) for a list of processes that are started.

Using the swstart.bat Script

To start the Process Sentinels service using the `swstart.bat` script located in the `SWDIR\bin` directory:

1. Start the Process Sentinels by using the following command:
`swstart -p`
2. Start the iProcess Engine server processes by following one of the two ways:
 - normally, by using the `swstart` command
 - in quick start mode, by using the `swstart -q` command

i Note: When the iProcess Engine server is restarted or quick started, the iProcess Objects Server processes apply the `RESTART_SPO_CACHE_PROC` attribute to cache a specified number of procedure versions and the `WIS` processes apply the `RESTART_WIS_CACHE_THRESHOLD` attribute to cache the work queues at a specified work item number. For more information, see [RESTART_WIS_CACHE_THRESHOLD](#) and [RESTART_SPO_CACHE_PROC](#).

UNIX Version

In the UNIX version, the iProcess Engine functions are provided by the "worker" and "watcher" Process Sentinel processes.

By default, after having been started, Process Sentinel tests the event mechanism automatically and starts the iProcess Engine server auto-start processes.

i Note: This behavior is controlled by the [PM_AUTO_BOOT](#) process attribute, only the value of the `PM_AUTO_BOOT` attribute is set to 1, processes will be started automatically. For more information, see [Administering Process Attributes](#).

Starting the Process Sentinels

You need to start Process Sentinels on each server in your iProcess Engine.

To start Process Sentinels on a server, perform the following steps:

1. Log in to iProcess Engine as a background user.

2. Enter the command:

```
SWDIR/bin/swstart -p
```

i Note: If you add this command to your UNIX start-up routine script, the Process Sentinels always start running on start up.

Starting the Server Processes

Use the `swstart` script located in the `$SWDIR/bin` directory to start all the required server processes.

i Note: If you are using a node cluster, you can run this script from any server that is part of the node cluster and it will start all the processes on all of the servers in iProcess Engine.

To start the iProcess Engine server processes, perform the following steps:

1. Log in to iProcess Engine as a background user.
2. Start and run iProcess Engine server in the following ways:
 - Normally, by using the following command:
`SWDIR/bin/swstart`
 - In quick start mode, by using the command:
`SWDIR/bin/swstart -q`

As each server process is started, a start-up message is displayed.

i Note: When the iProcess Engine server is restarted or quick started, the iProcess Objects Server processes apply the `RESTART_SPO_CACHE_PROC` attribute to cache a specified number of procedure versions, and the WIS processes apply the `RESTART_WIS_CACHE_THRESHOLD` attribute to cache the work queues at a specified work item number. See [RESTART_WIS_CACHE_THRESHOLD](#) and [RESTART_SPO_CACHE_PROC](#) for more information.

Stopping iProcess Engine

The following sections explain how to stop the Windows (see) and UNIX versions (see [UNIX Version](#)) of the iProcess Engine.

Windows Version

The iProcess Engine functions are provided by the iProcess *nodename* Process Sentinels service (where the *nodename* is the name of your iProcess Engine installation).

You can stop the Process Sentinels service either:

- Manually, from the Services dialog box. For more information, see the following section on Manually stopping iProcess Engine.
- Using the `swstop.bat` script located in the `SWDIR\bin` directory. For more information, see [Using the swstop.bat Script](#).



Warning: If you have installed iProcess Engine to a Windows cluster, use the Take offline service in the Microsoft Cluster Administrator to stop the Process Sentinels service.

Do not attempt to stop the Process Sentinels service on a Windows cluster by using Control Panel > Services or the `swstop` script located in the `SWDIR\bin` directory.

Manually Stopping the iProcess Engine

To stop iProcess Engine:

1. Ensure that all iProcess Workspace users are logged out from iProcess Engine.
2. From the Start menu, go to **Settings > Control Panel**.
3. Double-click the **Administration Tools** item.
4. Double-click the **Services** item. The Services dialog box appears.
5. Select the **iProcess Nodename Process Sentinels** service item (where, *Nodename* is the name of your iProcess Engine installation).

6. Click the **Stop** button. This will stop the Process Sentinels service and the iProcess Engine server processes.

Using the swstop.bat Script

To stop iProcess Engine using the swstop.bat script located in the SWDIR\bin directory:

1. Ensure that all iProcess Workspace users are logged out from iProcess Engine.

i Note: If you cannot or do not want to do this for any reason, you can force iProcess Engine to shut down even if users are still logged in. For more information, see [Forcing the iProcess Engine to Shutdown](#).

2. Stop the iProcess Engine server processes using the following command:

```
swstop
```

3. Stop the Process Sentinels using the following command:

```
swstop -p
```

UNIX Version

To stop iProcess Engine you must:

1. Stop the server processes.
2. Stop the Process Sentinels.

Stopping the Server Processes

Use the swstop script, which is located in the \$SWDIR/bin directory to stop all the required server processes.

i Note: If you are using a node cluster, you can run this script from any server that is part of the node cluster and it will stop all the processes on all of the servers in iProcess Engine.

To stop the iProcess Engine server processes:

1. Log in to iProcess Engine as a background user.
2. Make sure that all TIBCO iProcess Workspace users are logged out from iProcess Engine.

Note: If you cannot or do not want to do this for any reason, you can force iProcess Engine to shut down even if users are still logged in. For more information, see [Forcing the iProcess Engine to Shutdown](#).

3. Locate the **SWDIR\bin** directory, and enter the following command:

```
swstop
```

A summary of the shutdown process is displayed as the processes are stopped, in the following example.

Attempting to stop 17 processes				
Machine ID	Proc Name	Proc Inst	Status	Comment
1	BG	1	SHUTTING DOWN	Normal Shutdown
1	BG	2	SHUTTING DOWN	Normal Shutdown
1	BG	3	SHUTTING DOWN	Normal Shutdown
1	BG	4	SHUTTING DOWN	Normal Shutdown
1	BGPREDICT	1	SHUTTING DOWN	Normal Shutdown
1	DIRECTOR	1	SHUTTING DOWN	Normal Shutdown
1	DLMGR	1	SHUTTING DOWN	main calling shutdown
1	IAPJMS	1	SHUTTING DOWN	IAPJMS Process Shutdown
1	RPCBG	1	SHUTTING DOWN	Normal Shutdown
1	RPC_TCP_LI	1	SHUTTING DOWN	RPC server shutdown

Attempting to stop 17 processes				
Machine ID	Proc Name	Proc Inst	Status	Comment
1	RPC_UDP_LI	1	SHUTTING DOWN	RPC server shutdown
1	SPO	1	SHUTTING DOWN	Normal Shutdown
1	WIS	1	SHUTTING DOWN	Normal Shutdown
1	WIS	2	SHUTTING DOWN	Normal Shutdown
1	WISMBD	1	SHUTTING DOWN	WISMBD normal shutdown
1	WISMBD	2	SHUTTING DOWN	WISMBD normal shutdown
1	WQS	1	SHUTTING DOWN	WQS Normal shutdown
Current System Status : 'STOPPED'				

Stopping Process Sentinels

You can also use the `swstop` script, which is located in the **SWDIR\bin** directory, to stop Process Sentinels.

Note: If you are using a node cluster, you can run this script from any server that is part of the node cluster and it will stop Process Sentinels on all of the servers in iProcess Engine.

To stop the Process Sentinels:

1. Log in to iProcess Engine as a background user.
2. Make sure that all TIBCO iProcess Workspace users are logged out from iProcess Engine.

i Note: If you cannot or do not want to do this for any reason, you can force iProcess Engine to shut down even if users are still logged in. For more information, see [Forcing the iProcess Engine to Shutdown](#).

3. Locate the **SWDIR\bin** directory, and enter the following command:

```
swstop -p
```

which displays the **"Please wait, stopping process sentinels"** message.

Forcing the iProcess Engine to Shutdown

Normally, when you want to shut down iProcess Engine, you must first get all users to log out of iProcess Suite.

However, you can force iProcess Engine to shut down, even if there are users logged in. There are two ways you can do this:

- Using the `swstop` command from a command prompt. See the following section for details.
- Using the `swstop` command from the Services dialog box. For more information, see [Enable Forced Shutdown from the Services Dialog Box](#).

Using the `swstop` Command

You can use the following command to force the iProcess Engine to shut down:

```
SWDIR\bin\swstop [-f [timeout]]
```

where:

- `-f` issues a forced shutdown event to shut down the iProcess Engine processes, whether or not there are users logged in.
- `timeout` is the period, in seconds, to wait before shutting down iProcess Engine. If `timeout` is omitted, a default timeout value of 300 (5 minutes) is used. If a subsequent `swstop -f timeout` command is issued before the first `timeout` value has expired, the `timeout` will be reset to the new value if the new `timeout` value is smaller. You cannot increase the timeout period - a larger timeout value will be ignored.

i Note:

- On a UNIX system, you must be logged in to iProcess Engine as a background user to use this command.
- When the forced shutdown command is issued, a message is sent to all users informing them that the system will be stopped in *timeout* seconds.
- Make sure you save any changes to procedure definitions before enabling the forced shutdown otherwise any such changes will be lost.
- If any released work items have not been processed by the time the background processes shut down, these changes are queued and processed when iProcess Engine restarts.

For example:

- The following command causes iProcess Engine to shut down after the default delay of 300 seconds.
`swstop -f`
- The following command causes iProcess Engine to shut down after a delay of 3 minutes.
`swstop -f 180`
- If this command is issued 1 minute after the previous example, the delay before the shutdown will be reset to 30 seconds.
`swstop -f 30`

Enable Forced Shutdown from the Services Dialog Box

To force iProcess Engine to shut down from the Services dialog box, you must:

Create a new string value called `SERVICE_STOP_PARAMS` in the Windows Registry and enter the `swstop` command as the string value data. For more information, see [Creating the SERVICE_STOP_PARAMS String Value](#).

Once you have created the `SERVICE_STOP_PARAMS` string value, when you stop Process Sentinels from the Services dialog box, the Process Sentinels are shut down using the `swstop` command with the parameters you specified. For more information, see [Manually Stopping the iProcess Engine](#).

To disable the forced shutdown from the Services dialog box, either:

- Delete the `SERVICE_STOP_PARAMS` string value from the Windows Registry, or

- Delete the value data from the `SERVICE_STOP_PARAMS` string value in the Windows Registry.

Creating the `SERVICE_STOP_PARAMS` String Value

To create the `SERVICE_STOP_PARAMS` string value:

1. From the Start menu, click the **Run** button. The Run dialog box appears.
2. In the Open: field, type **regedit**, and click the **OK** button. The Registry Editor window appears.
3. Navigate to the registry list where the `SERVICE_STOP_PARAMS` string value is to be located, at:
RegistryLocation\Staffware plc\Staffware Server\Nodes\nodename
where:
 - *RegistryLocation* is `\HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node` for a 64-bit machine.
 - *nodename* is the name of the iProcess Engine installation.
4. From the Edit menu, select **New > String Value**. A new value named New Value #1 is created.
5. Right-click the **New Value #1** item and click the **Rename** button. Rename the New Value #1 item to the `SERVICE_STOP_PARAMS` item.
6. Right-click the **`SERVICE_STOP_PARAMS`** item and click the **Modify** button. The Edit String dialog box appears.
7. Enter the following value in the Value Data: box:

```
swstop [-f [timeout]] [-n retries]
```

where:

- `-f` issues a forced shutdown event to shut down the iProcess Engine processes, whether or not there are users logged in.
- *timeout* (optional) is the period, in seconds, to wait before shutting down the iProcess Engine. If *timeout* is omitted, a default timeout value of 300 seconds (5 minutes) is used. The *timeout* value can be a numeric value between 0 - 7200. If a value less than 0 is entered, the default value of 300 seconds (5 minutes) is used. If a value greater than 7200 is entered, the value of 7200 seconds is used.

- `-n retries` (optional) is the maximum number of times the forced shutdown command will be retried, if required. The *retries* value can be a numeric value of 0 or greater. The re-issue of the forced shutdown command occurs if any of the processes have not shut down. This overcomes the problem of an event being lost in the event system and the process not receiving the shutdown message.

If all the processes have still not completely shut down after the number of retries then a final forced shutdown is issued.

If *retries* is omitted, (or if a value of less than 0 is entered), a default value of 0 is used. This means that a forced shutdown is issued after the timeout period and is not re-tried. Any processes that have not shutdown are forced to shutdown.

If all the processes have still not completely shut down after the final forced shut down is issued because, for example, a process has hung, then these processes will have to be shut down manually through the Task Manager or by restarting the machine that is hosting iProcess Engine.

Note:


- When the forced shutdown command is issued, a message is sent to all users informing them that the system will be stopped in *timeout* seconds.
- After 2 minutes, Microsoft Windows issues the following message:

Could not stop the iProcess nodename Process Sentinels service on Local Computer. Error 1053: The service did not respond to the start or control request in a timely fashion

where *nodename* is the name of your iProcess Engine installation. This is a warning only. Click the **OK** button, Process Sentinels continue to shut down.

- Make sure you save any changes to procedure definitions before enabling the forced shutdown otherwise any such changes will be lost.
- If any released work items have not been processed by the time the background processes shut down, these changes are queued and processed when iProcess Engine restarts.

Configuring iProcess Engine Events Server

 **Note:** This section is only relevant if you are running iProcess Engine on a Windows platform.

The iProcess Engine uses a publish/subscribe event mechanism to handle the following inter-process tasks:

- Notifying processes to update caches.
- Synchronization of process startup and shutdown.

Events are handled by the iProcess Events COM+ application. All processes that want to subscribe to events register with the COM+ application.


The iProcess Events COM+ application is installed on the same machine as iProcess Engine. If you are using a node cluster architecture, the event server is set to be the machine on which you installed the master server. The event server name is stored in the following registry key:

RegistryLocation\Staffware plc\Staffware Server\Nodes*nodename*\
IEL_EVENT_SERVER

where:

- *RegistryLocation* is \HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node.
- *nodename* is the name of iProcess Engine installation.

If performance becomes an issue, TIBCO recommends that you dedicate one machine in the cluster, which is not running any iProcess Engine processes, to host the iProcess events. This reduces the load on the machine. To do this, you will need to edit the registry entry and change the *nodename* to the name of the new iProcess events server. You will need to restart the machine after doing this.

 **Warning:** Incorrectly editing the registry can severely damage your system. Ensure that you edit ONLY the indicated registry entry.

Ensure that the iProcess Events application starts successfully on the new iProcess events server before starting iProcess Engine, otherwise the system might not function correctly.

Configuring iProcess Engine Time Zone

An iProcess Engine that is installed on a server operating in one time zone may be accessed by TIBCO iProcess Workspace users who are operating in different time zones. For example, a company's office in California (Pacific Standard Time, GMT-08:00) may want to run cases of procedures that are hosted on a server running in the company's administrative center in Washington D.C. (Eastern Standard Time, GMT-05:00).

This will lead to a disparity between timestamps created by the server (which will use its local time) and their subsequent interpretation by the computers hosting the TIBCO iProcess Workspaces. This disparity will affect:

- work item time stamps
- audit trail time stamps
- deadline time stamps and processing
- priority escalation of work items
- date/time settings for participation and redirection.

To avoid this disparity, you can configure the iProcess Engine processes to operate in the same time zone as the clients.

**Note:**

- The time zone is set for ALL processes generated by iProcess Engine. Different processes on the same iProcess Engine cannot use different time zones, even if they are running on different servers. To continue the example above, if iProcess Engine is configured to run in Pacific Standard Time it can only administer sites in that time zone without discrepancy.
- If multiple iProcess Engines are running on the same physical hardware (which can be either a single node or a node cluster), each iProcess Engine can operate in its own designated time zone.

Setting the Time Zone

The time zone used by iProcess Engine is stored using the `TIMEZONE` process attribute. Its value must be a valid time zone recognized by the operating system. See [TIMEZONE](#).

By default, the `TIMEZONE` attribute is not set, and iProcess Engine uses the host server's local time.

You can set the value of `TIMEZONE` using the **`SWDIR\util\swadm`** utility. If you want to:

- See what time zone iProcess Engine is currently operating in, use the `SHOW_ALL_ATTRIBUTES` command. See [Display All Process Attributes](#).
- Configure iProcess Engine to operate in a different time zone, use the `SET_ATTRIBUTE` command. See [Set a Process Attribute](#).
- Reset iProcess Engine to use the host server's local time, use the `DELETE_ATTRIBUTE` command. See [Delete a Process Attribute](#).

Using the **`SWDIR\util\swadm`** utility to change the time zone triggers an event informing the server processes that the time zone has changed. iProcess Engine does not need to be restarted for the change to take effect.

Error Handling

Most errors encountered by TIBCO iProcess Engine are reported directly to the user when they occur. Where this is not possible:

- A suitable error message is written to the `sw_warn` or `sw_error` file located in the **`SWDIR\logs`** directory. For more information, see [iProcess Engine Log Files](#).
- A “System Information” message is sent to iProcess Engine Administrator, informing them that the file has been created.

See *TIBCO iProcess Engine System Messages Guide* for detailed information about the system error and warning messages that can be returned by iProcess Engine in the `sw_warn` or `sw_error` file located in the **`SWDIR\logs`** directory.



Note: Each computer in a node cluster creates its error files so you have to make sure to check each server for the `sw_error` and `sw_warn` files. See [iProcess Engine Log Files](#) for more information.

In all cases where a resolution cannot be achieved on-site, contact TIBCO Support for further assistance.

Using the iProcess Engine Configuration Files

This section describes various TIBCO iProcess Engine configuration files.

i Note: For information about using the `staffcfg` file, see [Tuning the iProcess Engine Using SWDIR\etc\staffcfg Parameters](#), which is located in the `SWDIR\etc` directory to configure your iProcess Engine.

SWDIR\swdefs

The `swdefs` file, which is located in the `SWDIR` directory, is the main system configuration file.

The contents of this file are determined at installation time, and in general, should not be changed.

The following table describes the contents of the `swdefs` file.

Contents in the swdefs File

Line	Example	Description
1	i16.0-x(0.0)	TIBCO iProcess Engine version
2	pro	Background (iProcess Engine background) user
3	swadmin	System administrator (iProcess Engine Administrator)
4	D:\swbkp (Windows) or \usr\swbkp (UNIX)	Path to backup directory. Note: This is not used by TIBCO iProcess Engine.

Line	Example	Description
5	NULL	Not used
6	swattach	Users' attachments subdirectory. Note: This is not used by TIBCO iProcess Engine.
7	NULL	Reserved. Do not change this entry
8	staffw_nod1	Nodename of this TIBCO iProcess Engine
9	English	System default language
10	391870	Server\Server RPC service number Note: This is not used by TIBCO iProcess Engine.
11	391875	Client\Server RPC service number
12	3.0	Server\Server RPC version

SWDIR\etc\language.lng\staffico

The `staffico` file, which is located in the `SWDIR\etc\language.lng` directory, specifies which tools are available to an iProcess user, depending on the value of the `MENUNAME` attribute.

Tools are displayed in the Work Queue Manager, as items on the Tools menu and as toolbar buttons.

If you want to modify the `staffico` file, which is located in the **SWDIR**\etc\language.lng directory:

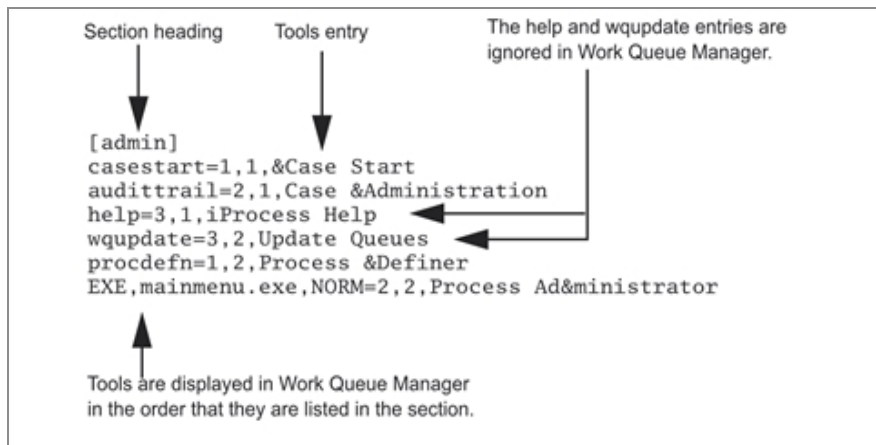
1. Log in as a user who (on Windows) is a member of the iProcess Administrators group or, (on UNIX) as a user root.
2. Edit the file as required.

The changes take effect when a user next logs in. (Users who are already logged in will need to log out and log back in again.)

File Format

The file contains one section per defined MENU_NAME attribute. Each section contains one entry per tool available for that MENU_NAME.

Lines that begin with a ‘;’ (semi-colon) character are treated as comments. Blank lines are ignored.



Tools Entry Format

Each tools entry has the following format:

Tool_Definition=xpos,ypos,description

where:

- *Tool_Definition* is one of the following:

Tool_ Definition	Tool Description
CaseStart	Displays the Case Start dialog box so that the user can start a case.
AuditTrail	Displays the Case Administration dialog box, so that the user can perform administration tasks such as closing or purging cases and viewing audit trails of cases.

Tool_ Definition	Tool Description
ProcDefn	Starts TIBCO iProcess Modeler.
EXE, <i>program</i> , NORM	Starts an executable <i>program.exe</i> . Note: By default, an EXE entry is provided to start TIBCO iProcess Administrator (mainmenu.exe).
RS, <i>procname</i> , <i>stepname</i>	Runs a caseless form for procedure <i>procname</i> and step <i>stepname</i> .
SWEIS [, <i>procname</i> , <i>EISobject</i>]	Runs an EIS report for procedure <i>procname</i> and report <i>EISobject</i> . If the <i>procname</i> and <i>EISobject</i> parameters are omitted the Run EIS Report dialog box is displayed, from which the user can choose an EIS report to run.
SWIP	Starts TIBCO iProcess Monitoring.

i Note: The Help and WQUpdate entries are no longer used.

- *xpos*, *ypos* defines the horizontal (column) and vertical (line) position of the icon in the Tools window. (1,1 is the top, left-hand side of the window.) Coordinates outside the range 1-10 are ignored.

i Note: The *xpos* and *ypos* parameters are ignored because the Tools window is no longer supported. Tools are listed in the Tools menu and button bar in the order that they are listed in the section.

- *description* is the text that appears in the Tools menu and as a button help in Work Queue Manager.

description can be up to 40 characters long. Any text beyond this is truncated. The ampersand character (&) can be used to define a shortcut key for the tool. The character that follows the ampersand will appear underlined in the Tools menu. If you want to insert an actual ampersand character in the description, you must precede it with another ampersand character (&&).

SWDIR\etc\staffpms

The staffpms file, which is located in the SWDIR\etc directory, specifies a number of different configuration options.



Warning: The contents of this file are determined at installation time, and must not be changed other than as described in this section.

To modify the staffpms file, perform the following steps:

1. Log in as a user who (on Windows) is a member of the iProcess Administrators group or, (on UNIX) as a user root.
2. Edit the file as required.
3. Ask all users to log out of iProcess Suite, then stop and restart iProcess Engine.

Specifying if Client Passwords are Required on Login

Character 4 of line 4 specifies whether or not iProcess users need to give their password to log in to this TIBCO iProcess Engine node.

```
Y0NN5YNY??0AY
```

If this character is:

- Y, iProcess users must supply their password when they log in to this TIBCO iProcess Engine node.
- N, passwords are not required on login.

Enabling Multiple Logins

Draft comments: NOTE - This feature was to be deleted following introduction of CR 16956 - and now it's being put back in again as a result of CR 18612!

Character 13 of line 4 specifies whether or not multiple logins to this TIBCO iProcess Engine are enabled.

```
Y0NN5YNY??0AY
```



Warning: This character must be set to Y. Multiple logins must be enabled for iProcess Engine to operate.

Specifying the Working Week

By default, all date calculations in iProcess use a 5-day working week of Monday to Friday. However, if a procedure has the Use working days flag un-set, a 7-day working week is used instead for cases of that procedure.



Note: The Use working days flag is set in the Procedure Manager, on the Status tab of the Properties dialog box. For more information see “Use Working Days Flag” in *TIBCO iProcess Modeler Procedure Management*.

Line 5 ends with a 7-character string that defines the working week. There is one character for each day of the week, running from Sunday (on the left) to Saturday (on the right). Y indicates that the day is a working day, N indicates that it is a non-working day. The default entry specifies a working week of Monday to Friday, as shown .

```
%2d\%2d\%4d\/%s%s %s, %s\dmy\wdmy\%2d:%2d:\ AM\ PM\Week\NYYYYYN
```

You can edit this string to change the specification of the working week that iProcess uses when calculating dates (for procedures that have the Use working days flag set). For example, to specify a 5-day working week of Sunday to Thursday, with Friday and Saturday being non-working days, change line 5 to:

```
%2d\%2d\%4d\/%s%s %s, %s\dmy\wdmy\%2d:%2d:\ AM\ PM\Week\YYYYYNN
```

To specify a 6-day working week of Monday to Saturday, with Sunday being a non-working day, change line 5 to read:

```
%2d\%2d\%4d\/%s%s %s, %s\dmy\wdmy\%2d:%2d:\ AM\ PM\Week\NYYYYYY
```

Changing the Date Format Using the staffpms File

Line 5 of the staffpms file determines how the date is displayed in iProcess Engine. (The following example is for an iProcess Engine for Windows).

```
%2d/%2d/%4d\\/%s%s %s, %s\dmy\wdmy\%2d:%2d\:\ AM\ PM\Week\NYYYYYN
```

Individual entries are separated by a backslash character (\). The following table describes the meaning of each entry.

The Meaning of Each Entry for Changing the Date Format Using the staffpms File

Position	Example	Description
1	%2d/%2d/%4d	The number of characters used to specify each component of the date. For example, 2 characters to denote the date, 2 for the month and 4 for the year.
2	/	The date delimiter.
3	%s%s %s, %s	Not used.
4	dmy	The order of the date format.
5	wdmy	Not used.
6	%2d:%2d	The time format. The default is 24-hour format, for example, 15:12.
7	:	The time delimiter.
8	AM	Not used.
9	PM	Not used.
10	Week	Not used.
11	NYYYYYN	The definition of the working week, running Sunday to Saturday. Y indicates a working day, N a non-working day. For example, Monday to Friday. For more information, see Specifying the Working Week .

Changing the Order of the Date Format

To change the format, for example, to yyyy/mm/dd:

1. Amend the date order entry (position 4) to be ymd.
2. Amend the number of characters entry (position 1) to be %4d/%2d/%2d.

```
%4d/%2d/%2d\ /\%s%s %s, %s\ymd\wdmy\%2d:%2d:\ AM\ PM\Week\NYYYYYN
```

Changing the Date Delimiter

To change the date delimiter, for example to a hyphen character, amend the number of characters (position 1) and date delimiter (position 2) entries as shown.

```
%2d-%2d-%4d\ -\%s%s %s, %s\dmy\wdmy\%2d:%2d:\ AM\ PM\Week\NYYYYYN
```

Setting Database Connection Options

Line 9 contains the settings that iProcess Engine uses to connect to the database. (The following example is for a TIBCO iProcess Engine for Windows).

```
3\swpro\swuser\swpro\\sw-servers\0
```

Individual entries are separated by a backslash character (\). The following table describes the meaning of each entry.

Setting Database Connection Options in the staffpms File

Position	Example	Description	Notes
1	3	iProcess Engine type	This field must always be 3 for a database version.
2	swpro	iProcess Engine database background	The name of the database login (for SQL Server or Oracle) or UNIX account (for DB2) that iProcess Engine uses for background access to the iProcess Engine database schema.

Position	Example	Description	Notes
		user	Note: This login/account must be the same login/account as the iProcess Engine database schema owner (specified in position 4).
3	swuser	iProcess Engine database user	The name of the database login (for SQL Server or Oracle) or UNIX account (for DB2) that iProcess Engine uses for other access to the iProcess Engine database schema.
4	swpro	iProcess Engine database schema owner	The name of the database login (for SQL Server or Oracle) or UNIX account (for DB2) that owns the iProcess Engine database schema.
5	null	Oracle database TNS identifier	<p>The Oracle TNS identifier that iProcess Engine uses to connect to the Oracle instance holding the iProcess Engine database tables. This is the appropriate SERVICE_NAME entry in the tnsnames.ora file, which is located in the ORACLE_HOME\network\admin directory).</p> <p>If a TNS identifier is not defined, iProcess Engine will attempt to connect to the local Oracle instance, and Oracle Transparent Application Failover (TAF) will not be supported.</p> <p>Note: This entry is only used if iProcess Engine uses an Oracle database.</p>
6	sw-servers	ODBC Data Source (SQL) or Database Alias (DB2)	<p>The name of the ODBC data source (for SQL Server) or Database Alias (for DB2) that iProcess Engine uses to connect to the database.</p> <p>Note: This entry is not used if iProcess Engine uses an Oracle database.</p>
7	0	Reserved	This field is reserved for future use by iProcess Engine.

**Note**

For more information about connecting to databases, see the appropriate iProcess Engine installation guide.

Changing Database Connection Passwords

If you need to change the passwords that the *iProcess Engine database schema owner* or *iProcess Engine database user* use to connect to the database, follow this procedure:

1. Log in to iProcess Engine as an Administrator.
2. Stop iProcess Engine.
3. Enter the following command:

```
SWDIR\util\swconfig -u
```

The following prompt is displayed:

```
=====
TIBCO(R) iProcess Suite - Configuration Utility
Copyright (c) 2001-2012, TIBCO Software Inc.
=====
Please enter a new Background User Password, ('Q' to quit)
```

4. Enter the new password for the iProcess Engine database schema owner (the login/account defined in position 4 of line 9 of the staffpms file).

The following prompt is displayed.

```
Please enter a new Foreground User Password, ('Q' to quit) :
```

5. Enter the new password for the iProcess Engine database user (the login/account defined in position 3 of line 9 of the staffpms file).

The swconfig utility terminates and displays the following message.

```
Now log onto the Database and change the passwords
```

6. Change the corresponding passwords for these users in the database (for Oracle or SQL Server) or UNIX (for DB2). See your database/UNIX documentation for more information about how to do this.
7. Restart iProcess Engine.

Controlling Access to the iProcess Engine (for UNIX)

i Note: This section only applies to the UNIX version of the iProcess Engine. It is not relevant to the Windows version.

Line 12 contains three settings (at the end of the line) that control access to iProcess Engine.

```
1\GROUPNAME\0\666\swuser\staffwar\7
```

Individual entries are separated by a backslash character (\). The following table describes the meaning of each entry.

Position	Example	Description
1	1	Reserved for internal use - do not change.
2	GROUPNAME	Reserved for internal use - do not change.
3	1	Reserved for internal use - do not change.
4	666	Reserved for internal use - do not change.
5	swuser	The iProcess RPC Server account name. The default value is swuser.
6	staffwar	The iProcess group name. The default value is staffwar.
7	7	<p>The iProcess security umask value, which controls “world” access to iProcess files in and under SWDIR. “World” permissions on each file installed by or created by the iProcess Suite are set to the iProcess group name permissions for the file, modified by this umask value. For example, if this value is:</p> <ul style="list-style-type: none"> 7 for high security. “World” has no access to iProcess files in and under SWDIR. This is the default. 0 for low security. “World” has the same access to each file in and under SWDIR as the staffwar group.

To change the iProcess RPC Server account name, iProcess group name, or iProcess security umask value at any time after installation, perform the following steps:

1. Log in to iProcess Engine as a background user.
2. Stop iProcess Engine (if it is running).
3. Change the appropriate value on line 12 of the `staffpms` file.
4. Run `fixperms`, which is located in the `SWDIR\bin` directory, to reset the ownership and permissions information on all files in and under `SWDIR`.
5. Restart iProcess Engine.

The implications of these security values in `staffpms` are:

- You must be logged in to iProcess Engine as a background user to start or stop the iProcess Engine. See [Starting iProcess Engine](#).
- All iProcess processes run with the UID of an iProcess Engine background user, even if the process is started by root. The only exceptions are the `runcmd` utility, which is located in the `SWDIR\util` directory, and the `RPC_UDP_LI` process, which runs as root.
- All iProcess files and directories (that is, all files in and under `SWDIR`) are owned by either root or the iProcess Engine background user. Their group ID is set to the iProcess group (`staffwar`).
- “World” access to iProcess files and directories is restricted. On a new installation, “World” has no access (security umask is set to 7).
- All iProcess users who need access to iProcess files and directories must be members of the iProcess group (`staffwar`). For example, users who need to run `swutil`, or to use the `SERVERRUN` commands that access files under `SWDIR`.

Specifying How iProcess Validates Users

Lines 15 and 16 of the `staffpms` file define whether and how iProcess uses the integral User Validation API provided with the `LDAPCONF` utility.

Specifying an External User Validation Package

Line 15 defines whether the iProcess Suite validates users against O/S user accounts (the default), or against an external validation package developed using the TIBCO iProcess User Validation API.

This line is optional. If you are using the default method of validating users against O/S accounts, line 15 should be blank.

If you want to validate users against an external validation package, line 15 must contain the full pathname of the user validation package (a DLL file on Windows, a shared library on UNIX). Note that:

- The pathname must contain a leading drive letter and UNIX style separators (/).
- Variables such as SWDIR are not supported in this parameter.

The following example (for the iProcess Engine for Windows) specifies that user validation will be performed against the swuvamod.dll file in the D:/iProcess/staff200/lib directory.

```
d:/iProcess/staff200/lib/swuvamod.dll
```

The following example specifies that user validation will be performed against the UVAPI.dll file in the C:/Tibco/iprocess_nod1/util directory and that the proxy users are supplied by swadmin.


```
C:/Tibco/iprocess_nod1/util/UVAPI.dll\N\swadmin\\
```

For more information about how to:

- Develop an external validation package, see *TIBCO iProcess User Validation API User's Guide*.
- Install an external validation package, see the Installation guide for *TIBCO iProcess User Validation API*.
- Use the integral user validation API provided with LDAPCONF, see *LDAPCONF Utility User's Guide*.

Specifying a Proxy User

Line 16 defines which proxy operating system user ID is used by the LDAP integral user validation API.

 **Note:** This line applies only to UNIX and Linux systems.

This line is optional. If you are not using the LDAP integral user validation API, line 16 should be blank.

Configuring Signals That Threads are Blocked From Receiving

Line 17 allows you to specify threads to be blocked from receiving signals.

For example, to add blocking for the SIGALRM (14) signal the last few lines of the file will look like this:

```
QPARAM1\QPARAM2\QPARAM3\QPARAM4\CP_V...
    <blank line - unless UVAPI is configured>
    <blank line>
    14
```

If you want to add more signals to the list they will need to be separated by the '\' character:

```
QPARAM1\QPARAM2\QPARAM3\QPARAM4\CP_V...
    <blank line - unless UVAPI is configured>
    <blank line>
    14\13\12\\
```

If the line is blank or there are no signal IDs set then the default behavior is not to block the threads from receiving signals.

Configuring Log Files Directory

To make the log files directory configurable, specify the directory in line 19.

i Note: Ensure that the log files directory you specify is available and has the same permissions to access it as the original log files directory.

To configure the log files directory, perform the following steps:

1. Log in to iProcess Engine as Administrator.
2. Stop iProcess Engine (if it is running).
3. Create a folder where you want to save the log files, and give the same permissions to access them as the original log files folder.

4. Open the `staffpms` file located in the `SWDIR\etc` directory. Then copy the absolute directory of the folder you created in step 3 to line 19 of the file.
5. Restart iProcess Engine.

If line 19 is blank, then iProcess Engine will use the `SWDIR\logs` directory as the default log files directory.

SWDIR\etc\sqloptim

The `sqloptim` file, which is located in the `SWDIR/etc` directory, specifies database hints or optimizers in SQL statements for database operations.

This configuration file only supports the following sqlIDs:

20, 21, 101, 139, 380, 456, 457, 461, 490, 502, 632.

SWDIR\etc\language.lng\audit.mes

This file contains the system-defined audit trail messages. These are added to the audit trail by the system each time an action of some sort is performed on the step in the case. These messages are pre-defined in the `audit.mes` file, which is located in the `SWDIR\etc\language.lng` directory. Each message has a three-digit number that is the message ID of the audit trail message. The system reserves Message IDs 000-255 for system use.

See [Understanding Audit Trails](#) for an explanation of the system-defined messages and what they mean.

SWDIR\etc\language.lng\auditusr.mes

This file contains the user-defined audit trail messages. You must predefine these messages in the `auditusr.mes` file, which is located in the `SWDIR\etc\language.lng` directory. Once, you have predefined the audit trail messages, they can be added to the audit trail of a live case. You can use the `AUDIT` command under the `SWDIR\bin\swutil` directory to add a message to an audit trail of a live case. For information about adding

user-defined audit entries, see “Audit Trails” in *TIBCO iProcess swutil and swbatch Reference Guide*.

SWDIR\etc\language.lng\stafferr.mes

This file contains the messages used by the \$SYSTEM procedure.

The \$SYSTEM procedure sends a work item to the iProcess Engine Administrator’s work queue when the sw_warn or sw_error files, which are located in the SWDIR\logs directory, have been generated, warning the system administrator that an error has occurred. For more information, see [iProcess Engine Log Files](#).

SWDIR\etc\language.lng\staffw.mes

This file contains some configurable messages that affect how the long date is displayed in TIBCO iProcess Workspace.

Changing the Long Date Format

For information on using the long date and time format in an iProcess step definition, see “Using Embedded and Ampersanded Fields” in *TIBCO iProcess Modeler Basic Design*.

The staffw.mes file, which is located in the SWDIR\etc\language.lng directory, determines how the long date is displayed by iProcess Workspace. The long date information is returned from the staffw.mes file, which is located in the SWDIR\etc\language.lng directory, instead of the staffpms file, which is located in the SWDIR\etc\language.lng directory, because it enables different users on the same system to have different long date displays depending on their LANGUAGE attribute.

**Note**

See “Setting Pre-defined Attributes” in *TIBCO iProcess Workspace (Windows): Manager's Guide* for more information about how to set a user’s LANGUAGE attribute.

To ensure the date is displayed consistently in both TIBCO iProcess Workspace and iProcess Engine, the information in the staffw.mes and staff.mes files, which are located

in the SWDIR\etc\language.lng directory, must be the same. This means that any changes must be made in both files.

The following example is an extract from the staffw.mes file, which is located in the SWDIR\etc\language.lng directory:

```
0004:W:\%s %s, %s\%dmy\ AM\ PM\Week
0013:W: Sunday\Monday\Tuesday\Wednesday\Thursday\Friday\Saturday$
0014:W: January\February\March\April\May\June\July\August\September\October\November\December
```

The file is divided into one message per line. The messages that determine how the long date is displayed are:

- 0004 specifies each component of the long date.
- 0013 specifies the days of the week.
- 0014 specifies the months of the year.

Each message is in the format:

number:type:data

where:

- *number* is the identifier for this message. For example, 0004.
- *type* is either w, indicating that the message is used by TIBCO iProcess Workspace, or blank, indicating that the message is used by iProcess Engine.
- *data* is one or more data entries associated with this message. If there are multiple data entries, each entry is separated by a backslash (\) character.

For example, the following table describes the data entries for message 0004.

Position	Data	Description
1		Not used.
2		Not used.
3	%s %s, %s	The number of components used to specify each part of the long date format. Each component represents the date, month, and year. For example, 10 March, 2004.

Position	Data	Description
4		Not used.
5	dmy	The order of the date format.
6		Not used.
7		Not used.
8	AM	Used for 12 hr time format. For example, 09:10 AM.
9	PM	Used for 12 hr time format. For example, 03:12 PM.
10	Week	Not used.

To change the long date format, for example, to Wednesday 12 Dec, 2012:

1. Edit message 0004 of the `staff.mes` file located in the `SWDIR\etc\language.lng` directory as follows:
 - Add `%s` to position 3 to represent the day of the week, as shown .
 - Add `w` to position 5 to represent the day of the week, as shown .
 - Edit message 0014 to use short month names rather than long ones. For example, Dec instead of December.

```
0004:W:\%s %s %s, %s\wdmy\\\ AM\ PM\Week
0013:W:Sunday\Monday\Tuesday\Wednesday\Thursday\Friday\Saturday$
0014:W:Jan\Feb\Mar\Apr\May\Jun\Jul\Aug\Sept\Oct\Nov\Dec
```

2. Replicate the changes made in the `staffw.mes` and the `staff.mes` files, which are located in the `SWDIR\etc\language.lng` directory.

SWDIR\etc\language.lng\staff.mes

This file contains some configurable messages and options that are used by some of the iProcess Engine programs, for example, the iProcess Background.

Changing the Long Date Format

To ensure the date is displayed consistently in both TIBCO iProcess Workspace and iProcess Engine, the information in the `staffw.mes` and the `staff.mes` file must be the same. This means that any changes must be made in both files.

The format of the `staff.mes` file is divided into messages in the same way as the `staffw.mes` file.

To see how to amend the format of the long date in the `staff.mes`, see [SWDIR\etc\language.lng\staffw.mes](#).

SWDIR\etc\swerwarn.mes

This file contains the templates for the messages that are written to the `sw_warn` and `sw_error` files, which are located in the `SWDIR\logs` directory. For more information, see [iProcess Engine Log Files](#).

Tuning the iProcess Engine Using SWDIR\etc\staffcfg Parameters

This section describes all of the parameters that you can use in the iProcess Engine staffcfg configuration file to optimize the performance of iProcess for your requirements. The parameters all relate to memory and process configuration information.

Editing the SWDIR\etc\staffcfg File



Warning: The default file contains several parameters most of which define the limits within which iProcess Suite is initially set up to work. There are many other parameters that when tuned, can give significant improvements in both performance and response.

You must be extremely careful when editing the staffcfg file. Careless changes can have a serious impact on system operation or performance. If you are in any doubt about whether or not to edit a specific parameter, please contact TIBCO Support for assistance.

If you want to add, remove, or update parameters in the staffcfg file, which is under the SWDIR\etc directory, perform the following steps:

1. Log in as a user who (on Windows) is a member of the iProcess Administrators group or, (on UNIX) as user root.
2. Edit the file as required.
3. If necessary, ask all users to log out of iProcess Suite, then stop and restart the server.

SWDIR\etc\staffcfg File Format

The staffcfg file is an ASCII file containing many lines, divided into functional sections.

- Each section is headed by the section name at the start of a line, followed by many configuration lines.
- Each configuration line starts with a TAB character followed by the configuration name (e.g. MAXCASES), followed by a comma (,) followed by the configuration value.
- Anything from a semicolon (;) to the end of the line is treated as a comment and ignored.

Using Multiple Copies of SWDIR\etc\staffcfg

You can use different copies of the staffcfg file to optimize performance. For example, you can create one version which is optimized for batch processing, to be used at night, and another version, which is optimized for user interaction, to be used during the day. You can then change the iProcess Suite's configuration by using batch files to:

1. Stop the server using the SWDIR\bin\swstop command. For more information, see [Stopping iProcess Engine](#).

i Note: You do not need to shut down Process Sentinels.

2. Copy the appropriate version of the staffcfg file to the **SWDIR\etc** directory.
3. Restart the server. For more information, see [Starting iProcess Engine](#).

SWDIR\etc\staffcfg Parameters

The remaining sections in this section describe all of the staffcfg parameters, which are located in the SWDIR\etc directory. Each section of the staffcfg parameter has a corresponding section in this section:

- [WQS Section](#)
- [FORM Section](#)
- [STAFFPRO Section](#)
- [STAFF Section](#)
- [DBSIZES Section](#)
- [DBPOOL Section](#)

- [CDQP Section](#)

WQS Section

This section is used to configure the behavior of the work queue services. The following parameters are available:

- [WQS_DEFAULTPRIORITY](#)
- [WQS_URGENTPRIORITY](#)
- [WQS_ROUND_ROBIN](#)
- [WIS_MAXFILEDESC](#)
- [WQS_QUEUE_WEIGHTING](#)
- [WQS_SHARED_MEMORY_QUEUES](#)
- [WIS_AGE_USE_WORKING_DAYS](#)

WQS_DEFAULTPRIORITY

Section

WQS

Initial Value

50

Units

N/A

Range

0 to 32767

Description

Sets the default priority level for a new work item, if not already set. For more information about this parameter, see “Using Work Item Priorities and Escalation” in *TIBCO iProcess Modeler Advanced Design*.

Tuning

Work items can have priorities so that they can be sorted/filtered, etc. by priority level. You need to decide how your system will use priority levels and then decide on a sensible default.

Related Parameters

None.

WQS_URGENTPRIORITY

Section

WQS

Initial Value

10

Units

N/A

Range

0 to 32767

Description

Sets the default Urgent Priority level for a new work item, if not already set. For more information about this parameter, see “Using Work Item Priorities and Escalation” in *TIBCO iProcess Modeler Advanced Design*.

Tuning

N/A

WQS_ROUND_ROBIN

Section

WQS

Default Value

0

Units

N/A

Range

0 (use on-demand) or 1 (use round-robin)

Description

The Work Queue Server is responsible for the assignment of work queues to WIS processes. There are two methods it can use, either round-robin or on-demand.

Tuning

This parameter configures which of the methods is used for the queue allocation. For more information about the use of each method, see [Configuring the Assignment of](#)

[Queues to WIS Processes.](#)

WIS_MAXFILEDESC

Section

WQS

Initial Value

0

Units

N/A

Range

>0

Description

The work item server process uses the select system call when waiting for client requests. It passes this the NOFILE/MAXFILES kernel parameter to receive as many clients as possible. This can cause a problem if this number is greater than FD_SETSIZE. If this happens, WIS_MAXFILEDESC can be set to a number greater than 0 but less than FD_SETSIZE.

WQS_QUEUE_WEIGHTING

Section

WQS

Initial Value

5

Units

N/A

Range

>0

Description

When using the on-demand queue allocation method, queues are allocated to Work Item Server (WIS) processes based on the cost of the work queue. The `WQS_QUEUE_WEIGHTING` parameter determines the cost of the work queues. See [Configuring the Assignment of Queues to WIS Processes](#) for more information about the on-demand queue allocation method.

Tuning

This setting allows control over how work queues are allocated to WIS processes. For example, the larger the value, the more that the number of work queues rather than the number of work items in the work queues determines whether a work queue is allocated to a WIS process. Therefore, if you have lots of work queues with an even amount of work items in each, you may want to increase the value of the `WQS_QUEUE_WEIGHTING` parameter. If you only have a few work queues that contain large amounts of work items, you may want to lower the value.

WQS_SHARED_MEMORY_QUEUES

Section

WQS

Initial Value

1000

Units

N/A

Range

>0

Description

Specifies the *minimum* amount of shared memory to be allocated when the WQS process starts up.

Tuning

Because shared memory cannot be resized, the WQS process must allocate a fixed amount of shared memory when it starts up, it allocates shared memory equal to twice whichever of the following values is greater:

- the WQS_SHARED_MEMORY_QUEUES value.
- the number of user and group queues defined on the system.



Note: Ensure that your system has enough shared memory configured for the WQS process to allocate. If it does not, the WQS process will be unable to start.

Depending on the number of queues you have defined, this value will therefore be at least:

$(\text{WQS_SHARED_MEMORY_QUEUES} * 2) * 1.2K$

For example, if WQS_SHARED_MEMORY_QUEUES is 1000, and the number of queues defined on the system is 1250, then the WQS process allocates 3000K of shared memory ($1250 * 2 * 1.2$). Your system must have at least 3000K of shared memory available for the WQS process.

i Note: For information about how to configure shared memory on your system, see your operating system documentation.

WIS_AGE_USE_WORKING_DAYS

Section

WQS

Initial Value

0

Units

N/A

Range

0 or 1

Description

Defines whether or not iProcess will escalate a work item's priority when its increment period expires. If the value is:

- 0 specifies a work item's priority will always escalate when its increment period expires, whether the current date/time is a working day or a non-working day (as defined in the staffpms file - see [SWDIR\etc\staffpms](#)).
- 1 specifies a work item's priority will only escalate if the current date/time is defined as a working day (in the staffpms file).

i Note: If the value of this parameter is set to 1, it only affects procedures that have the **Use Working Days** flag set in TIBCO iProcess Modeler.

For example, suppose that:

- on a Friday morning, a work item has a priority value of 10.
- its increment period is 1 day, and this period expires at 5 pm each day.
- the working week is defined in the staffpms file as Monday to Friday.

On the following Monday morning, the work item's priority value therefore is:

- 9 specifies if WIS_AGE_USE_WORKING_DAYS is set to 1 and the procedure's Use Working Days flag is set. (The priority value is incremented when the increment period expires on Friday, but is not incremented when it expires on Saturday and Sunday.)
- 7 specifies for any other combination of these settings. (The priority value is incremented when the increment period expires on Friday, Saturday and Sunday.)

FORM Section

This section enables you to configure TIBCO iProcess Engine form parameters. Changes made to this section take effect after you log out of iProcess and then back in again.

The following parameters are available:

- [MAX_SCRIPT_CALL_DEPTH](#)
- [MAXVLD](#)

MAX_SCRIPT_CALL_DEPTH

Section

FORM

Initial Value

10

Units

N/A

Range

>0

Description

Defines the maximum recursive depth for calling scripts from scripts. The default is 10 which means that you can call out recursively up to 10 scripts. Therefore, if you have 10 scripts (script1, script2, and so on) you can use the CALL expression in script1 to call script2 and script2 can call script3 and so on up to script10.

See “Creating Scripts” in *TIBCO iProcess Modeler Advanced Design* for more information about using scripts.

Tuning

N/A

MAXVLD

Section

FORM

Initial Value

50

Units

N/A

Range

>0

Description

The maximum number of validations that are added to a validations list with the VLDFILE or VLDQUERY functions.

Tuning

N/A

STAFFPRO Section

This section enables you to configure TIBCO iProcess Engine server processes and performance parameters. You need to stop and restart the server before any changes are applied.

The following parameters are available:

- [LDAP_DIT](#)
- [LDAP_POOL_SIZE](#)
- [MODTIME_PERM](#)
- [PROCDEF_CACHESIZE](#)
- [RESEND_ORIGINAL_TIMESTAMP](#)
- [LAST_MODIFIED_TIME](#)

LDAP_DIT

i Note: In previous iProcess Engine versions, this parameter was called X500_DIT. If you upgrade from a pre-Version 10.2.0 iProcess Engine, the X500_DIT parameter is left in the staffcfg file and can be manually deleted, if required.

Section

STAFFPRO

Initial Value

0

Units

N/A

Range

0 or 1

Description

Defines whether or not to obtain iProcess user data from an LDAP Directory Information Tree (DIT):

- 0 - iProcess user data is held internally.
- 1 - obtain iProcess user data from an LDAP DIT.

LDAP_POOL_SIZE

Section

STAFFPRO

Initial Value

10

Units

Connections

Range

>0

Description

This parameter specifies the LDAP connection pool size. It only applies if LDAP_DIT is set to 1.

Tuning

N/A

MODTIME_PERM

Section

STAFFPRO

Initial Value

0

Units

N/A

Range

0 or 1

Description

When you use LDAPCONF with Active Directory, the modified timestamp is returned with either a 'Z' or '0Z' at the end of the string depending on the version of Active Directory. A value of:

- 0 means use a 'Z' terminator for search.
- 1 means use a '.0Z' terminator for search.

PROCDEF_CACHESIZE

Section

STAFFPRO

Initial Value

5

Units

NA

Range

2-1000

Description

The number of procedure definitions to cache on the server computer.

Tuning

This value does not need to be larger than the number of procedures on your system.

LID_CLIENT_TIMEOUT

Section

STAFFPRO

Initial Value

60

Units

Seconds

Range

>0

Description

The time that the iProcess Workspace is not allowed to update the `sww.uid` file before being assumed to have logged out. This is to allow users to log back in from iProcess Workspaces after an abnormal iProcess Workspace shutdown.

Tuning

N/A

Related Parameters

[UIDCRPERIOD](#)

RESEND_ORIGINAL_TIMESTAMP

Section

STAFFPRO

Initial Value

0

Units

N/A

Range

0 or 1

Description

Sets the timestamp to be used for the Arrival Time of a work item when a resend is performed on a client queue:

- 0 means that the current timestamp (of the RESEND) is used.
- 1 means that the original timestamp (when the item was added to the queue) is used.



Note: If this parameter is not present, the system defaults to the current timestamp (0).

Tuning

N/A

LAST_MODIFIED_TIME

Section

STAFFPRO

Initial Value

0

Units

N/A

Range

0 or 1

Description

By default, when LDAPCONF performs a partial synchronization, it checks the LDAP `ModifyTimeStamp` attribute to determine whether an entry has been modified since the last update (and so needs to be downloaded to iProcess). However, some LDAP Admin applications modify this attribute when handling user logins and authentication, which means that LDAPCONF cannot use it in this way. You can therefore use the LDAP `lastModifiedTime` attribute instead, with LDAP servers that require it.

The `LAST_MODIFIED_TIME` parameter defines which LDAP attribute LDAPCONF should check when performing a partial synchronization:

- 0 means that LDAPCONF checks the LDAP `ModifyTimeStamp` attribute to determine whether an entry has been modified since the last update.
- 1 means that LDAPCONF checks the LDAP `lastModifiedTime` attribute to determine whether an entry has been modified since the last update.



Note: This parameter is not present by default. You must add it if required. If this parameter is not present, the system defaults to using the LDAP `ModifyTimeStamp` attribute (0).

Tuning

N/A

STAFF Section

This section enables you to configure the behavior of TIBCO iProcess Workspace. You have to stop and restart the server before any changes will take effect.

The following parameters are available:

- `UIDCRPERIOD`
- `RPCSVR_TIMEOUT`

- [PWD_PERIOD](#)
- [START_TX_RX](#)
- [RPCXFRSIZE](#)
- [MAX_USERS_PER_PROCESS](#)
- [PRE_LOAD_POOL_SERVERS](#)
- [USER_LOAD_ALLOCATION](#)
- [WQ_SORT_ITEM](#)
- [DYNDEADPRED](#)
- [IAPSCHEMA](#)
- [IAPSCHEMA2_1](#)

UIDCRPERIOD

Section

STAFF

Initial Value

30

Units

Seconds

Range

>0

Description

Defines the amount of time between a windows foreground login refresh.

Related Parameters

[LID_CLIENT_TIMEOUT](#)

RPCSVR_TIMEOUT

Section

STAFF

Initial Value

600

Units

Seconds

Range

>0

Description

This parameter defines the time an RPC server connection exists without being used.

TIBCO iProcess Workspace polls the RPC server (swrpcsvr) regularly to keep its connection alive. If the connection is lost for any reason, such as abnormal termination of the client, then the RPC server will wait for RPCSVR_TIMEOUT seconds without receiving a request before shutting down.

Tuning

There is generally no need to change this parameter as there should not be any need for it to come into effect.

The downside of having it set to a long period (such as an hour) is that if a single machine is switched off with iProcess running, then the RPC server will not shutdown until after that period.

PWD_PERIOD

Section

STAFF

Initial Value

15

Units

Minutes

Range

>0

Description

Defines the time interval between passwords being cached on clients.

Tuning

Reducing this value means that iProcess can detect changes in users' passwords made outside of iProcess more quickly. However, it can mean that iProcess checks for changes in user password more frequently causing a degradation in performance.

START_TX_RX

Section

STAFF

Initial Value

0

Units

N/A

Range

1 or 0

Description

Defines whether or not to start (1) server-to-server processes.

Tuning

None.

RPCXFRSIZE

Section

STAFF

Initial Value

4096

Units

Bytes

Range

512, 1024, 2048, 4096

Description

This setting determines the maximum buffer size used for client/server communication of stream data. This setting is primarily used when reading text files, forms, or memos from the server or for copying files down to the client.

As a significant amount of data needs to be read at login time increasing the size of this parameter can have benefits to log in time on large systems, particularly over WANs.

Adjusting this value enables you to tune the size and number of packets sent over the network.

Tuning

When considering network performance, particularly over a WAN, it is important to consider the number and size of requests being made over the network.

Any tuning of this parameter needs to take into account the characteristics of the network, in general increasing the size of this parameter to 4096 will reduce the number of network requests and therefore reduce the latency inherent in waiting for a request to be responded to. There may be circumstances on a busy WAN where sending large packets is blocking other requests and therefore causing poor response for other users.

In most cases, network performance problems in iProcess are not caused by the amount of data being transferred but the number of packets being sent. Therefore by increasing the value of `RPCXFRSIZE` many RPC calls can pass more data than before and therefore fewer calls are made. Even on a LAN, a single RPC round trip can take 25ms irrespective of the size of the packet, i.e. 20 bytes or 4K, therefore 200 RPC calls are likely to take 5 seconds. If by increasing the packet size only 50 RPC calls are made then the total time comes down to 1.25 secs.

Example

A procedure does a FileCopy from server to client of a 2Mb file.

Results

- With RPCXFRSIZE=1024 time to copy 2Mb to Client = 15 Sec.
- With RPCXFRSIZE=4095 time to copy 2Mb to Client = 8.5 Sec.

While this is a large file and not necessarily a typical operation, you can see there are some benefits.

MAX_USERS_PER_PROCESS

Section

STAFF

Initial Value

20

Units

Users

Range

>1

Description

Defines the number of users allocated to each RPC pool server. The iProcess Suite allocates users to the RPC pool servers, which have been started (or pre-loaded if you use PRE_LOAD_POOL_SERVERS), on a round-robin basis, by default. A new RPC server is started when there are no more allocated slots in the RPC servers currently running.

For example, where there are 8 RPC pool servers pre-loaded and 8 users logged on, you could have each person connected to a different RPC pool server.

Tuning

N/A

PRE_LOAD_POOL_SERVERS

Section

STAFF

Initial Value

0

Units

RPC pool servers

Range

-1, 0, or any positive integer

Description

Defines the number of RPC pool servers that you want to pre-load during the iProcess startup process.

Tuning

Setting this to a positive value results in the number of pool servers being started.

If you set the value to -1, the RPC server calculates the number of RPC pool servers to start up. The RPC server calculates this number using the MAX_USERS_PER_PROCESS value

and the number of users held in the iProcess Engine. For example, if there are 800 users and `MAX_USERS_PER_PROCESS` is set to 40, then 20 RPC pool servers will be started.

If the value is set to 0, pool servers are started up on-demand as users log in. This can slow the login process because users have to wait for the processes to be started.

Each client login is assigned to one of the RPC pool servers.

Related Parameters

[MAX_USERS_PER_PROCESS](#)

USER_LOAD_ALLOCATION

Section

STAFF

Initial Value

0

Units

N/A

Range

0 or 1

Description

Defines the process by which client connections are allocated to RPC pool servers.

Tuning

When set to the default value of 0, client login requests are allocated using a round-robin method where each client login is allocated to the next RPC pool server.

When set to 1, client requests are allocated to RPC pool servers by finding the pool server that has the least number of client connections. If all pool servers are full, a new process is created for the client request.

WQ_SORT_ITEM

Section

STAFF

Initial Value

0

Units

N/A

Range

0 or 1

Description

Defines whether the folders in the work queues list of the Work Queue Manager are sorted by Queue Name or Queue Description.

Tuning

When set to the default value of 0, or when not present in the `staffcfg` file, the list of work queues is sorted by Queue Name.

When set to 1, the list of work queues is sorted by Queue Description. Note that upper-case letters appear first after sorting, so the following descriptions:

- Manager1
- allenb

- Administrator
- richardH
- paulap

would appear sorted as follows:

- Administrator
- Manager1
- allenb
- paulap
- richardH

DYNDEADPRED

Section

STAFF

Initial Value

1

Units

N/A

Range

0 or 1

Description

Defines how the predicted step duration is to be calculated.

Tuning

- If the value is 1, then:
 - If the 'Use Deadline for Step Duration' flag is set, then use the deadline as the predicted duration.
 - If the 'Use Deadline for Step Duration' flag is not set, and the deadline is processed, then use the deadline as the predicted duration.
 - If the deadline is processed, and the duration is set, then use the deadline as the predicted duration.
- If the value is 0, then:
 - If the 'Use Deadline for Step Duration' flag is set, then use the deadline as the predicted duration.
 - If the 'Use Deadline for Step Duration' flag is not set, the deadline is not processed, and the duration is set, then use the configured duration for the predicted duration.
 - If the deadline is processed, and the duration is set, then use the configured duration for the predicted duration.

IAPSCHEMA

Section

STAFF

Initial Value

0

Units

N/A

Range

0 or 1

Description

This parameter controls whether messages generated by the IAPJMS process should be produced in the basic format or in the extended format that includes information on the audit user and addressee of the step, and the main procedure of a sub-case:

- 0 means that messages should be in a basic format
- 1 means that messages should be in an extended format

For more information about IAPJMS, see [Activity Monitoring and Work Queue Delta Configuration](#) and "Monitoring Activities" in *TIBCO iProcess Engine Architecture Guide*.

Tuning

N/A

IAPSCHEMA2_1

Section

STAFF

Initial Value

0

Units

N/A

Range

0 or 1

Description

This parameter controls whether messages generated by the IAPJMS process should be produced in basic format or in an extended format that includes Mail ID and extended step description. A value of:

- 0 means messages should be generated in basic format.
- 1 means messages should be generated with Mail ID and extended step description. The MailID and ExtDescription elements are created in the messages.
 - The MailID element can be used to build a tag for each work item.

The extended step description, along with the step description, is published with a minimum length of 48 bytes for the messages (with the activity ID 001).

Tuning

N/A

DBSIZES Section

This section enables you to specify the size of certain items in the database. Changes are applied only after stopping and restarting the server.

The following parameter is the only one available: [MEMOATTMAX](#)

MEMOATTMAX

Section

DBSIZES

Initial Value

64000

Units

Bytes

Range

NA

Description

Maximum size of Memos and Attachments.

Tuning

N/A

DBPOOL Section

This section enables you to configure database connection pool parameters. You have to stop and restart an iProcess process before any changes take effect in that process.

The following parameters are available:

- [POOLSIZE](#)
- [POOLGROWSIZE](#)
- [MAXPOOLSIZE](#)
- [POOLCONNTIMEOUT](#)

POOLSIZE

Section

DBPOOL

Initial Value

1

Units

Database connections

Range

>0

Description

Defines the initial size of the database connection pool.

Tuning

N/A

POOLGROWSIZE

Section

DBPOOL

Initial Value

2

Units

Database connections

Range

>0

Description

The size by which to grow the database connection pool.

Tuning

N/A

MAXPOOLSIZE

Section

DBPOOL

Initial Value

10

Units

Database connections

Range

>0 ; > POOLSIZE

Description

Defines the maximum size of the database connection pool. This value is used to calculate the maximum concurrent user connections needed on the database server by any iProcess process.

Tuning

N/A

POOLCONNTIMEOUT

Section

DBPOOL

Initial Value

600

Units

Seconds

Range

>0

Description

Defines the timeout value for database connections. This value is checked whenever a new database connection is requested, and any existing connections that have been inactive for longer than this value are terminated. This ensures that the database connection pool is not increased unless all existing connections are actually in use.

Tuning

N/A

CDQP Section

This section allows you to configure the use of Case Data Queue Parameters (CDQPs) on the server.

i Note: Changes to parameters in this section take effect when CDQP configuration is next imported, using `swutil QINFO`. For more information about CDQPs, see “Case Data Queue Parameters” in *TIBCO iProcess swutil and swbatch Reference Guide*.

The following parameters are available:

- [CDQPMAXGLOBAL](#)
- [CDQPMAXQUEUE](#)

CDQPMAXGLOBAL

Section

CDQP

Initial Value

60

Units

NA

Range

0 - 32767

Description

Defines the maximum number of CDQPs that can be defined on this server.

To disable the use of CDQP parameters, either set this parameter to 0 or delete it.

Tuning

N/A

Related Parameters

[CDQPMAXQUEUE](#)

CDQPMAXQUEUE

Section

CDQP

Initial Value

40

Units

NA

Range

0 - 32767

Description

Define the maximum number of CDQPs that can be mapped to a particular queue (including the default user and default group queues). If this value is higher than the CDQPMAXGLOBAL value, the CDQPMAXGLOBAL value will be used instead.

To disable the use of CDQP parameters, either set this parameter to 0 or delete it.

Tuning

N/A

Related Parameters

[CDQPMAXGLOBAL](#)

NETWORK Section

This section allows you to configure the network information.

The following parameter is the only one available: [IPPROTOCOL](#)

IPPROTOCOL

Section

NETWORK

Initial Value

4

Units

NA

Range

4 or 6

Description

Configure the Internet Protocol, Internet Protocol Version 4 (IPv4) or Internet Protocol Version 6 (IPv6). The values 4 and 6 indicate IPv4 and IPv6 respectively.

Tuning

N/A

Obsolete Parameters

The following `staffcfg` parameters are not used in this version of iProcess Engine.

When you upgrade, some of these parameters may be removed from the `staffcfg` file, others may remain. Those that do remain are, however, ignored by iProcess Engine.

Obsolete `staffcfg` Parameters

Parameter	Section	Notes
FGLITO	STAFF	No longer needed because the login daemon process that uses it no longer exists.
RNGMODE	STAFF	These parameters are no longer needed because port range configuration is now stored in the database, and can be configured by using the <code>swadm</code> utility. For more information, see Administering Firewall Port Ranges .
RNGBLOCKED	STAFF	
RNGTHRESHOLD	STAFF	
PORTSTART	STAFF	
RPCSTART	STAFF	
ALLOCRPCTIMEOUT	STAFF	
IS_ACTIVEDIRECTORY	STAFFPRO	Obsolete because the LDAPCONF setup process now prompts for this data.
QUEUEPROCTIME	STAFFPRO	
RUNPROCTIME	STAFFPRO	
SYSPROCS	STAFFPRO	
URDSLEEP	STAFFPRO	
USERPROCS	STAFFPRO	
CMSDELAY	STAFFCMS	

Parameter	Section	Notes
CREATIME	STAFFCMS	
CRXSIZE	STAFFCMS	
RPCTIME	STAFFCMS	
RXSLEEP	STAFFCMS	
TXSLEEP	STAFFCMS	
WIS_NEW_QUEUE_POLL_PERIOD	WQS	
WIS_CLIENT_IDLE_PERIOD	WQS	These parameters are no longer needed because the WIS process is now multi-threaded, and so can concurrently perform updates on queues and process RPC requests. For more information, see Overview .
WIS_MBOX_WORK_LIMIT	WQS	
WIS_RPC_SERVICE_PERIOD	WQS	
WIS_TOUT_GRANULARITY	WQS	
WQS_UPDATE_PERIOD	WQS	
WIS_WRITELOCKS	WQS	

Administering Servers

This section explains how to use the `SWDIR\util\swadm` server configuration utility to administer the server(s) hosting your iProcess Engine.

**Note:**

To use this utility, you must be logged in to iProcess Engine as an Administrator or (on UNIX) as a background or root user.

If you are using a node cluster architecture, you can run this utility from any server within the cluster (as long as that server has a connection to the TIBCO iProcess Engine database instance).

These commands read and update data in the `node_cluster` database table.

Show all Server Details

To display a list of the servers in your iProcess Engine, enter the following command:

```
swadm show_servers
```

Examples

1. This example shows the output from this command for an iProcess Engine that is installed as a single node, on server Despina.

# swadm show_servers				
Machine ID	Machine Name	Master	Check Error Files	Machine Comment
1	DESPINA	Y	Y	despina

2. This example shows the output from this command for an iProcess Engine that is installed as a node cluster, on servers Despina and Hades. The master Process

Sentinels are running on Despina and both servers are set to check for iProcess error files.

# swadm show_servers				
Machine ID	Machine Name	Master	Check Error Files	Machine Comment
1	DESPINA	Y	Y	despina
2	HADES	N	Y	hades (slave)

Update Server Details

To update the settings of a server in your iProcess Engine, such as the description of the server and whether it will check for the `sw_error` or `sw_warn` files, which are located in the `SWDIR\log` directory, you can use the following command:

```
swadm update_server machine_id | machine_name check_error_files machine_comment
```

where:

- *machine_id* is the server identifier (such as 1, 2, or 3).
- *machine_name* is the physical name of the server (such as Pluto or Hercules).
- *check_error_files* is used to define if the server checks for iProcess error files (the `sw_error` and `sw_warn` files). Replace *check_error_files* with one of the following values:
 - Y specifies Process Sentinels check for error files.
 - N specifies no error checking is performed.
- *machine_comment* is used to provide any notes for the server. This can be used to describe the function of the server such as `background_1` if it runs the background processes.

Example

If you want server `hades` in your iProcess Engine to start checking for error log files and have the description of `BG_processor_2`, you can change the setting of the server using the following command.

```
# swadm update_server hades Y BG_processor_2
```

Add a Server

You can add servers to your iProcess Engine at any time. For example, you can increase the amount of case processing by adding a server and starting more background processes.

To add a server to your iProcess Engine, use the following command:

```
swadm add_server machine_name master check_error_files machine_comment
```

where:

- *machine_name* is the physical name of the server you want to add.
- *master* is the parameter that specifies if you want the server to host the master Process Sentinels. Replace *master* with either:
 - Y specifies the master server
 - N specifies the slave server.
 - See “Process Management” in *TIBCO iProcess Engine Architecture Guide* for more information about the Process Sentinels architecture.
- *check_error_files* specifies whether Process Sentinels on this server check for the creation of the *sw_error* and *sw_warn* files.
 - Y specifies Process Sentinels check for errors.
 - N specifies no checking is performed.
- *machine_comment* is the text description added to identify the server.

Example

The following example adds server Pluto to iProcess Engine. It:

- Specifies that Pluto will run as a slave server and will check for iProcess error files.
- Sets its comment as *BG_processor_3*, indicating that it is the third server (in a node cluster) that runs background processes.

```
# swadm add_server pluto N Y BG_processor_3
```

Remove a Server

If you need to remove a server from your iProcess Engine, for example, to take a server offline and upgrade it, you can use the following command:

```
swadm delete_server machine_id | machine_name
```

where:

- *machine_id* is the server identifier (such as 1, 2, or 3) for the server you want to remove from iProcess Engine.
- *machine_name* is the physical name of the server (such as pluto).

Example

If you have four servers in your iProcess Engine (in a node cluster), and you need to take the server called Pluto offline to perform some kernel changes and upgrades, you can remove the server from the node cluster using the following command:

```
# swadm delete_server pluto
```

Alternatively, before removing the server from the cluster you can move the processes that currently run on the server to another server in the cluster using the `move_server` command on [Move Processes From One Server to Another](#). You can only move background processes individually.

i Note: If you remove a server that is running only background processes, users may notice a reduction in the performance of case processing. However, if you remove a server that is running foreground processes such as a WIS, all of the clients need to log out of and then log back in.

Find a Server's Details

To find out the configuration of a specific server in your iProcess Engine, use the following command:

```
swadm find_server machine_id | machine_name
```

where:

- *machine_id* is the server identifier (such as 1, 2, or 3) for the server you want to see the properties of.
- *machine_name* is the physical name of the server.

Example

The following example displays the configuration details for a server Despina. The master Process Sentinels are running on Despina and the server is set to check for iProcess error files.

# swadm find_server				
Machine ID	Machine Name	Master	Check Error Files	Machine Comment
1	DESPINA	Y	Y	despina

Find the Master Server

To find out which server is currently hosting the master Process Sentinels, enter the following command:

```
swadm find_master
```

Example

The following example shows that the server called Despina is currently configured to run the master Process Sentinels.

# swadm find_master				
Machine ID	Machine Name	Master	Check Error Files	Machine Comment
1	DESPINA	Y	Y	despina

Define a Server as the Master Server

Process Sentinels operate on each server involved in hosting your iProcess Engine, but one server has to be configured to host the master Process Sentinels. For more information about Process Sentinels, see “Process Management” in *TIBCO iProcess Engine Architecture Guide*.

If the master process fails or needs to be shut down, such as when upgrading the server, you can assign a new server to host the master Process Sentinels using the following command:

```
swadm set_master machine_id | machine_name
```

where:

- *machine_id* is the server identifier (such as 1, 2, or 3) on which you want the master Process Sentinels to run.
- *machine_name* is the physical name of the server on which you want the master Process Sentinels to run.

Example

To set the master Process Sentinels to run on the server called Hades, you would enter the following command.

```
# swadm set_master hades
The master machine has been set to machine hades.
```

Move Processes From One Server to Another

You can move all processes assigned to operate on one server to another server. You might want to do this if one server has failed or you need to take it offline to upgrade it.

Processes need to be stopped before you can move them. See [Issue a Shutdown Event](#) for more information.

Use the following command to move processes to another server:

```
swadm move_server machine_id machine_name
```

where:

- *machine_id* is the server identifier (such as 1, 2, or 3) of the source server.
- *machine_name* is the physical name of the destination server (such as Pluto).

Example

If you have two servers in your iProcess Engine (Despina that has a unique ID of 1, and Hades), you can move all the iProcess Engine server processes running on Despina to Hades using the following command.

```
# swadm move_server 1 hades
```

Administering iProcess Engine Server Processes

This section explains how to use the `swadm` server configuration utility to administer iProcess Engine server processes.

Introduction

There are three utilities that you can use to administer the iProcess Engine server processes:

- The `swadm` utility, which you can use to directly administer server processes. For more information, see [Using SWDIR\util\swadm to Administer Server Processes](#).
- The `swsvrmgr` utility, which you can use to administer server processes using Process Sentinels. For more information, see [Using SWDIR\util\swsvrmgr to Administer Server Processes](#).

i Note: The `swadm` utility directly updates the `process_config` database table, so any changes you make will still apply if iProcess Engine is restarted. By contrast, any changes you make using the `swsvrmgr` utility are lost if Process Sentinels fail or are restarted.

i Note: TIBCO recommends that you use iProcess Administration Console (iPAC) with added functionality. iProcess 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 like process attributes, MBox queues, databases, port ranges, debug settings, and so on.
- Monitor information such as processes, queue information, logs, and so on.

For more information about the iProcess Administration Console (iPAC), see TIBCO iProcess Administration Console User's Guide.

Server Processes

The following table shows the server processes that are initially set up when iProcess Engine is installed. The details of each process are stored in the `process_config` table. Note that:

- **Process Sentinels** are responsible for controlling all the TIBCO iProcess Engine processes. If a node cluster architecture is used, then Process Sentinels will exist on each server to manage the processes running on that server.
- **Foreground processes** are responsible for communicating with TIBCO iProcess Workspaces and for passing any TIBCO iProcess Workspace requests such as released work items to the background area for processing.

i Note: All foreground processes must run on the master server.

- **Background processes** are responsible for processing message instructions received from the clients such as releasing a step or forwarding a step. They also monitor and process any deadlines that have been set up in the procedure and manage case prediction.

Server Processes

Process Name	Process Description	Number of Processes	Name Shown in Task Manager ¹
Process Sentinels			
PROCMGR	Process Sentinel (worker)	1	procmgr.exe
PROCMGR	Process Sentinel (watcher)	1	procmgr.exe
Foreground Processes			
RPC_POOL ²	RPC pool server	1- <i>n</i>	SWRPCSVR.EXE
RPC_TCP_LI	RPC TCP listener	1	SWRPCSVR.EXE
RPC_UDP_LI	RPC UDP listener	1	swrpcudp.exe
WIS	Work Item Server	2	WISRPC.EXE
WISMBD	Work Item Server Mbox daemon	2	wismbd.exe
WQS	Work Queue Server	1	WQSRPC.EXE
Background Processes			
BG	Background Mbox daemon and Case Instruction processor	4	swbgmd.exe
BGPREDICT	Background case prediction server	1	swbgmd.exe

¹The Windows Task Manager. Not applicable on UNIX.

²This process does not get listed by `swadm show_processes` or `swsvrmgr status -v`.

Process Name	Process Description	Number of Processes	Name Shown in Task Manager ¹
DBQD ²	Database Queue Daemon	1	n/a
DIRECTOR	TIBCO iProcess Objects Director	1	SPODirector.exe
DLMGR	Deadline Manager	1	dImgr.exe
IAPJMS ³	IAPJMS process	1	iapjms.exe
RPCBG	RPC Background process	1	staffrpcbg.exe
SPO	TIBCO iProcess Objects Server	1	SWEntObjSv.exe

Sequence Number Caching

The iProcess Engine server processes use sequence numbers extensively in doing their work. A sequence number is simply a unique identifier for an object, such as a case number, wait ID, or request ID.

Sequence numbers are generated on an “as required” basis by calling a stored database procedure that accesses the sequence table. (This table contains an identity column. The procedure inserts a row into the table, returns the value of the identity column, then deletes the row.)

However, getting sequence numbers directly from the database in this way can create a performance bottleneck, because while one process is requesting a number it must block any other process from attempting to do so.

To minimize the effect of this bottleneck, you can assign caches of sequence numbers to a process, using process attributes. The process will get a sequence number from its cache

¹The Windows Task Manager. Not applicable on UNIX.

²Only present on the DB2 version of iProcess Engine.

³This process is disabled unless you have chosen to enable it when installing iProcess Engine.

when it needs one, and will only need to access the database to refresh the cache when it has run out of numbers.

The following table shows:

- The different sequence numbers that can be cached, and the process attributes that you need to set to cache them. (See [Administering Process Attributes](#) for more information about process attributes and how to set them.)
- The different processes that use each sequence number.

Sequence number (Process Attribute)	Process Name			
	BG	RPC_ POOL	SWBATCH	WIS
Case number (CNUM_SEQ_CACHE)	No, unless the system makes heavy use of sub-procedures.	Yes	Yes	Yes - used when starting new cases from TIBCO iProcess Workspace.
REQ ID (REQID_SEQ_CACHE)	Yes - A REQ ID is needed for each work item that is sent out.	Yes	Yes	Yes - used when starting new cases from TIBCO iProcess Workspace.
Wait ID (WIS_INDEX_REFRESH)	Yes, if waits are used in procedures.	No	No	No

i Note: If you use sequence number caching:

- Gaps may appear in the value of the sequence numbers. For example, if the BG process caches 50 REQ IDs when it starts up, processes one NEWCASE instruction, and then shuts down, the unused REQ IDs (2 to 50) will be lost.
- It is possible for a lower case number to be started after a higher case number. For example, suppose that a WIS has 50 case numbers (1 to 50) cached, and a user uses SWUTIL CSTART, which are located in the SWDIR\bin directory to start a case. The case will have case number 51 - the next available number in the sequence. However, if a user then starts a case through the WIS, that case will have case number 1 - the next available number in the cached sequence. Thus, the start date/time for case number 1 will be later than the start date/time for case number 51.

Using SWDIR\util\swadm to Administer Server Processes

You can use the swadm utility to view, run, delete and disable server processes.

i Note:

- To use this utility, you must be logged in to iProcess Engine as an Administrator or (on UNIX) as an iProcess Engine background user or root user.
- If you are using a node cluster architecture, you can run this utility from any server within the cluster (as long as that server has a connection to the TIBCO iProcess Engine database instance).

The following table summarizes the commands you can use to administer process attributes.

The following table summarizes the swadm commands you can use to administer server processes.

Command	Task
<code>swadm show_processes</code>	Show Server Processes
<code>swadm add_process</code>	Run a New Process
<code>swadm disable_process</code>	Disable a Process
<code>swadm enable_process</code>	Enable a Process
<code>swadm delete_process</code>	Delete a Process
<code>swadm evloopback</code>	Test Events

These commands read and update the `process_config` database table.

Show Server Processes

To display a list of the iProcess Engine server processes currently defined on your iProcess Engine, use the following command:

```
swadm show_processes -mmachine_id [-pprocess_name [-iprocess_instance]]
```

where:

- *machine_id* is the unique identifier for the server, assigned when the server is added to iProcess Engine. You can find a server's identifier using the `swadm show_servers` command.
- *process_name* is the process name of the server process.
- *process_instance* is the specific instance of the process.

The command lists the following information for each process:

- **Machine ID** is the unique identifier for the server, assigned when the server is added to iProcess Engine.
- **Process Name** is the process name of the server process.
- **Process Inst** is the specific instance of the process.
- **Enabled** is **Y** if the process is currently enabled, **N** if it is not.

- **Persistent** is Y if the process will be automatically restarted if iProcess Engine restarts, and N if it will not.

i Note: Whether or not a process restarts automatically is defined by the [PM_AUTO_BOOT](#) process attribute.

- **Last Status** is the last known status of the process - either starting, running, paused, shutting down, or stopped.
- **Status Comment** is a descriptive comment associated with the Last Status.

Example

The following command shows the processes currently defined on a server.

```
# swadm show_processes -m1
```

Machine ID	Process Name	Process Inst	Enabled	Persistent	Last Status	Status Comment
1	BG	1	Y	Y	Running	BG process started
1	BG	2	Y	Y	Running	BG process started
1	BG	3	Y	Y	Running	BG process started
1	BG	4	Y	Y	Running	BG process started
1	BGPREDICT	1	Y	Y	Running	BG process started
1	DIRECTOR	1	Y	Y	Running	DIRECTOR process started

1	DLMGR	1	Y	Y	Running	DLMGR process started
1	IAPJMS	1	Y	Y	Running	IAPJMS process started
1	RPCBG	1	Y	Y	Running	RPCBG process started
1	RPC_TCP_LI	1	Y	Y	Running	RPC listener process started
1	RPC_UDP_LI	1	Y	Y	Running	RPC listener process started
1	SPO	1	Y	Y	Running	SPO Server process started
1	WIS	1	Y	Y	Running	WIS process started
1	WIS	2	Y	Y	Running	WIS process started
1	WIS	3	Y	Y	Running	WIS process started
1	WIS	4	Y	Y	Running	WIS process started
1	WISMBD	1	Y	Y	Running	WISMBD process started

1	WISMBD	2	Y	Y	Running	WISMB process started
1	WQS	1	Y	Y	Running	WQS process started

Run a New Process

To start a new process running on a server, use the following command:

```
swadm add_process machine_id | machine_name process_name enabled
```

where:

- *machine_id* is the unique identifier for the server.
- *machine_name* is the descriptive name of the server.
- *process_name* is the process name of the server process you want to run.

If *process_name* is BG, BGPREDICT, DBQD, DLMGR, SPO, or DIRECTOR the process starts as soon as Process Sentinels re-cache the changes to the process_config table. If *process_name* is any other process (i.e. a foreground process), the process does not start until iProcess Engine is restarted.

- *enabled* is used to specify if you want the process to run immediately (Y) or whether it is added to the process_config table but is currently disabled (N).

Notes

All foreground processes (see [Server Processes](#)) must run on the master server.

Example

To start a new instance of the Background Mbox Daemon process on server2 so that it runs immediately, enter the following command:

```
# swadm add_process server2 bg Y
```

Disable a Process

You can temporarily disable a server process so that Process Sentinels will not start it. To prevent the process from running without removing the entry and configuration settings for it from the database tables, use the following command:

```
swadm disable_process machine_id process_name process_instance
```

where:

- *machine_id* is the unique identifier for the server on which the process is configured to run.
- *process_name* is the process name of the server process you want to disable.
- *process_instance* is the number of the process instance that you want to disable.

Example

To disable the second instance of the WIS process on the server with an ID of 3, you would enter the following command:

```
# swadm disable_process 3 WIS 2
```

Enable a Process

You can re-enable a process so that Process Sentinels can start it again using the following command:

```
swadm enable_process machine_id process_name process_instance
```

where:

- *machine_id* is the unique identifier for the server on which you want to enable the process.
- *process_name* is the process name of the server process you want to enable.
- *process_instance* is the number of the process instance that you want to enable.



Note: You must use the wsvrmgr utility to start the process. See [Using SWDIR\util\wsvrmgr to Administer Server Processes](#).

Notes

All foreground processes (see [Server Processes](#)) must run on the master server.

Example

To enable the second instance of the Background Mbox Daemon process on the server with an ID of 3, you would enter the following command:

```
# swadm enable_process 3 WISMBD 2
```

Delete a Process

To remove a process from a server, use the following command:

```
swadm delete_process machine_id process_name process_instance
```

where:

- *machine_id* is the unique identifier for the server that you want to remove the process from.
- *process_name* is the process name of the server process you want to delete.
If *process_name* is BG, BGPREDICT, DBQD, DLMGR, IAPJMS, SPO, or DIRECTOR, the process is removed as soon as Process Sentinels re-cache the changes to the process_config table. If *process_name* is any other process (i.e. a foreground process), the process is not removed until iProcess Engine is restarted.
- *process_instance* is the number of the process instance that you want to delete.

Example

If you want to remove an instance of a Background Mbox Daemon process so that instead of having four running instances of the process, you will only have three, enter the following command:

```
# swadm delete_process 2 bg 4
```

This command specifies that on the server with an ID of 2, the fourth instance of the Background Mbox Daemon (BG) process is removed.

Test Events

The iProcess Engine uses an event mechanism to handle the inter-process communication. If the event mechanism does not work normally, the functions based on event communication are disabled. For example,

- The processes cannot be managed.
- The change of process attributes cannot be updated in real-time.

The iProcess Engine allows you to test the event mechanism manually by using the following command:

```
swadm ev\loopback
```

If the event mechanism works correctly, a loopback message will be received. Otherwise, an error message is displayed.

When Process Sentinel starts, a START event is issued, or a SHUTDOWN event is issued, the event mechanism is tested automatically. For more information, see [Starting iProcess Engine](#), [Issue a Start-up Event](#), or [Issue a Shutdown Event](#).

Example

The following message is displayed if the events work correctly.

```
Events working correctly. Received loopback message in 1 second(s).
```

Otherwise, an error message similar to the following is displayed:

```
WARNING: Failed to receive the message in 10 seconds.
```

Using SWDIR\util\swsvrmgr to Administer Server Processes

The swsvrmgr utility is used to administer server processes using Process Sentinels. The Process Sentinels operate by subscribing to published internal events such as START a process or PAUSE a process. You can use swsvrmgr to trigger the event types that you want Process Sentinels to subscribe to and then implement.

See “Process Management” in the *TIBCO iProcess Engine Architecture Guide* for more information about the concepts of how Process Sentinels work.

To use this utility, you must be logged in to iProcess Engine as an Administrator or (on UNIX) as a background user or root user.

The following table summarizes the `swsvrmgr` commands you can use to administer server processes.

Command	Task
<code>swsvrmgr STATUS</code>	View Process Status
<code>swsvrmgr START</code>	Issue a Start-up Event
<code>swsvrmgr START_NEW</code>	Issue a Start New Event
<code>swsvrmgr RESTART</code>	Issue a Restart Event
<code>swsvrmgr SHUTDOWN</code>	Issue a Shutdown Event
<code>swsvrmgr PAUSE UNPAUSE</code>	Issue a Pause or Unpause Event
<code>swsvrmgr DUMPLOG</code>	Write a Shared Memory Debug Log File to Disk
<code>swsvrmgr RESYNCTIME</code>	Resynchronize Timestamps with Windows Time

View Process Status

To view the current state of the system and, optionally, all processes on the system, you can issue a `STATUS` event to list a status report on the screen using the following command line:

```
swsvrmgr STATUS [-v] [-T timeout]
```

where:

- `-v` displays the status of all processes on the system
- `timeout` is the optional timeout period that can be used to specify the time after which the command will terminate. If this is not specified, the default is 60 seconds.

The command lists the following information for each process:

- Machine ID is the unique identifier for the server, assigned when the server is added to the iProcess Engine.
- Proc Name is the process name of the server process.
- Proc Inst is the specific instance of the process.
- Status is the current status of the process - either starting, running, pausing, shutting down, or stopping.
- Comment is a descriptive comment associated with the Status.

Example

The example on the following page displays the system status and the status of all processes.

swwrmgr STATUS -v				
Machine ID	Proc Name	Proc Inst	Status	Comment
1	BG	1	RUNNING	BG process started
1	BG	2	RUNNING	BG process started
1	BG	3	RUNNING	BG process started
1	BG	4	RUNNING	BG process started
1	BGPREDICT	1	RUNNING	BG process started
1	DIRECTOR	1	RUNNING	DIRECTOR process started
1	DLMGR	1	RUNNING	DLMGR process started
1	IAPJMS	1	RUNNING	IAPJMS process started
1	RPCBG	1	RUNNING	RPCBG process started
1	RPC_TCP_LI	1	RUNNING	RPC listener process started

swsvrmgr STATUS -v				
Machine ID	Proc Name	Proc Inst	Status	Comment
1	RPC_UDP_LI	1	RUNNING	RPC listener process started
1	SPO	1	RUNNING	SPO Server process started
1	WIS	1	RUNNING	WIS process started
1	WIS	2	RUNNING	WIS process started
1	WISMBD	1	RUNNING	WISMBD process started
1	WISMBD	2	RUNNING	WISMBD process started
1	WQS	1	RUNNING	WQS process started
Current System Status : 'RUNNING'				

Issue a Start-up Event

To start the entire iProcess Engine node or start individual processes, you can issue a START event so that Process Sentinels receive the published event and start the required processes.

To issue a START event, use the following command:

```
swsvrmgr START [ machine_name | machine_id [ process_name [ process_instance ] ] ]
[-T timeout]
```

where:

- *machine_name* is the name of the server.
- *machine_id* is the unique identifier of the server. You can find a server's identifier using the `swsvrmgr status` command.
- *process_name* is the process name of the server process you want to start and must be one of these: BG, BGPREDICT, DBQD, DLMGR, IAPJMS, SPO or DIRECTOR. If any other process name is specified, the command fails and an error message is displayed.

- *process_instance* is the instance of the process to start.
- *timeout* is the optional timeout period that can be used to specify the time after which the command will terminate. If this is not specified, the default is 60 seconds.



Note: When you issue a START event, the `swsvrmgr` utility will test events automatically. If the events do not work, Process Sentinels will not start processes. For more information, see [Test Events](#).

Notes

All foreground processes (see [Server Processes](#)) must run on the master server.

Example

To start the third instance of the background process (BG) that is operating on the computer called Hercules using the default timeout, you would issue the following command:

```
swsvrmgr START hercules bg 3
BG 3 STARTED
Process(es) successfully started
```

Issue a Start New Event

You can issue a START_NEW event to start many temporary instances of a process. These instances will not be restarted if iProcess Engine is restarted. For example, you may want to start a new background process to cope with a short peak in demand.

To issue a START_NEW event, use the following command:

```
swsvrmgr START_NEW [ machine_name | machine_id [ process_name [instances]] ] [-T timeout]
```

where:

- *machine_name* is the name of the server.
- *machine_id* is the unique identifier of the server. You can find a server's identifier using the `swsvrmgr status` command.

- *process_name* is the process name of the server process you want to start and must be one of these: BG, BGPREDICT, DBQD, DLMGR, IAPJMS, SPO, or DIRECTOR. If any other process name is specified, the command fails and an error message is displayed.
- *instances* is the number of instances of the process to start.
- *timeout* is the optional timeout period that can be used to specify the time after which the command will terminate. If this is not specified, the default is 60 seconds.

Notes

All foreground processes (see [Server Processes](#)) must run on the master server.

Example

To start an additional instance of the background process (BG) that is operating on the computer called Hercules using the default timeout, you would issue the following command:

```
swsvrmgr START_NEW hercules bg 1
BG 5 STARTED
Process(es) successfully started
```

Issue a Restart Event

You can issue a RESTART event to manually restart a suspended process (one that has stopped and not been automatically restarted).

To issue a RESTART event, use the following command:

```
swsvrmgr RESTART [ machine_name | machine_id [process_name [instance]] ]
[-T timeout]
```

where:

- *machine_name* is the name of the server.
- *machine_id* is the unique identifier of the server. You can find a server's identifier using the `swsvrmgr status` command.
- *process_name* is the process name of the server process.
- *instance* is the instance of the process to restart.

- *timeout* is the optional timeout period that can be used to specify the time after which the command will terminate. If this is not specified, the default is 60 seconds.

Example

To restart the third instance of the background process (BG) that is operating on the computer called Hercules using the default timeout, you would issue the following command:

```
swsvrmgr RESTART hercules bg 3
BG 3 STARTED
Process(es) successfully started
```

Issue a Shutdown Event

You can issue a SHUTDOWN event to shut down:

- The complete system i.e. all processes are stopped.
- A particular server (in a node cluster).
- Specific types of processes.
- Individual instances of processes.

To issue a SHUTDOWN event, use the following command:

```
swsvrmgr SHUTDOWN [machine_name | machine_id [process_name [instance]]]
[-T timeout]
```

where:

- *machine_name* is the name of the server.
- *machine_id* is the unique identifier of the server. You can find a server's identifier using the swsvrmgr status command.
- *process_name* is the process name of the server process you want to stop and must be one of these: BG, BGPREDICT, DBQD, DLMGR, IAPJMS, SPO, or DIRECTOR. If any other process name is specified, the command fails and an error message is displayed.
- *instance* is the instance of the process to stop.
- *timeout* is the optional timeout period that can be used to specify the time after which the command will terminate. If this is not specified, the default is 60 seconds.

i Note: When you issue a SHUTDOWN event, the `swsvrmgr` utility will test events automatically. If the events do not work, Process Sentinels will not stop processes. For more information, see [Test Events](#).

The result of the attempt to shutdown each process is displayed on the screen and a final status is displayed at the end.

Example

The following command shuts down the third instance of a background process on the server with Machine ID 1.

swsvrmgr shutdown 1 BG 3				
Attempting to stop 1 processes				
Machine ID	Proc Name	Proc Inst	Status	Comment
1	BG	3	SHUTTING DOWN	Normal Shutdown

Issue a Pause or Unpause Event

You can issue a PAUSE event to pause:

- The complete iProcess system.
- A server and all the processes running on it.
- Process types.
- Individual instances of processes.

The following server processes can be paused:

- WIS Mbox Daemon (WISMBD)
- Work Item Server (WIS)
- Background (BG)
- Case Prediction Server (BGPREDICT)

- Deadline Manager (DLMGR)
- Database Queue Daemon (DBQD)

Similarly, you can issue an UNPAUSE event to restart any previously PAUSED process.

To issue a PAUSE or UNPAUSE event, use the following command:

```
swsvrmgr PAUSE | UNPAUSE [machine_name | machine_id [process_name [instance]]] [-T timeout]
```

where:

- *machine_name* is the name of the server.
- *machine_id* is the unique identifier of the server. You can find a server's identifier using the swsvrmgr status command.
- *process_name* is the process name of the server process you want to stop.
- *instance* is the instance of the process to stop.
- *timeout* is the optional timeout period that can be used to specify the time after which the command will terminate. If this is not specified, the default is 60 seconds.

Example

The following command pauses the third instance of the background process on server Hercules.

```
swsvrmgr PAUSE hercules BG 3
BG 3 PAUSED
Process(es) successfully paused
```

The following command restarts the same background process.

```
swsvrmgr UNPAUSE hercules BG 3
```

Write a Shared Memory Debug Log File to Disk



Note: You must use this command when explicitly requested to do so by TIBCO Support.

To write a shared memory debug log file for a process, use the following command:

```
swsvrmgr DUMPLOG [machine_name | machine_id [process_name [instance]]]
```

where:

- *machine_name* is the name of the server.
- *machine_id* is the unique identifier of the server. You can find a server's identifier using the `swsvrmgr status` command.
- *process_name* is the process name of the server process you want to create a debug log file for.
- *instance* is the instance of the process you want to create a debug log file for.

When this command is issued, all debug in the process' debug shared memory segment is written to the following file, which is located in the `SWDIR\logs` directory:

```
ProcessName_TimeStamp_ProcessID.dmp
```

Resynchronize Timestamps with Windows Time

i Note: This command is only relevant if you are running iProcess Engine on a Windows system.

To manually force iProcess Engine to resynchronize its timestamps with Windows system time, use the following command:

```
swsvrmgr RESYNCTIME [machine_id]
```

where *machine_id* is the unique identifier of the server that you want to resynchronize. If you omit this parameter, time will be resynchronized on all servers in the iProcess Engine node.

i Note: For more information about keeping iProcess Engine timestamps and Windows time synchronized, see the description of the [WINTIME_RESYNC_PERIOD](#) process attribute on [WINTIME_RESYNC_PERIOD](#).

Administering Process Attributes

This section describes how to use the `swadm` server configuration utility, which is located in the `SWDIR\util` directory, to administer iProcess Engine process attributes.

Each iProcess Engine server process can have associated attributes to specify how the process operates. Process attributes and their values are stored in the `process_attributes` database table.

Using `SWDIR\util\swadm` to Administer Process Attributes

You can use the `swadm` utility to view, set, and delete process attributes. Note that:

- To use this utility, you must be logged in to iProcess Engine as an Administrator or (on UNIX) as a background user or root user.
- If you are using a node cluster architecture, you can run this utility from any server within the cluster (as long as that server has a connection to the TIBCO iProcess Engine database instance).

The following table summarizes the commands you can use to administer process attributes.

Command	Task
<code>swadm show_all_attributes</code>	Display All Process Attributes
<code>swadm set_attribute</code>	Set a Process Attribute
<code>swadm delete_attribute</code>	Delete a Process Attribute

Display All Process Attributes

You can display a list of all process attributes and their values that are currently defined on iProcess Engine.

You can set a filter for attribute names so that you can either display all attributes on all servers or display all attributes of a certain name on all servers by using the following command:

```
swadm SHOW_ALL_ATTRIBUTES [attribute_name]
```

where *attribute_name* is the (optional) name of the process attribute that you want to restrict the search by. For a list of valid process attribute names, see [Alphabetical List of Process Attributes](#).

Set a Process Attribute

You can set up a new attribute for a specific server process or update an existing entry using the following command:

```
swadm SET_ATTRIBUTE machine_id process_name process_instance attribute_name attribute_value
```

where:

- *machine_id* is the unique identifier for the server. If you specify a value of 0, the command will apply to all servers in iProcess Engine.
- *process_name* is the name of the iProcess Engine process. If you specify a value of ALL, the command will apply to all process types.
- *process_instance* is the instance number of the process. If you specify a value of 0, the command will apply to all instances of the process.
- *attribute_name* is the name of the attribute to be set.
- *attribute_value* is the value for the specified process attribute.

Example

A company's office in California (Pacific Standard Time, GMT-08:00) wants to run cases of procedures that are hosted on a node running on a machine in the company's administrative center in Washington D.C. (Eastern Standard Time, GMT-05:00).

To configure iProcess Engine to use Pacific Standard Time, use the following command:

```
swadm set_attribute 0 ALL 0 TIMEZONE "PST8"
```

Delete a Process Attribute

You can remove a process attribute from a server process so that the attribute no longer affects the process and is removed from the `process_attributes` table. Use the following command to delete a process attribute:

```
swadm DELETE_ATTRIBUTE machine_id process_name process_instance attribute_name
```

where:

- *machine_id* is the unique identifier for the server. If you specify a value of 0, the command will apply to all servers in iProcess Engine.
- *process_name* is the name of the iProcess Engine process. If you specify a value of ALL, the command will apply to all process types.
- *process_instance* is the instance number of the process. If you specify a value of 0, the command will apply to all instances of the process.
- *attribute_name* is the name of the attribute to be deleted.

Example

If the third instance of the BG process keeps failing but it has been set up to automatically restart, you can stop it restarting while you investigate the reason why it keeps failing. Enter the following command:

```
swadm delete_attribute 1 bg 3 process_auto_restarts
```

Alphabetical List of Process Attributes

The following table describes the available process attributes.

Note: Process attributes that are used by the DIRECTOR process are not listed in this table. See *TIBCO iProcess Objects Director Administrator's Guide* for more information about attributes that are used by the DIRECTOR process.

Attribute	Description
AUDIT_CASEDATA_CHANGED	Defines whether or not to log the case data changes in the audit trail when these changes are made by iProcess Insight, iProcess Workspace (Browser), or the setCaseData TIBCO iProcess Server Objects interface, rather than by normal step processing.
AUDIT_OPENKEEP	Controls whether the Open Work Item and Keep Work Item audit trail entries are enabled.
AUTO_PURGE_DELAY	Defines the number of days to delay the auto-purge operation.
BG_LEAVER_DESTINATION	Defines the destination queue to which work items are redirected when the owner of the work items has been deleted.
BG_LEAVER_SUPER_AS_DEST	Defines the redirect location of work items for a currently deleted user.
BG_MAX_ACTIONS_PER_TRANS	Defines the limit of actions per workflow transaction.
CCOUNT_CACHE_REFRESH	Enables you to define the refresh period for updating the cached list of cases currently on the system.
CHECK_EAIWITHDRAW_ONPURGE	Defines whether or not iProcess checks if any outstanding delayed-release EAI steps have been successfully withdrawn before committing the purge transaction.
CHECKFREQ	Defines the number of loops to process before the background process checks for <code>sw_error.log</code> files, which are located in the <code>SWDIR\logs</code> directory and available disk space.
CNUM_SEQ_CACHE	Defines the number of case numbers to be cached.

Attribute	Description
CSTART_AUTO_REFRESH	Defines whether or not the list of available procedures in the TIBCO iProcess Workspace's Case Start dialog is automatically refreshed.
DBGMEMSIZE_KB	Defines the size of the shared memory segment (in Kb) that should be allocated for shared memory debug logs.
DBQD_MAX_CACHED_MESSAGES	Defines the number of messages that are cached by the DBQD process when it requests a block of messages from a database message queue.
DBQD_MAX_FILE_SESSIONS	Defines the number of concurrent threads that the DBQD process uses to process RPC requests for messages from its cache from BG or WISMBD processes.
DEF_MAJOR_VERSION	Defines the default major version number that TIBCO iProcess Modeler will use when a new procedure is saved.
DEF_MINOR_VERSION	Defines the default minor version number that TIBCO iProcess Modeler will use when a new procedure is saved.
DEPLOY_XSL_OUTPUT_ENCODING	Defines the character set to be used for output encoding.
DISABLE_CASE_COUNTING	Defines whether case counts are displayed for procedures in the Live (Dead) Cases column of the Case Administrator dialog box, when a user starts iProcess Administrator from iProcess Workspace (Windows).
DISABLE_USER_CHECK	Defines whether or not a new user name is validated as an O/S user account when you add an iProcess user from the User Manager tool of TIBCO iProcess Administrator.
DISABLE_USER_LIST	Defines whether or not the Possible iProcess User List button is displayed in the User Manager tool of TIBCO iProcess Administrator.
DMD_PROCESS_INTERVAL	Defines the times during the day when the Deadline Manager checks the iProcess database for expired deadlines.

Attribute	Description
EAI_NEEDS_MSRTC	Defines the EAI server plug-ins that need to use the Microsoft Distributed Transaction Coordinator (MSDTC).
EAI_STEP_TIMEOUT	Defines a time threshold (in milliseconds) for the duration of processing an EAI step.
EMPTYMBOXSLEEP	Defines how long the Mbox Daemons will remain idle when all Mbox queues in the Mbox set are empty.
EMPTYMBOXSLEEP_INC	Defines the number of seconds to increment the EMPTYMBOXSLEEP value by when a BG or WISMBD process requests a message from an empty Mbox.
EMPTYMBOXSLEEP_MAX	Defines the maximum value (in seconds) that EMPTYMBOXSLEEP can be set to.
ENABLE_CASE_PREDICTION	Defines whether or not background case prediction is enabled on the node. Note: This attribute does not affect on live case prediction or case simulation.
ENABLE_JMX_LISTENER	Enables the JMX server that is loaded into RPC_TCP_LI to allow the existing clients to connect to the iProcess Engine. Note: This attribute is effective only after you restart the iProcess Engine.
EXACT_OPERATION_TIMESTAMP	Defines whether the audit_date timestamp, which is written in the audit_trail table, records when the user operates a specified instruction or when the BG processes a specified instruction.
FIL_PROCDEF_CACHE_SIZE	Defines the maximum number of procedure definitions that can be cached in memory by the BG, WIS and SPO processes.
FORCE_DEADLINE_	Defines a priority value for case deadlines that override all other

Attribute	Description
PRIORITY	priorities set for case deadlines.
FREE_WIS_SESSION	Defines whether the WIS session, which is used to retrieve work items, should be freed up in the WIS memory or not after the lock, keep, forward, release, undo, or unlock operation.
IAPJMS_LANGUAGE	Defines the character set to be used for output encoding for messages published to the IAPJMS process from the BG or WIS process.
IAPJMS_PORTNO	Defines the port number that is used for message communications between the BG process and the IAPJMS library.
IAPJMS_PUBLISH	Defines whether or not the BG process is enabled to publish audit activities to the IAPJMS process.
IAPJMS_ROLLBACK	Defines whether or not failed message transactions should be rolled back.
IAPJMS_SIMPLETOPIC	Defines whether or not the JMS topic name is static or dynamically configured at run-time.
IAPJMS_SYNCHRONOUS	Defines whether message delivery is synchronous or asynchronous.
IAPJMS_TIMEOUT	Defines how long the IAPJMS process should wait before it times out if there is a network error.
IAPJMS_TOPICNAME	Defines the topic name for the JMS destination if activity monitoring is enabled.
IGNORE_PACK_CHANGED	Defines whether users may keep or release work items even if pack data has changed.
IQL_RETRY_COUNT	Defines how many times a failed message in a message queue is retried before being moved to the exception queue.

Attribute	Description
IQL_RETRY_DELAY	Defines the delay (in seconds) between each retry attempt for a failed message in a message queue, before the message is moved to the exception queue.
JVMPROPS	Defines the JVM attributes that should be specified for the Java Virtual Machine when it is started.
LOGON_OS_LOCATION	Defines the default location where passwords should be validated when a user attempts to log in to this iProcess Engine node.
MAINCASE_START_AUTOCOMMIT	Defines whether or not to insert a Transaction Control step automatically as the first step of all main cases.
MAX_AGE_BEFORE_RESETPOST	Defines the time limit in seconds before the Deadline Manager will re-post unprocessed deadline messages.
MAX_PREDICTION_LOOPS	Defines the maximum number of times to loop during the prediction process.
MAX_SUB_PROCEDURE_DEPTH	Determines the maximum number of nested sub-procedures supported by the server.
MBSET_DEQUEUE_TIMEOUT	Defines a time threshold (in milliseconds) for the duration of dequeuing a message from an Mbox set.
MBSET_READ_BG	Defines the unique identifier of the Mbox set to be used by a BG process when dequeuing messages received from a WISMBD process.
MBSET_READ_PREDICT	Defines the unique identifier of the Mbox set to be used by a BGPREDICT process when posting case changes messages to a BG process.
MBSET_READ_WIS	Defines the unique identifier of the Mbox set to be used by a WISMBD process when dequeuing messages received from a BG process.
MBSET_WRITE_BG	Defines the unique identifier of the Mbox set to be used by a process

Attribute	Description
	when writing to a BG process.
MBSET_WRITE_PREDICT	Defines the unique identifier of the Mbox set to be used by a BGPREDICT process when posting case changes messages to a BG process.
MBSET_WRITE_WIS	Defines the unique identifier of the Mbox set (as defined in the mbox_set table) to be used by the BG process when writing to a WISMBD process.
MIGRATE_LIVE_CASES	Defines whether or not to migrate only live cases from previous versions to a new version when deploying from TIBCO Business Studio to TIBCO iProcess Engine.
MINFREEKB	Defines the amount of disk space (in Kilobytes) required for the background process to run.
MN_UNLOCKER	Defines who has permission to unlock the work items.
NORMALISE_CASE_DATA	Defines whether or not case data normalization is enabled.
OS_USER_LOCATIONS	Defines where iProcess Engine should obtain the list of users when it populates the Possible iProcess User List in the User Manager tool of TIBCO iProcess Administrator.
PM_AUTO_BOOT	Defines whether or not the Process Sentinels automatically start the server processes after the Process Sentinels have started.
PROC_VER_COMMENT	Defines whether or not, in TIBCO iProcess Modeler, a user has to enter a comment whenever they save a procedure.
PROC_VER_INC	Defines whether or not, in TIBCO iProcess Modeler, a procedure's version number will be incremented whenever it is saved.
PROC_VER_NUM_INSTANCES	Defines the maximum number of instances of a procedure version.

Attribute	Description
PROCESS_AUTO_DUMPLOG	Defines whether or not, if a process fails, the Process Sentinels automatically write to disk the contents of that process' debug shared memory segment.
PROCESS_AUTO_RESTARTS	Defines whether or not a server process will automatically restart after a failure.
PROCESS_MAX_RESTARTS	Defines the maximum number of times the Process Sentinels will attempt to restart a failed process.
PROCESS_MIN_RESTART_PERIOD	Defines time (in seconds) during which Process Sentinels suspends or restarts a failed process.
PROCESS_SLEEP	Defines the amount of time the Process Sentinels will remain idle for.
PUBLISH_SYS_EVENT_METHOD	Defines in which way you want to publish system events.
REQID_SEQ_CACHE	Defines the number of REQ IDs to be cached.
RESTART_SPO_CACHE_PROC	Determines how many of the latest versions of the procedure definition to cache when the iProcess Objects Server process restarts or quick starts.
RESTART_WIS_CACHE_THRESHOLD	Defines the number of items that must exist in a work queue for it to be cached when the WIS process restarts or quick starts.
RETRY_OFF_FOR_RAC	Determines whether to enable the retry function that retrieves work items from the staffo database table for the configured Oracle RAC.
RPC_BLOCK	Defines whether or not iProcess Workspace (Windows) can access iProcess Engine.
RPC_SVR_CONTROL	Allows the batching of RPC calls to reduce the overhead in

Attribute	Description
	processing RPC calls individually.
RPC_SVR_NUM_THREADS	Defines the maximum number of threads that the WIS and WQS processes can use to process RPC requests from client applications.
RPC_TIMEOUT	Defines the timeout period (in seconds) that an RPC request waits for a response from the iProcess Engine process.
SE_WORKER_PORTNO	Defines the port number that is used for message communications between the “worker” process (Process Sentinel) and the processes that audit system events if you want to publish system events using TIBCO Hawk Agent.
SEJMS_TOPICNAME	Defines the JMS topic name for the JMS destination that is used to publish system events, if publishing system events is enabled.
SHMKEY_ID	Defines the UNIX shared memory key that is allocated (using the ftok system call) when the WQS process is started.
SHUTDOWN_MIGRATION_MESSAGE	Defines whether or not to contain the audit trail message (with message ID 34), which writes the information about procedure migration, in the published Monitor Event Detail message.
SPO_CACHE_PROC	Determines how many of the latest versions of the procedure definition to cache when the iProcess Objects Server process starts normally.
SPO_USERMUTEX_WAITTIME	Defines the maximum amount of time (in milliseconds) that an iProcess Objects Server process should take to acquire for a mutual exclusion lock (mutex) before processing a message if multiple SSO clients use the same user name to log in to TIBCO iProcess Engine. If the time for acquiring a user’s mutex is over the time specified by the SPO_USERMUTEX_WAITTIME attribute, the duration will be recorded and later reported in the sw_warn log.
SUBCASE_START_AUTOCOMMIT	Defines whether or not to insert a Transaction Control step automatically as the first step of all sub-cases.

Attribute	Description
SWLIB_PATH	Defines the directory where the IAPJMS process will look for the Java libraries that it needs.
SYSTEM_EVENT_LOGGING	Defines whether you want to audit system events after installing or upgrading to TIBCO iProcess Engine 11.9.0.
TIMEZONE	Defines the time zone that this node will operate in.
UNPROCESSED_DL_POST_LIMIT	Sets a limit on the number of unprocessed deadline messages that are posted by the Deadline Manager.
USE_NEXT_MESSAGE_TO_DEQUEUE	Defines the ways to purge vast quantities of cases in the Oracle AQs.
USE_PRIORITY_DEADLINES	Defines whether to set the priority for the case deadlines by using the value of the SW_CP_VALUE field if the value of the FORCE_DEADLINE_PRIORITY attribute is set to the default value, 0.
WAITID_SEQ_CACHE	Defines the number of Wait IDs to be cached.
WARN_ERROR_LOG_SIZE	Defines the maximum size (in bytes) of the sw_warn and sw_error log files before the files stop logging error messages.
WINTIME_RESYNC_NOTICE	Defines the notice period (in seconds) that iProcess Engine processes are given before a resynchronization takes place.
WINTIME_RESYNC_PERIOD	Defines the interval (in seconds) at which iProcess Engine checks to see if its timestamps are in step with Windows system time.
WINTIME_RESYNC_TOLERANCE	Defines the interval (in seconds) at which iProcess Engine checks to see if its timestamps are in step with Windows system time.
WIS_CACHE_POOL_SIZE	Defines the size (in threads) of the pool of threads that is used to perform caching of work queues.
WIS_CACHE_	Defines the number of items that must exist in a work queue for it

Attribute	Description
THRESHOLD	to be cached when the WIS process starts normally.
WIS_CACHE_WAIT_TIME	Defines the maximum amount of time (in seconds) that an RPC processing thread in the WIS process waits for a work queue to be cached.
WIS_CDQP_DATA_RECACH_BATCH	Defines the number of work items that the CDQP update thread will update in a single operation when updating CDQP field values for a WIS process' queues.
WIS_CHECK_STAFFO_RETRY_COUNT	Defines the number of times the WIS process attempts to retrieve the unfound work items from the staffo database table because a delay occurred between two Oracle RAC instances. Note: This attribute is only used on configured Oracle RAC.
WIS_FILTER_THREAD_BOUNDARIES	Defines the count boundary at which a work queue will be split into multiple blocks of work for filtering purposes, based on the number of work items in the queue
WIS_FILTER_THREAD_POOL_SIZE	Defines the number of threads in the queue filtering thread pool, used to process additional blocks of filtering work
WIS_INDEX_REFRESH	Defines the interval (in seconds) after which an index on a queue will be refreshed by a WIS process.
WIS_LOCK_POOL_SIZES	Defines the number of locks in the internal lock pool used by the WIS process
WIS_NEW_ITEM_BATCH_SIZE	Defines the number of new item requests to be batched together.
WIS_QCHANGE_EXTENDED_CHECK	Defines whether or not a change in the lock status of a work item is counted as a change to the work item.
WIS_SESSION_TIMEOUT	Defines the timeout period (in seconds) after which a WIS process will automatically shut down, starting from the time at which it

Attribute	Description
	was last accessed (by a TIBCO iProcess Workspace, SAL application or TIBCO iProcess Objects Server).
<code>WIS_SESSION_TIMEOUT_SHUTDOWN</code>	Defines the timeout period (in seconds) after which a WIS process will automatically shut down, starting from the time at which iProcess Engine was shut down.
<code>WIS_UNCACHE_PERIOD</code>	<p>Defines the time (in minutes) after which the cached work queue that waits to be handled by the WIS process is cleared from the cache, starting from the time at which the client who last accessed this work queue logs off.</p> <p>Note: This attribute only applies to the work queues that contain work items with count less than the count defined in the <code>WIS_CACHE_THRESHOLD</code> attribute.</p>
<code>WIS_UPDATE_LENGTH</code>	Defines the maximum amount of time (in seconds) that the queue update thread in the WIS process performs updates before going back to idle state.
<code>WIS_UPDATE_PERIOD</code>	Defines how often the queue update thread in the WIS process wakes up and updates the queues handled by the WIS process.
<code>WIS_USE_PRIORITY_ESCALATION</code>	Allows the use of priority escalation in the WIS process to be disabled.
<code>WQDJMS_PORTNO</code>	Defines the port number that is used for work queue delta messages between the WIS process and the IAPJMS process.
<code>WQDJMS_TOPICNAME</code>	Defines the default topic name for the JMS destination used by the WIS process for work queue delta publication.
<code>WQS_GATHER_RPC_STATS</code>	Allows the gathering of RPC call stats within the WQS process to be configurable.
<code>WQS_NUM_SEARCH_SLOTS</code>	Defines the maximum number of slots available in the SWRPCMTS multi-threaded RPC server shared library for threads to perform

Attribute	Description
	queue searching.
WQS_PERSIST_SHMEM	Defines how often (in seconds) the contents of the WQS/WIS shared memory are written to the wqs_index table in the database.
WQS_WIS_USER_COUNT	Defines the number of WIS processes that should be dedicated to handling user queues and group queues respectively.
XPC_READ_UNCOMMITTED	Allows configuration of uncommitted reads during an XPC SELECT.

General iProcess Engine Configuration

The following process attributes allow you to configure general aspects of iProcess Engine behavior.

Attribute	Description
DBGMEMSIZE_KB	Defines the size of the shared memory segment (in Kb) that should be allocated for shared memory debug logs.
DEPLOY_XSL_OUT_ENCODING	Defines the character set to be used for output encoding.
EAI_NEEDS_MSDBC	Defines the EAI server plug-ins that need to use the Microsoft Distributed Transaction Coordinator (MSDTC).
ENABLE_JMX_LISTENER	Enables the JMX server loaded into RPC_TCP_LI to allow existing clients like Business Studio iProcess Plugin to connect to iProcess Engine. This is disabled by default.
EXACT_OPERATION_TIMESTAMP	Defines whether the audit_date timestamp, which is written in the audit_trail table, records when the user operates a specified instruction or when the BG processes a specified instruction.

Attribute	Description
FREE_WIS_SESSION	Defines whether the WIS session, which is used to retrieve work items, should be freed up in the WIS memory or not after the lock, keep, forward, release, undo, or unlock operation.
LDAP_UV	This attribute turns on and off the LDAP integral User Validation API.
LOGON_OS_LOCATION	Defines the default location where passwords should be validated when a user attempts to log in to this iProcess Engine node.
MIGRATE_LIVE_CASES	Defines whether or not to migrate only live cases from previous versions to a new version when deploying from TIBCO Business Studio to TIBCO iProcess Engine.
NORMALISE_CASE_DATA	Defines whether or not case data normalization is enabled.
RPC_TIMEOUT	Defines the timeout period (in seconds) that an RPC request waits for a response from the iProcess Engine process.
SPO_USERMUTEX_WAITTIME	Defines the maximum amount of time (in milliseconds) that an iProcess Objects Server process should take to acquire for a mutual exclusion lock (mutex) before processing a message if multiple SSO clients use the same user name to log in to TIBCO iProcess Engine. If the time for acquiring a user's mutex is over the time specified by the SPO_USERMUTEX_WAITTIME attribute, the duration will be recorded and later reported in the sw_warn log.
TIMEZONE	Defines the time zone that this node will operate in.
WARN_ERROR_LOG_SIZE	Defines the maximum size (in bytes) of the sw_warn and sw_error log files before the files stop logging error messages.
WINTIME_RESYNC_NOTICE	Defines the notice period (in seconds) that iProcess Engine processes are given before a resynchronization takes place.
WINTIME_	Defines the interval (in seconds) at which iProcess Engine checks to see if its timestamps are in step with Windows system time.

Attribute	Description
RESYNC_PERIOD	
WINTIME_RESYNC_TOLERANCE	Defines the interval (in seconds) at which iProcess Engine checks to see if its timestamps are in step with Windows system time.
XPC_READ_UNCOMMITTED	Allows configuration of uncommitted reads during an XPC SELECT.

DBGMEMSIZE_KB

General iProcess Engine Configuration

Summary

This attribute specifies the size of the shared memory segment (in Kb) that should be allocated for shared memory debug logs created either by the TIBCO iProcess Objects Server, or by using the `swsvrmgr DUMPLOG` command under the `SWDIR\util` directory.

Applies To

The attribute must be set for ALL processes.

Default Value

This attribute is not defined on a newly installed iProcess Engine node. In this case, the default value is:

Machine ID	Process	Instance	Value
0	ALL	0	256

The attribute only appears in the output of the `SHOW_ALL_ATTRIBUTES` command if you have explicitly assigned a value to it using the `SET_ATTRIBUTE` command. The default setting is not displayed

Notes

Setting this attribute allows the TIBCO iProcess Objects Server to size the shared memory segment that it uses to create shared memory debugging, without having to set a SAL debug string.

DEPLOY_XSL_OUT_ENCODING

General iProcess Engine Configuration

Summary

This attribute defines the character set to be used for output encoding for procedures imported to iProcess from TIBCO Business Studio. Specifying the correct character set ensures that the Description and Extended Description fields are displayed correctly.

Applies To

The attribute must be set for ALL processes.

Default Value

This attribute is not defined on a newly installed iProcess Engine. In this case, the default value is:

Machine ID	Process	Instance	Value
0	ALL	0	iso-8859-1

The attribute only appears in the output of the `SHOW_ALL_ATTRIBUTES` command if you have explicitly assigned a value to it using the `SET_ATTRIBUTE` command. The default setting is not displayed

Notes

The value of this attribute overrides any setting in the `xpd12xfr.xmlt` file.

EAI_NEEDS_MSDTC

General iProcess Engine Configuration

i Note: This attribute is only relevant to the Windows version of iProcess Engine. It does not affect the UNIX version.

Summary

This attribute defines the EAI server plug-ins that need to use the Microsoft Distributed Transaction Coordinator (MSDTC).

Applies To

The attribute can be set for the BG, BGPRDICT, and RPCBG processes.

Permissible Values

The attribute value must be a comma-delimited list of EAI step names. The name used should be the same name used to register the EAI server plug-in.

Default Value

The attribute is assigned the following default values when the iProcess Engine node is installed.

Machine ID	Process	Instance	Value
0	BG	0	EAICOM
0	BGPREDICT	0	EAICOM
0	RPCBG	0	EAICOM

Notes

You should set this attribute for any EAI server plug-ins that you develop that require the use of the MSDTC. If you don't do so, EAI steps using the plug-in may not function correctly or in a fully transactional manner.

i Note: Currently, the only TIBCO iProcess server plug-in that requires the use of the MSDTC is the TIBCO iProcess COM Server Plug-in. The default value for this attribute is therefore set to EAICOM.

When a BG process loads an EAI server plug-in, it will check to see if the plug-in's name is specified in the EAI_NEEDS_MSDTC value. If it is, it turns on the use of the MSDTC. For more information about:

- the MSDTC, see “What is MSDTC” in *TIBCO iProcess Engine Architecture Guide*.
- EAI server plug-ins, see [Managing EAI Step Server Plug-ins](#), and “Using Enterprise Application Integration (EAI) Steps” in *TIBCO iProcess Modeler Integration Techniques*.
- the EAI COM server plug-in, see *TIBCO iProcess COM Plug-in User's Guide*.

ENABLE_JMX_LISTENER

General iProcess Engine Configuration

Summary

This attribute enables the JMX server that is loaded into RPC_TCP_LI to allow the existing clients like Business Studio iProcess Plugin to connect to the iProcess Engine. This is disabled by default.

Applies To

The attribute must be set only for RPC_TCP_LI.

Default Value

This attribute is not defined on a newly installed iProcess Engine node. In this case, the default value is:

Machine ID	Process	Instance	Value
0	RPC_TCP_LI	0	ENABLE_JMX_LISTENER

Notes

By default the JMX server is disabled ie., the ENABLE_JMX_LISTENER process attribute does not exist.

To enable the JMX server in RPC_TCP_LI:

```
swadm set_attribute 0 RPC_TCP_LI 0 ENABLE_JMX_LISTENER 1
```

To disable the JMX server in RPC_TCP_LI:

```
swadm set_attribute 0 RPC_TCP_LI 0 ENABLE_JMX_LISTENER 0
```



Note: The process attribute change comes into effect only after you restart the iProcess Engine.

EXACT_OPERATION_TIMESTAMP

General iProcess Engine Configuration

Summary

This attribute defines whether the audit_date timestamp, which is written in the audit_trail table, records when the user does a specified operation or when BG or RPCBG processes an instruction.

Applies To

The attribute can be set for the BG, RPCBG, or ALL processes.

Permissible Values

The attribute value must be one of the following:

Value	Meaning
0	The time when the BG processes an instruction is recorded in audit_date in the audit_trail table.
1	The time when the user does a specified operation is recorded in audit_date in the audit_trail table.

Default Value

This attribute is assigned the following default value when iProcess Engine is installed.

Machine ID	Process	Instance	Value
0	ALL	0	0

Notes

If the value of this attribute is set to 1, the timestamp is recorded in the audit_trail table only when the user does specified operations. The following table shows all the specified operations and their corresponding audit trail messages. See [Understanding Audit Trails](#) for a complete listing of audit trail messages and their corresponding Message-IDs.

Operation	Activity (Message-ID)
Release	<i>StepDescription</i> released by <i>UserName</i> (002)
Start a new case	Case started by <i>UserName</i> (000)
Redirect	<i>StepDescription</i> redirected to <i>UserName</i> (021)
Forward	<i>StepDescription</i> forwarded to <i>UserName</i> (004) <i>StepDescription</i> forwarded by <i>UserName</i> (041)

Operation	Activity (Message-ID)
Event	<i>StepDescription</i> event issued by <i>UserName</i> (015)
Open	<i>stepdescription</i> opened by <i>username</i> (059)
Keep	<i>stepdescription</i> kept by <i>username</i> (060)
Custom audit message	user defined audit messages (message ID >255)
Suspend	Case Suspended by <i>UserName</i> (022)
Resume	Case Resumed by <i>UserName</i> (023)
Jump to	<i>StepDescription</i> Case Jump by <i>UserName</i> (024)
Release the first step after starting a case	Case started by <i>UserName</i> (000)

See Also

None.

FREE_WIS_SESSION

[General iProcess Engine Configuration](#)

Summary

This attribute defines whether the WIS session, which is used to retrieve work items, should be freed up in the WIS memory or not after the lock, keep, forward, release, undo, or unlock operation.



Note: This attribute is only used for doing the lock, keep, forward, release, undo, and unlock operations.

Applies to

This attribute should be set for the SPO processes.

Permissible Values

The attribute value must be one of the following.

Value	Meaning
0	The WIS session, which is used to retrieve work items by TIBCO iProcess Objects Server, is saved in the WIS memory after the lock, keep, forward, release, undo, or unlock operation.
1	The WIS session, which is used to retrieve work items, is freed up in the WIS memory after the lock, keep, forward, release, undo, or unlock operation.

Default Value

This attribute is not defined automatically when you install or upgrade iProcess Engine. The WIS session that is used to retrieve work items by TIBCO iProcess Objects Server is saved in the WIS memory by default.

Notes

Details of how to use this attribute are as follows:

- If the WIS session that is used for retrieving work items is saved in the WIS memory, the TIBCO iProcess Objects Server can reuse the existing WIS session to retrieve work items. Therefore, the average time to retrieve work items is reduced. However, saving WIS sessions in the WIS memory may take up a lot of memory space.
- If the WIS session that is used to retrieve work items is freed after each operation, the WIS session needs to be re-created when another operation is performed. So the average time to retrieve work items is increased. However, cleaning up the WIS session in the WIS memory may save a lot of memory space.

See Also

None.

LDAP_UV

General iProcess Engine Configuration

Summary

This attribute turns on and off the LDAP User Validation API. See *LDAPCONF Utility User's Guide* for further details of user validation using LDAP.

Applies To

The attribute must be set for ALL processes.

Permissible Values

The attribute value must be one of the following.

Value	Meaning
0	LDAP user validation is disabled.
1	LDAP user validation is enabled.

Default Value

The attribute is assigned the following default value when the iProcess Engine node is installed.

Machine ID	Process	Instance	Value
0	ALL	0	0

LOGON_OS_LOCATION

General iProcess Engine Configuration

Summary

This attribute defines the default location where passwords should be validated when a user attempts to log in to this iProcess Engine node.



Note: This attribute is only used on the Windows variant of iProcess Engine. It has no effect if it is set on a UNIX system.

Applies To

The attribute must be set for ALL processes.

Permissible Values

The attribute value must be a text string containing a single valid machine name or domain name.

Default Value

This attribute is not defined automatically when you install or upgrade iProcess Engine. To use this attribute, you must explicitly assign a value to it using the `SET_ATTRIBUTE` command.

The attribute only appears in the output of the `SHOW_ALL_ATTRIBUTES` command if you have explicitly assigned a value to it using the `SET_ATTRIBUTE` command.

Notes

If the iProcess Engine is running on a machine that is a domain member or domain controller, the user account could exist in multiple places. The iProcess Engine node, therefore, uses the following search path to find the location it should use to validate the user's password:

1. the value of the user's `SW_DOMAIN` user attribute (if defined). This attribute specifies a single valid machine name or domain name that should be used to validate a particular user's password. (See *TIBCO iProcess Windows (Workspace) Manager's Guide* for more information about this attribute and how to set it.)
2. the `LOGON_OS_LOCATION` value (if defined).

3. the search path provided by the Windows LookupAccountName function (which iProcess Engine uses to find the user's account name). This path is:
 - a. well-known Windows security identifiers. (A security identifier (SID) is a unique value that identifies a security principal or security group in Windows operating systems. Well-known SIDs are a group of SIDs that identify generic users or generic groups.)
 - b. built-in and administratively defined local accounts.
 - c. the primary domain.
 - d. trusted domains.

i Note:

- If both attributes are set, the SW_DOMAIN value takes precedence over the LOGON_OS_LOCATION value.
- If iProcess Engine is running on a standalone machine, passwords are always validated against local machine accounts. The SW_DOMAIN and LOGON_OS_LOCATION attributes are ignored even if they are set.

If the SW_DOMAIN or LOGON_OS_LOCATION attribute is defined, iProcess Engine checks to see if the user account exists in that location. If the account does not exist there, or if the password does not match the one defined, password validation fails. An error is also written to the sw_warn file indicating that a mismatch has occurred. For example:

```
2006/11/30 13:23:16(BENCHTST:1968:1968:0:aduser1:filosuvvm.c:1.18:373):
1631-WARNING: <LogonProcessUser (): LookupAccountName(ssfsf) failed: No
mapping between account names and security IDs was done.> <> <> <>
2006/11/30 13:23:16(BENCHTST:1968:1968:0:aduser1:filosuvvm.c:1.18:373):
1631-WARNING: <LogonProcessUser (): LogonUser(auser1@UK-BONDIC) failed:
Logon failure: unknown user name or bad password.> <> <> <>
```

You should define LOGON_OS_LOCATION (or the SW_DOMAIN user attribute) if user accounts with the same name exist in two or more trusted domains because you cannot guarantee which domain the LookupAccountName function will check first, and so pick the account information from. Consequently, a logon attempt may fail because it is validated against the wrong domain.

**Note:**

If you use a UVAPI package to perform password validation, you should note that using the LOGON_OS_LOCATION and/or SW_DOMAIN attributes requires that you use extended (_ex) versions of some UVAPI interfaces. The extended interfaces support the passing in and out of user location information from the SW_DOMAIN user attribute and/or LOGON_OS_LOCATION process attribute. (The old interfaces are still supported, but if you use them the location of the user is not passed down from LOGON_OS_LOCATION or SW_DOMAIN attributes.)

See *TIBCO iProcess User Validation API User's Guide* for more information.

MIGRATE_LIVE_CASES

General iProcess Engine Configuration

Summary

This attribute defines whether or not to migrate only live cases from previous versions to a new version when deploying from TIBCO Business Studio to TIBCO iProcess Engine.

Applies To

The attribute must be set for the RPC_TCP_LI processes.

Permissible Values

The attribute value must be one of the following:

Value	Meaning
0	Migrate all cases from previous versions to a new version when deploying from TIBCO Business Studio to TIBCO iProcess Engine.
1	Migrate only live cases from previous versions to a new version when deploying from TIBCO Business Studio to TIBCO iProcess Engine.

Default Value

The attribute is assigned the following default value when an iProcess Engine node is installed.

Machine ID	Process	Instance	Value
0	RPC_TCP_LI	0	0

Notes

Case migration is not supported by TIBCO Business Studio currently.

See Also

None.

NORMALISE_CASE_DATA

[General iProcess Engine Configuration](#)

Summary

This attribute defines whether or not case data normalization is enabled.

Applies To

The attribute must be set for ALL processes.

Permissible Values

The attribute value must be one of the following:

Value	Meaning
0	Case data normalization is disabled.
1	Case data normalization is enabled.

Default Value

The attribute is assigned the following default value when the iProcess Engine node is installed.

Machine ID	Process	Instance	Value
0	ALL	0	0 or 1

Note: The default value is chosen by the user when they install or upgrade the iProcess Engine node.

Notes

This attribute can be set during an installation or upgrade, by using the `swadm` command.

For more information, see [Administering Case Data Normalization](#).

RPC_TIMEOUT

General iProcess Engine Configuration

Summary

This attribute defines the timeout period (in seconds) that an RPC request waits for a response from the iProcess Engine process.

Applies To

The attribute must be set for ALL processes.

Permissible Values

The attribute value must be one of the following:

Value	Meaning
n	The timeout period, where n is an integer value.

Default Value

The attribute is assigned the following default value when the iProcess Engine node is installed.

Machine ID	Process	Instance	Value
0	ALL	0	25

Notes

None.

See Also

None.

SPO_USERMUTEX_WAITTIME

[General iProcess Engine Configuration](#)

Summary

This attribute defines the maximum amount of time (in milliseconds) that an iProcess Objects Server process should take to acquire a mutual exclusion lock (mutex) before processing a message if multiple SSO clients use the same user name to log in to TIBCO iProcess Engine. If the time for acquiring a user's mutex is over the time specified by the SPO_USERMUTEX_WAITTIME attribute, the duration will be recorded and later reported in the sw_warn log.

Before TIBCO iProcess Objects Server processes a client message, it will check whether the corresponding user ID is used. If the user ID is used, the TIBCO iProcess Objects Server process will wait until the user ID is not used. When the user ID is not used, the TIBCO iProcess Objects Server process acquires the user's mutex and then starts processing the related message. Therefore it may take a long time for TIBCO iProcess Objects Server processes to wait for acquiring a user's mutex.

The attribute is used to identify possible performance problems with applications sharing the same user ID.

Applies To

The attribute can be set for SPO processes.

Permissible Values

The attribute value must be an integer in the range 100 to 20000.

Default Value

The attribute is assigned the following default value when the iProcess Engine node is installed.

Machine ID	Process	Instance	Value
0	SPO	0	200

Notes

TIBCO iProcess Objects Server process needs to acquire the user's mutex before processing a message.

An error is returned if the time for acquiring a user's mutex by the iProcess Objects Server process is longer than the time you set for the process attribute. The following error message is logged in the `sw_warn` file to record the errors:

- If this is the first error message for the shared user name:

The user `user_name` was in-use. Please check that multiple clients are not sharing the same username `user_name` as this can have performance impact.

- If this is not the first error message for the shared user name and the time interval between the error messages is equal to or later than one hour:

The user *user_name* was in-use and has been in use at time of acquisition *number_times* time(s), in that last *number_time* seconds. Please check that multiple clients are not sharing the same username (*user_name*) as this can have performance impact.

i Note: If this is not the first error message for the shared user name and the time interval between the log messages is less than an hour, no error message is logged in the *sw_warn* file.

where:

- *user_name* is the shared user name.
- *number_times* is the number of times errors are returned during the interval.
- *number_time* is the time interval between the returned error messages.

TIMEZONE

General iProcess Engine Configuration

Summary

This attribute defines the time zone that this iProcess Engine node will operate in.

Applies To

The attribute must be set for ALL processes.

Permissible Values

The TIMEZONE value must be a valid time zone recognized by the operating system. It should be specified as a string in the following format:

tzn[+|-]*hh*[:*mm*[:*ss*]] [*dzn*]

where:

- *tn* is a 3-letter name that identifies the time zone, such as GMT or EST. Any meaningful name can be used.
- *[+|-]hh[:mm[:ss]]* defines the number of hours (and, optionally, minutes and seconds) that the time zone is ahead of or behind GMT. This number represents an offset i.e. the figure to be subtracted from GMT, so timezones that are:
 - *behind* GMT should be specified as a *positive* value.
 - *ahead of* GMT should be specified as a *negative* value.
- *dzn* is a 3-letter name that identifies a daylight-saving time zone, such as BST. If *dzn* is set daylight saving is enabled and the date and time are adjusted accordingly. Any meaningful name can be used.

Examples

Any of the following strings can be used to define the TIMEZONE value for Washington D.C. (Eastern Standard Time, GMT-05:00):

```
5
EST5
EST+5
EST05:00
```

Any of the following strings can be used to define the TIMEZONE value for Sydney, Australia (Western Standard Tim, GMT+10:00):

```
-10
GMT-10
GMT-10:00:00
```

Default Value

This attribute is not defined on a newly installed iProcess Engine. If required, it must be explicitly set up using the SET_ATTRIBUTE command. By default, iProcess Engine will use the host computer's local time.

Notes

This attribute should be set if an iProcess Engine node installed on a computer operating in one time zone is being accessed by TIBCO iProcess Workspace instances that are operating in different time zones, to avoid discrepancies between the server and client timestamps. For more information, see [Configuring iProcess Engine Time Zone](#).

WARN_ERROR_LOG_SIZE

General iProcess Engine Configuration

Summary

This attribute defines the maximum size (in bytes) of the `sw_warn` and `sw_error` log files before the files stop logging error messages.

Applies To

This attribute can be set for ALL processes.

Permissible Values

An integer that is greater than 0.

Default Value

The attribute is assigned the following default value when the iProcess Engine node is installed.

Machine ID	Process	Instance	Value
0	ALL	0	2147483648 (2GB)

Notes

TIBCO iProcess Engine might continually log errors, which causes the `sw_warn` or `sw_error` log file to fill up quickly. To avoid losing error messages, you should rename the `sw_warn` or `sw_error` log file before the file reaches its maximum size and stops logging.

WINTIME_RESYNC_NOTICE

General iProcess Engine Configuration

Summary

This attribute defines the notice period (in seconds) that iProcess Engine processes are given before a resynchronization takes place.

Applies To

The attribute must be set for ALL processes.

Default Value

The attribute is assigned the following default value when the iProcess Engine node is installed.

Machine ID	Process	Instance	Value
0	ALL	0	60

Notes

See [WINTIME_RESYNC_PERIOD](#) for more information about the use of this attribute.

See Also

[WINTIME_RESYNC_PERIOD](#), [WINTIME_RESYNC_TOLERANCE](#)

WINTIME_RESYNC_PERIOD

[General iProcess Engine Configuration](#)

Summary

This attribute defines the interval (in seconds) at which iProcess Engine checks to see if its timestamps are in step with Windows system time.

Applies To

The attribute must be set for ALL processes.

Permissible Values

An integer that is greater than or equal to 0. If this attribute is set to 0 then no checks are performed.

Default Value

The attribute is assigned the following default value when the iProcess Engine node is installed.

Machine ID	Process	Instance	Value
0	ALL	0	300

Notes

The iProcess Engine node records audit trail timestamps to microsecond precision and sorts the audit trail based on the timestamp.

Because the Windows system timer only returns time to millisecond accuracy, the iProcess Engine node uses two system timers to generate its audit trail timestamps - the system timer (GetSystemTime function) and a high-resolution performance counter (QueryPerformanceCounter function) which can be used to provide extra precision. However, it has been found that these timers do not keep in step with each other, and can diverge by up to several seconds for days. This can result in two problems:

- iProcess Engine timestamps do not correspond to the current Windows time when they are generated.
- If BG processes are started at different times, any timestamps they generate will be out of synchronization with each other. This can result in audit trail entries appearing out of order.

To deal with these problems, you can use the WINTIME_RESYNC_* process attributes to configure how iProcess Engine synchronizes its timestamps with Windows system time.

Every `WINTIME_RESYNC_PERIOD` seconds iProcess Engine checks to see if its timestamps are in step with Windows system time. If the timestamps differ by more than `WINTIME_RESYNC_TOLERANCE` milliseconds iProcess Engine resynchronizes its timers with Windows system time. iProcess Engine processes are given `WINTIME_RESYNC_NOTICE` seconds notice before the resynchronization takes place.



Note: You can also manually force iProcess Engine to resynchronize its timestamps with Windows system time by using the `swsvrmgr RESYNCTIME` command. See [Resynchronize Timestamps with Windows Time](#) for more information.

See Also

[WINTIME_RESYNC_NOTICE](#), [WINTIME_RESYNC_TOLERANCE](#)

WINTIME_RESYNC_TOLERANCE

[General iProcess Engine Configuration](#)

Summary

This attribute defines the interval (in seconds) at which iProcess Engine checks to see if its timestamps are in step with Windows system time.

Applies To

The attribute must be set for ALL processes.

Permissible Values

This value must be an integer that is greater than or equal to 20 (as Windows system time is only accurate to within 15.625ms). Lower values cannot be specified.

Default Value

The attribute is assigned the following default value when the iProcess Engine node is installed.

Machine ID	Process	Instance	Value
0	ALL	0	50

Notes

The tolerance (in milliseconds) by which the TIBCO timestamp and Windows system time can differ. If this value is exceeded, iProcess Engine resynchronizes its timers with Windows system time.

For more information about the use of this attribute, see [WINTIME_RESYNC_PERIOD](#).

See Also

[WINTIME_RESYNC_NOTICE](#), [WINTIME_RESYNC_PERIOD](#)

XPC_READ_UNCOMMITTED

[General iProcess Engine Configuration](#)

Summary

This attribute applies to SQL Server only.

Allows configuration of uncommitted reads during an XPC SELECT.

Applies To

The attribute must be set for ALL processes.

Permissible Values

The attribute value must be one of the following:

Value	Meaning
0	Uncommitted reads cannot be used.
1	XPC is enabled to use uncommitted reads.

Default Value

The attribute is assigned the following default value when iProcess Engine is installed.

Machine ID	Process	Instance	Value
0	ALL	0	0

Notes

None.

See Also

None.

Process Management Configuration

The following process attributes allow you to configure the behavior of the iProcess Engine Process Sentinels and server processes.

i Note: A further set of process attributes allow you to configure specific WIS and WQS behavior - for more information, see [WIS and WQS Process Configuration](#).

Attribute	Description
BG_LEAVER_	Defines the destination queue to which work items are redirected when

Attribute	Description
DESTINATION	the owner of the work items has been deleted.
BG_LEAVER_ SUPER_AS_DEST	Defines the redirect location of work items for a currently deleted user.
CHECKFREQ	Defines the number of loops to process before the Process Sentinels check for <code>sw_error.log</code> files and available disk space.
DMD_PROCESS_ INTERVAL	Defines the times during the day when the Deadline Manager checks the iProcess database for expired deadlines.
FORCE_DEADLINE_ PRIORITY	Defines a priority value for case deadlines that override all other priorities set for case deadlines.
MAINCASE_ START_ AUTOCOMMIT	Defines whether or not to insert a Transaction Control step automatically as the first step of all main cases.
MAX_AGE_ BEFORE_ RESETPOST	Defines the time limit in seconds before the Deadline Manager will re-post unprocessed deadline messages.
MINFREEKB	Defines the amount of disk space (in Kilobytes) required for the BG process to run.
MN_UNLOCKER	Defines who has permission to unlock the work items.
PM_AUTO_BOOT	Defines whether or not the Process Sentinels automatically start the server processes after the Process Sentinels have started.
PROCESS_AUTO_ DUMPLOG	Defines whether or not, if a process fails, the Process Sentinels automatically write to disk the contents of that process' debug shared memory segment.
PROCESS_AUTO_ RESTARTS	Defines whether or not a server process will automatically restart after a failure.

Attribute	Description
PROCESS_MAX_RESTARTS	Defines the maximum number of times the Process Sentinels will attempt to restart a failed process.
PROCESS_MIN_RESTART_PERIOD	Defines time (in seconds) during which Process Sentinels suspends or restarts a failed process.
PROCESS_SLEEP	Defines the amount of time the Process Sentinels will remain idle for.
SUBCASE_START_AUTOCOMMIT	Defines whether or not to insert a Transaction Control step automatically as the first step of all sub-cases.
UNPROCESSED_DL_POST_LIMIT	Sets a limit on the number of unprocessed deadline messages that are posted by the Deadline Manager.
USE_PRIORITY_DEADLINES	Defines whether to set the priority for the case deadlines by using the value of the SW_CP_VALUE field if the value of the FORCE_DEADLINE_PRIORITY attribute is set to the default value, 0.

BG_LEAVER_DESTINATION

Process Management Configuration

Summary

This attribute specifies the destination queue to which work items are redirected when the owner of the work items has been deleted.

Applies To

The attribute must be set for the BG processes.

Permissible Values

This attribute value must be a valid name of the user-specified destination queue or the Admin user's queue.

Default Value

The attribute is assigned the following default value when an iProcess Engine node is installed.

Machine ID	Process	Instance	Value
1	BG	0	1

Notes

If a user is deleted, the work items that are currently in the user's queue can be redirected to a user-specified destination or the Admin user's queue. This attribute is used with the [BG_LEAVER_SUPER_AS_DEST](#) attribute. Details of how to use these attributes are as follows:

- To redirect the work items to a user-specified queue when a user has just been deleted, follow these steps:
 - a. Set the value of the `BG_LEAVER_SUPER_AS_DEST` attribute to 0.
 - b. Set the value of the `BG_LEAVER_DESTINATION` attribute to a user-specified destination queue.
- To redirect the work items to the Admin user's queue when a user is deleted, set the value of the `BG_LEAVER_SUPER_AS_DEST` attribute to 0.

i Note: The deleted user's work items are redirected to the Admin user's queue by default, if the `BG_LEAVER_DESTINATION` attribute is not set. If the `BG_LEAVER_DESTINATION` attribute has been set, use the `swadm delete_attribute` command to delete this setting. For more information about this command, see [Delete a Process Attribute](#).

- To redirect the work items to the first supervisor's queue when a user is deleted, set the value of the `BG_LEAVER_SUPER_AS_DEST` attribute to 1.

For more information about configuring the `BG_LEAVER_SUPER_AS_DEST` attribute, see [BG_LEAVER_SUPER_AS_DEST](#).

If the name of the destination queue, which is specified in setting the `BG_LEAVER_DESTINATION` attribute, is currently removed, the work item will be redirected to the Admin user's queue.

When a user is deleted, an entry is inserted into the `leavers` table, and a corresponding entry is also inserted into the `redir_defn` table. These records will be removed automatically when the following conditions are met:

- All work items of the deleted user are redirected.
- The period specified by the `WQS_LEAVER_PERIOD` attribute expires.
The `WQS_LEAVER_PERIOD` attribute is set by minutes, and its default value is 60.
- Perform a `Movesysinfo` request or iProcess Engine shuts down.



Note: When iProcess Engine starts up, the timestamp column for all records in the `leavers` table are updated to the current time.

If the records in the `leavers` table and the `redir_defn` table are not removed, they will be removed when the deleted user is added to iProcess Engine again.

See Also

[BG_LEAVER_SUPER_AS_DEST](#)

BG_LEAVER_SUPER_AS_DEST

[Process Management Configuration](#)

Summary

This attribute defines the redirect location of work items for a currently deleted user.

Applies To

The attribute must be set for the BG processes.

Permissible Values

The attribute value must be one of the following:

Value	Meaning
0	The work items, which arrive at a currently deleted user, are redirected to the specified destination queue or the Admin user's queue.
1	The work items, which arrive at a currently deleted user, are redirected to the first supervisor's queue.

Default Value

The attribute is assigned the following default value when iProcess Engine is installed.

Machine ID	Process	Instance	Value
1	BG	0	1

Notes

When a user is deleted, the work items, which are currently in the deleted user's queue can be redirected to the first supervisor's queue, the user-specified destination, and the Admin user's queue. Details on how to redirect the work items are as follows:

- To redirect the work items to the first supervisor's queue, set the value of the BG_LEAVER_SUPER_AS_DEST attribute to 1.
- To redirect the work items to the specified destination queue, use the BG_LEAVER_DESTINATION attribute.

For more information about how to use this attribute, see [BG_LEAVER_DESTINATION](#).

See Also

[BG_LEAVER_DESTINATION](#)

CHECKFREQ

[Process Management Configuration](#)

Summary

This attribute defines the number of processing loops that the Process Sentinels will cycle through before checking:

- for `sw_error` files, which are located in the `SWDIR\logs` directory. See [iProcess Engine Log Files](#) for more information.
- that the system has sufficient available disk space.

Applies To

The attribute must be set for ALL processes.

Default Value

The attribute is assigned the following default value when the iProcess Engine node is installed.

Machine ID	Process	Instance	Value
0	ALL	0	50

Notes

The actual time between these checks will therefore be `CHECKFREQ * PROCESS_SLEEP` seconds.

See Also

[PROCESS_SLEEP](#)

DMD_PROCESS_INTERVAL

[Process Management Configuration](#)

Summary

This attribute defines the times during the day when the Deadline Manager checks the iProcess database for expired deadlines.

Applies To

The attribute can be set for the DLMGR process.

Permissible Values

The attribute value must be an integer in the range -1439 to +720, representing a processing interval, in minutes, calculated relative to midnight local time on the server where the DLMGR process is running.

If this value is:

- zero or less than zero, the processing interval is interpreted as an absolute interval. An absolute interval is used to process deadlines once per day at a set time. A value of zero means exactly midnight.
- greater than zero, the processing interval is interpreted as a repeating interval. A repeating interval is used to process deadlines at regular intervals and at set times throughout the day, on each day. If an interval crosses the midnight boundary, the calculation is reset to start from midnight again (so that deadlines are processed at the same times each day).

Default Value

This attribute is not defined on a newly installed iProcess Engine node. In this case, the default value is:

Machine ID	Process	Instance	Value
0	ALL	0	1

The attribute only appears in the output of the `SHOW_ALL_ATTRIBUTES` command if you have explicitly assigned a value to it using the `SET_ATTRIBUTE` command. The default setting is not displayed.

Notes

The following table shows some example settings and the intervals they represent.

Value	Type	Deadlines will be processed at
-720	Absolute	Noon, every day.
60	Repeating	1am, 2am, 3am...and every hour thereafter.
0	Absolute	Midnight, every day.
360	Repeating	6am, 12pm, 6pm, 12am every day
300	Repeating	5am, 10am, 3pm, 8pm every day. Note: Processing on the second day does NOT start at 1am (8pm + 5 hrs)

See Also

[MAX_AGE_BEFORE_RESETPOST](#), [UNPROCESSED_DL_POST_LIMIT](#)

FORCE_DEADLINE_PRIORITY

[Process Management Configuration](#)

Summary

This attribute defines a priority value for case deadlines that override all other priorities set for case deadlines.

The `FORCE_DEADLINE_PRIORITY` attribute only applies to the deadline message being sent, therefore it will affect the overall priority that deadlines are processed in. It will not have any subsequent effect on the priority of the case that the deadline is expiring.

Applies To

This attribute can be set for the DLMGR processes.

Permissible Values

The attribute value must be an integer in the range 0 to 999, where:

- 0 means the priority for the case deadlines is not set.
- 1 means set the case deadlines to the highest priority.
- 999 means set the case deadlines to the lowest priority.

Default Value

This attribute is not defined on a newly installed iProcess Engine node. In this case, the default value is:

Machine ID	Process	Instance	Value
0	DLMGR	0	0

See Also

[USE_PRIORITY_DEADLINES](#)

MAINCASE_START_AUTOCOMMIT

[Process Management Configuration](#)

Summary

This attribute defines whether or not to insert a Transaction Control step automatically as the first step of all main cases.

Applies To

This attribute must be set for the BG processes.

Permissible Values

The attribute value must be one of the following.

Value	Meaning
0	The steps are processed based on the procedure defined, and no autocommits are inserted in main cases.
1	A Transaction Control step is added automatically before processing the first step of the procedure. This Transaction Control step is defined as the Commit and Concede type.
2	A Transaction Control step is added automatically before processing the first step of the procedure. This Transaction Control step is defined as the Commit and Continue type.

Default Value

This attribute is not defined on a newly installed iProcess Engine node. In this case, the default value is:

Machine ID	Process	Instance	Value
0	BG	0	0

Notes

If the value of the MAINCASE_START_AUTOCOMMIT attribute is set to 1 or 2, all main cases run the Transaction Control step as the first step of the procedure before processing the predefined first step of the procedure. The meaning of each type of the Transaction Control step are listed as follows:

- **Commit and Continue** allows you to commit the current transaction and start a new transaction for subsequent steps using the same Background process. The advantage of this option is that it is faster, since it uses the previous process to start the new transaction.
- **Commit and Concede** allows you to commit the current transaction and start a new transaction for subsequent steps using a different Background process. It uses a

different Background process to start the second transaction. The advantage of this option is that it enables load balancing.

For more information about the Transaction Control step, see *TIBCO iProcess Modeler Integration Techniques*.

See Also

[SUBCASE_START_AUTOCOMMIT](#)

MAX_AGE_BEFORE_RESETPOST

[Process Management Configuration](#)

Summary

This attribute defines the time limit in seconds before the Deadline Manager will re-post unprocessed deadline messages. This specifies the time before the Deadline Manager resets its internal marker of the last deadline it has processed to 0 (beginning of time).

Applies To

The attribute can be set for the DLMGR process.

Default Value

This attribute is not defined on a newly installed iProcess Engine node. In this case, the default value is:

Machine ID	Process	Instance	Value
0	DLMGR	0	3600

The attribute only appears in the output of the `SHOW_ALL_ATTRIBUTES` command if you have explicitly assigned a value to it using the `SET_ATTRIBUTE` command. The default setting is not displayed

See Also

[DMD_PROCESS_INTERVAL](#), [UNPROCESSED_DL_POST_LIMIT](#)

MINFREEKB

[Process Management Configuration](#)

Summary

This attribute defines the amount of disk space required for a BG process to run.

Applies To

The attribute can be set for the PROCMGR process.

Default Value

The attribute is assigned the following default value when the iProcess Engine node is installed.

Machine ID	Process	Instance	Value
0	ALL	0	10000

MN_UNLOCKER

[Process Management Configuration](#)

Summary

This attribute defines who has permission to unlock the work items.

Applies To

This attribute can be set for the SP0 process.

Permissible Values

This attribute value must be a valid iProcess user name for the MENUNAME attribute.

Default Value

This attribute is not defined automatically when you install or upgrade iProcess Engine. To use this attribute, you must specifically assign a value to it.

Notes

You can check the valid iProcess user names in the following line of the STAFF.MES file, which is located in the SWDIR/etc/english.lng directory:

```
0444::ADMIN\USER\PRODEF\MANAGER\TEAMLEADER\SUPERVISOR\MS1\MS2\MS3
```

You can add an iProcess user name in this line. After adding the user, you have to set the attribute by using swadmin in SWDIR/util. For example, `./swadm set_attribute 1 SPO 1 MN_UNLOCKER MANAGER:TEAMLEADER:SUPERVISOR`.

For more information about the MENUNAME attribute, see "Setting Pre-defined Attributes" in *TIBCO iProcess Workspace (Windows) Manager's Guide*.

For more information about unlocking work items, see *TIBCO iProcess Workspace (Windows) User's Guide*.

PM_AUTO_BOOT

Process Management Configuration

Summary

This attribute defines whether or not the Process Sentinels automatically start the server processes after the Process Sentinels have started.

Applies To

The attribute can be set for the PROCMGR process.

Permissible Values

The attribute value must be one of the following:

Value	Meaning
0	The Process Sentinels will not automatically start the server processes.
1	The Process Sentinels will automatically start the server processes.

Default Value

The attribute is assigned the following default value when the iProcess Engine node is installed.

Machine ID	Process	Instance	Value
0	PROCMGR	0	1

**Note:**

This value is the default for a UNIX system.

On a Windows system, the value is set by the user when they install or upgrade iProcess Engine.

PROCESS_AUTO_DUMPLOG

Process Management Configuration



Warning: You must only use this attribute when explicitly requested to do so by TIBCO Support.

Summary

This attribute defines whether or not, if a process fails, the Process Sentinels automatically write to disk the contents of that process' debug shared memory segment.

Applies To

The attribute can be set for any process.

Permissible Values

The attribute must be assigned one of the following values.

Value	Meaning
0	No debug is written to disk if the process fails.
1	All debug in the process' debug shared memory segment is written to disk if the process fails.

Default Value

This attribute is not defined on a newly installed iProcess Engine node. In this case, the default value is:

Machine ID	Process	Instance	Value
0	ALL	0	1

The attribute only appears in the output of the `SHOW_ALL_ATTRIBUTES` command if you have explicitly assigned a value to it using the `SET_ATTRIBUTE` command. The default setting is not displayed.

PROCESS_AUTO_RESTARTS

[Process Management Configuration](#)

Summary

This attribute defines whether or not a server process will automatically restart after a failure.

Applies To

The attribute can be set for any process.

Permissible Values

The attribute value must be one of the following:

Value	Meaning
0	The process will not automatically restart after a failure.
1	The process will automatically restart after a failure.

Default Value

The attribute is assigned the following default value when the iProcess Engine node is installed.

Machine ID	Process	Instance	Value
0	ALL	0	1

See Also

[PROCESS_MAX_RESTARTS](#), [PROCESS_MIN_RESTART_PERIOD](#)

PROCESS_MAX_RESTARTS

[Process Management Configuration](#)

Summary

This attribute defines the maximum number of times the Process Sentinels will attempt to restart a failed process.

Applies To

The attribute can be set for any process.

Permissible Values

The attribute value must be one of the following:

Value	Meaning
0	The Process Sentinels will keep attempting to restart the failed process.
n	The Process Sentinels will attempt to restart the failed process n times (where n is a positive integer).

Default Value

The attribute is assigned the following default value when the iProcess Engine node is installed.

Machine ID	Process	Instance	Value
0	ALL	0	5

See Also

[PROCESS_AUTO_RESTARTS](#), [PROCESS_MIN_RESTART_PERIOD](#)

PROCESS_MIN_RESTART_PERIOD

[Process Management Configuration](#)

Summary

This attribute defines time (in seconds) during which Process Sentinels suspends or restarts a failed process.

If the time that the process crashed between this time and the last time, is less than the time interval you defined in this process, the crashed process will be suspended, otherwise, the crashed process will be restarted.

Applies To

This attribute can be set for any process.

Default Value

This attribute is assigned the following default value when the iProcess Engine node is installed.

Machine ID	Process	Instance	Value
0	ALL	0	120

See Also

[PROCESS_AUTO_RESTARTS](#), [PROCESS_MAX_RESTARTS](#)

PROCESS_SLEEP

[Process Management Configuration](#)

Summary

This attribute defines the amount of time (in seconds) the Process Sentinels will remain idle for.

Applies To

The attribute can be set for the PROCmgr process.

Default Value

This attribute is not defined on a newly installed iProcess Engine node. In this case, the default value is:

Machine ID	Process	Instance	Value
0	ALL	0	5

The attribute only appears in the output of the `SHOW_ALL_ATTRIBUTES` command if you have explicitly assigned a value to it using the `SET_ATTRIBUTE` command. The default setting is not displayed.

Notes

The Process Sentinels go into an idle/process loop once they have done their initial job of starting all processes. This means that they will remain idle for a configurable amount of time in between actively monitoring processes.

See Also

[CHECKFREQ](#)

SUBCASE_START_AUTOCOMMIT

[Process Management Configuration](#)

Summary

This attribute defines whether or not to insert a Transaction Control step automatically as the first step of all sub-cases.

Applies To

This attribute must be set for the BG processes.

Permissible Values

The attribute value must be one of the following.

Value	Meaning
0	The steps are processed based on the procedure defined, and no autocommits are inserted in sub-cases.
1	A Transaction Control step is added automatically before processing the first step of the procedure. This Transaction Control step is defined as the Commit and Concede type.
2	A Transaction Control step is added automatically before processing the first step of the procedure. This Transaction Control step is defined as the Commit and Continue type.

Default Value

This attribute is not defined on a newly installed iProcess Engine node. In this case, the default value is:

Machine ID	Process	Instance	Value
0	BG	0	0

Notes

If the value of the SUBCASE_START_AUTOCOMMIT attribute is set to 1 or 2, all sub-cases run the Transaction Control step as the first step of the procedure before processing the predefined first step of the procedure. The meanings of each type of Transaction Control step are listed as follows:

- **Commit and Continue** allows you to commit the current transaction and start a new transaction for subsequent steps using the same Background process. The advantage of this option is that it is faster, since it uses the previous process to start the new transaction.
- **Commit and Concede** allows you to commit the current transaction and start a new transaction for subsequent steps using a different Background process. It uses a

different Background process to start the second transaction. The advantage of this option is that it enables load balancing.

For more information about Transaction Control step, see *TIBCO iProcess Modeler Integration Techniques*.

See Also

[MAINCASE_START_AUTOCOMMIT](#)

UNPROCESSED_DL_POST_LIMIT

[Process Management Configuration](#)

Summary

This attribute is used to set a limit on the number of unprocessed deadline messages that are posted by the Deadline Manager.

Applies To

This attribute can be set for the DLMGR process.

Default Value

This attribute is not defined on a newly installed iProcess Engine node. In this case, the default value is:

Machine ID	Process	Instance	Value
0	ALL	0	10000

This attribute only appears in the output of the `SHOW_ALL_ATTRIBUTES` command if you have explicitly assigned a value to it using the `SET_ATTRIBUTE` command. The default setting is not displayed.

Notes

When the UNPROCESSED_DL_POST_LIMIT value is exceeded, the Deadline Manager stops sending deadline messages until the number of deadline messages in the Mbox queue drops the value that is currently set for this process attribute.

If both the UNPROCESSED_DL_POST_LIMIT and MAX_AGE_BEFORE_RESETPOST are reached at the same time, then all the deadline messages are resent.

See Also

[MAX_AGE_BEFORE_RESETPOST](#)

USE_PRIORITY_DEADLINES

[Process Management Configuration](#)

Summary

This attribute defines whether to set the priority for the case deadlines by using the value of the SW_CP_VALUE field if the value of the FORCE_DEADLINE_PRIORITY attribute is set to the default value, 0.

Applies To

This attribute can be set for the DLMGR process.

Permissible Values

The attribute value must be one of the following.

Value	Meaning
0	Disable the priority setting for the case deadlines if the value of the FORCE_DEADLINE_PRIORITY attribute is set to the default value, 0.
1	Set the value of the SW_CP_VALUE field as the priority value for the case deadlines if

Value	Meaning
	<p>the value of the FORCE_DEADLINE_PRIORITY attribute is set to the default value, 0. If the value of the SW_CP_VALUE field is not set, the value of the WQS_DEFAULTPRIORITY parameter will be set as the priority value for the case deadlines.</p> <p>For more information about the SW_CP_VALUE field, see <i>TIBCO iProcess Modeler Advanced Design</i>. For more information about the WQS_DEFAULTPRIORITY parameter, see WQS_DEFAULTPRIORITY.</p>

Default Value

This attribute is not defined on a newly installed iProcess Engine node. In this case, the default value is:

Machine ID	Process	Instance	Value
0	DLMGR	0	0

See Also

[FORCE_DEADLINE_PRIORITY](#)

WIS and WQS Process Configuration

The following process attributes allow you to configure the behavior of the WQS and WIS processes.

Attribute	Description
AUDIT_OPENKEEP	Controls whether the Open Work Item and Keep Work Item audit trail entries are enabled.
CCOUNT_	Enables you to define the refresh period for updating the cached list of

Attribute	Description
CACHE_REFRESH	cases currently on the system.
IGNORE_PACK_CHANGED	Defines whether users may keep or release work items even if pack data has changed.
RESTART_WIS_CACHE_THRESHOLD	Defines the number of items that must exist in a work queue for it to be cached when the WIS process restarts or quick starts.
RETRY_OFF_FOR_RAC	Determines whether to enable the retry function that retrieves work items from the staffo database table for the configured Oracle RAC.
RPC_SVR_CONTROL	Allows the batching of RPC calls to reduce the overhead in processing RPC calls individually.
RPC_SVR_NUM_THREADS	Defines the maximum number of threads that the WIS and WQS processes can use to process RPC requests from client applications.
SHMKEY_ID	Defines the UNIX shared memory key that is allocated (using the ftok system call) when the WQS process is started.
WIS_CACHE_POOL_SIZE	Defines the size (in threads) of the pool of threads that is used to perform caching of work queues.
WIS_CACHE_THRESHOLD	Defines the number of items that must exist in a work queue for it to be cached when the WIS process starts normally.
WIS_CACHE_WAIT_TIME	Defines the maximum amount of time (in seconds) that an RPC processing thread in the WIS process waits for a work queue to be cached.
WIS_CDQP_DATA_RECACH_BATCH	Defines the number of work items that the CDQP update thread will update in a single operation when updating CDQP field values for a WIS process' queues.

Attribute	Description
WIS_CHECK_STAFFO_RETRY_COUNT	Defines the number of times the WIS process attempts to retrieve the unfound work items from the staffo database table because a delay occurred between two Oracle RAC instances. Note: This attribute is only used on configured Oracle RAC.
WIS_FILTER_THREAD_BOUNDARIES	Defines the count boundary at which a work queue will be split into multiple blocks of work for filtering purposes, based on the number of work items in the queue
WIS_FILTER_THREAD_POOL_SIZE	Defines the number of threads in the queue filtering thread pool, used to process additional blocks of filtering work
WIS_INDEX_REFRESH	Defines the interval (in seconds) after which an index on a queue will be refreshed by a WIS process.
WIS_LOCK_POOL_SIZES	Defines the number of locks in the internal lock pool used by the WIS process
WIS_NEW_ITEM_BATCH_SIZE	Defines the number of new item requests to be batched together.
WIS_QCHANGE_EXTENDED_CHECK	Defines whether or not a change in the lock status of a work item is counted as a change to the work item.
WIS_SESSION_TIMEOUT	Defines the timeout period (in seconds) after which a WIS process will automatically shut down, starting from the time at which it was last accessed (by a TIBCO iProcess Workspace, SAL application or TIBCO iProcess Objects Server).
WIS_SESSION_TIMEOUT_	Defines the timeout period (in seconds) after which a WIS process will automatically shut down, starting from the time at which iProcess Engine

Attribute	Description
SHUTDOWN	was shut down.
WIS_UNCACHE_PERIOD	<p>Defines the time (in minutes) after which the cached work queue that waits to be handled by the WIS process is cleared from the cache, starting from the time at which the client who last accessed this work queue logs off.</p> <p>Note: This attribute only applies to the work queues that contain work items lesser than the count defined in the WIS_CACHE_THRESHOLD attribute.</p>
WIS_UPDATE_LENGTH	Defines the maximum amount of time (in seconds) that the queue update thread in the WIS process performs updates before going back to the idle state.
WIS_UPDATE_PERIOD	Defines how often the queue update thread in the WIS process wakes up and updates the queues handled by the WIS process.
WIS_USE_PRIORITY_ESCALATION	Allows the use of priority escalation in the WIS process to be disabled.
WQS_GATHER_RPC_STATS	Allows the gathering of RPC call stats within the WQS process to be configurable.
WQS_NUM_SEARCH_SLOTS	Defines the maximum number of slots available in the SWRPCMTS multi-threaded RPC server shared library for threads to perform queue searching.
WQS_PERSIST_SHMEM	Defines how often (in seconds) the contents of the WQS/WIS shared memory are written to the wqs_index database table.
WQS_WIS_USER_COUNT	Defines the number of WIS processes that should be dedicated to handling user queues and group queues respectively.

AUDIT_OPENKEEP

WIS and WQS Process Configuration

Summary

This attribute determines if opening or keeping a work item generates an audit trail entry. The default behavior is not to produce audit trail entries when a work item is opened or kept. Enabling this option may cause opening and keeping activities to be marginally slower, and could significantly increase the size of an audit trail.

Applies to

This attribute should be set for ALL processes.

Permissible Values

The attribute must be assigned one of the following values.

Value	Meaning
0	Open and Keep audit messages are not posted.
1	Open and Keep audit messages are posted.

Default Value

The attribute is assigned the following default value when the iProcess Engine node is installed.

Machine ID	Process	Instance	Value
0	ALL	0	0

Notes

If this attribute is set to 1, the WIS posts an audit message to the BG process whenever an Open or a Keep operation is performed on a work item. See messages 059 and 060 in [Understanding Audit Trails](#).

CCOUNT_CACHE_REFRESH

WIS and WQS Process Configuration

Summary

This attribute enables you to define the refresh period for updating the cached list of cases currently on the system. The Background process can retrieve a case count list from the database by looking at which procedures have cases running. The case count list is used by utilities such as Audit Trail and Case Administration. These utilities see the cached list so that they do not have to retrieve a list of cases from the database every time, thereby improving performance.

Applies to

This attribute should be set for ALL processes.

Permissible Values

The attribute must be assigned one of the following values.

Value	Meaning
n	The number of seconds between refreshes of the cached list.

Default Value

The attribute is assigned the following default value when the iProcess Engine node is installed.

Machine ID	Process	Instance	Value
0	RPC_POOL	0	30

Notes

If the value of the attribute is set to 0, the cached list of cases currently on the system will not be refreshed.

AUDIT_OPENKEEP

WIS and WQS Process Configuration

Summary

This attribute determines if opening or keeping a work item generates an audit trail entry. The default behavior is not to produce audit trail entries when a work item is opened or kept. Enabling this option may cause opening and keeping activities to be marginally slower, and could significantly increase the size of an audit trail.

Applies to

This attribute should be set for ALL processes.

Permissible Values

The attribute must be assigned one of the following values.

Value	Meaning
0	Open and Keep audit messages are not posted.
1	Open and Keep audit messages are posted.

Default Value

The attribute is assigned the following default value when the iProcess Engine node is installed.

Machine ID	Process	Instance	Value
0	ALL	0	0

Notes

If this attribute is set to 1, the WIS posts an audit message to the BG process whenever an Open or a Keep operation is performed on a work item. See messages 059 and 060 in [Understanding Audit Trails](#).

IGNORE_PACK_CHANGED

[WIS and WQS Process Configuration](#)

Summary

This attribute defines whether users can Keep or Release work items even if the item's pack data has changed since they opened it.

Applies to

This attribute can be set for the WIS process (only).

Permissible Values

The attribute must be assigned one of the following values.

Value	Meaning
0	Pack data changes lock work items. A user cannot Keep or Release a work item that has had its pack data updated since the user opened it.
1	Pack data changes are ignored. A user may Keep or Release a work item that has had its pack data updated since the user opened it. If any of the user's changes to the work item conflict with the changed pack data, the user's changes overwrite them.

Default Value

This attribute is not defined on a newly installed iProcess Engine node. In this case, the default value is:

Machine ID	Process	Instance	Value
0	WIS	0	0

This attribute only appears in the output of the `SHOW_ALL_ATTRIBUTES` command if you have explicitly assigned a value to it using the `SET_ATTRIBUTE` command. The default setting is not displayed.

Notes

In earlier iProcess Engine versions, if pack data is updated for a work item while a user has that work item open (for example, via a `swutil EVENT -p` command, which is under the `SWDIR\bin` directory), the WIS process locks the work item and does not allow the user to Keep or Release it. The following error is displayed to the user when they try to Keep or Release the work item:

```
Error case data updated elsewhere since item opened. Please open item and edit it again.
```

Setting `IGNORE_PACK_CHANGED` to 1 allows users to Keep or Release work items even if the item's pack data has changed since they opened it.

RESTART_WIS_CACHE_THRESHOLD

[WIS and WQS Process Configuration](#)

Summary

This attribute defines the number of items that must exist in a work queue for it to be cached when the WIS process restarts or quick starts.

Applies To

This attribute can only be used when a WIS process restarts or quick starts.

Permissible Values

This attribute must be an integer in the range 0 to 500000.

Default Value

This attribute is not defined on a newly installed iProcess Engine node. In this case, the default value is:

Machine ID	Process	Instance	Value
0	WIS	0	1000

This attribute only appears in the output of the `SHOW_ALL_ATTRIBUTES` command if you have explicitly assigned a value to it using the `SET_ATTRIBUTE` command. The default setting is not displayed.

Notes

A queue is usually cached in the following two situations:

- When the WIS process first handles the queue (either on startup or after a `MoveSysInfo` operation).
- When the queue is first accessed by a client application.

This attribute is only used when the WIS process restarts or quick starts in conjunction with the `WISCACHE` queue attribute to control whether a queue is cached:

- If the value of `WISCACHE` is set to `YES`, the WIS process caches the queue (irrespective of how many work items there are in the queue).
- If `WISCACHE` is not created or set, the WIS process caches the queue when the number of work items in the queue equals or exceeds the value of the `RESTART_WIS_CACHE_THRESHOLD` attribute.


See [Configuring When WIS Processes Cache Their Queues](#) for more information.

See Also

[WIS_CACHE_THRESHOLD](#), [WIS_CACHE_POOL_SIZE](#), [WIS_CACHE_WAIT_TIME](#)

RETRY_OFF_FOR_RAC

[WIS and WQS Process Configuration](#)

 **Note:** This attribute is only applied to configured Oracle RAC.

Summary

This attribute determines whether to enable the retry function that retrieves work items from the `staffo` database table for configured Oracle RAC.

Applies To

This attribute can be set for WIS and WISMBD process.

Permissible Values

This attribute must be one of the following:

Value	Meaning
0	Switch on the retry function.
1	Switch off the retry function.

Default Value

This attribute is not defined on a newly installed iProcess Engine node. In this case, the default value is:

Machine ID	Process	Instance	Value
0	ALL	0	0

This attribute only appears in the output of the `SHOW_ALL_ATTRIBUTES` command if you have explicitly assigned a value to it using the `SET_ATTRIBUTE` command. The default setting is not displayed.

Notes

- With configured Oracle RAC, a commit transaction is divided into two actions: dequeue the `REQUEST` instruction by `WISMBD` and insert the new work items into the `staffo` table. These two actions are on two Oracle RAC instances. If the dequeue action completes before the committed new work items to the table is replicated to the second node, the `WIS` process may not be able to read the work items from the `staffo` table.

If the retry function is enabled, the `WISMBD` will retry sending messages. Otherwise, the `WIS` treats it as a withdrawn message and ignores the request. A message similar to the following will be displayed in the `WIS` log:

```
1631-WARNING: <no matching entry found in the STAFFO table when the
REQUEST message is processed>
```

In this case, you can set this attribute to `1` to switch on the retry function.

- By default, the retry function is enabled. If you need to create many work items that are quickly withdrawn either by the `withdraw` action or closing case, the work items cannot be retrieved from the `staffo` database table. To expedite the `WIS` Mbox processing, you can configure this attribute to switch off the retry function.

See Also

[WIS_CHECK_STAFFO_RETRY_COUNT](#)

RPC_SVR_CONTROL

[WIS and WQS Process Configuration](#)

Summary

This attribute allows the batching of RPC calls to reduce the overhead of processing RPC calls individually.

Applies To

This attribute should be set for ALL processes.

Permissible Values

This attribute must be in the form B,[batch size] where batch size specifies either 0 to turn off batching or the number of items to be batched. The default value is 20.

For example,

B = Set batch size to default (20)

B,0 = Turn off batching of RPC calls

B,10 = Set batch size to 10

Default Value

The attribute is assigned the following default value when the iProcess Engine node is installed.

Machine ID	Process	Instance	Value
0	ALL	0	B

Notes

Using this attribute reduces the overhead in processing RPC calls individually. Any slight overhead in waiting for 20 (or the number specified) to be batched should not be noticeable.

See Also

N/A

RPC_SVR_NUM_THREADS

WIS and WQS Process Configuration

Summary

This attribute defines the maximum number of threads that the WIS and WQS processes can use to process RPC requests from client applications.

Applies To

This attribute should be set for ALL processes.

Permissible Values

This attribute must be an integer in the range 1 to 100 (but see the Notes).

Default Value

The attribute is assigned the following default value when the iProcess Engine node is installed.

Machine ID	Process	Instance	Value
0	ALL	0	5

Notes

To process RPC requests, both the WIS and WQS processes access a pool of “worker” threads that is provided by a multi-threaded RPC server shared library (SWRPCMTS). This attribute defines the number of threads that are available in the SWRPCMTS library to process RPC requests.



Warning: The maximum `RPC_SVR_NUM_THREADS` value is also limited by the value of the [WQS_NUM_SEARCH_SLOTS](#) process attribute.

If you want to increase the `RPC_SVR_NUM_THREADS` value beyond the `WQS_NUM_SEARCH_SLOTS` value, you must stop iProcess Engine, change the `RPC_SVR_NUM_THREADS` value and then restart iProcess Engine.

If you try to increase `RPC_SVR_NUM_THREADS` beyond `WQS_NUM_SEARCH_SLOTS` without stopping the iProcess Engine, the `RPC_SVR_NUM_THREADS` value will instead be set to the `WQS_NUM_SEARCH_SLOTS` value.

You can adjust the value of this process attribute to optimize the `WQS` and `WIS` process' response times when processing RPC requests against available CPU capacity. Increasing the number of threads will improve the throughput of client RPC requests, but at the cost of increased CPU usage.

See Also

[WIS_FILTER_THREAD_BOUNDARIES](#), [WIS_FILTER_THREAD_POOL_SIZE](#), [WQS_NUM_SEARCH_SLOTS](#)

SHMKEY_ID

[WIS and WQS Process Configuration](#)



Warning: TIBCO recommends that you do not change the value of this attribute unless you are instructed to do so by TIBCO Support, or you are fully familiar with the use of UNIX shared memory and the operation of the `ftok` system call.

Summary

This attribute defines the UNIX shared memory key that is allocated (using the `ftok` system call) when the `WQS` process is started.

Applies To

This attribute must be set for ALL processes.

Default Value

This attribute is not defined on a newly installed iProcess Engine node. In this case, the default value is:

Machine ID	Process	Instance	Value
0	ALL	0	"X"

The attribute only appears in the output of the `SHOW_ALL_ATTRIBUTES` command if you have explicitly assigned a value to it using the `SET_ATTRIBUTE` command. The default setting is not displayed

Notes

The default value should work correctly in most situations. However, it is possible for a shared memory conflict to occur - for example, if iProcess Engine is restarted, another application may allocate to itself the shared memory key that iProcess expects to use when it restarts. If this happens, the WQS process will fail to start, and the following error message is written to the `sw_error` file:

```
WQS initialise failed, connected to shared memory for nodename
```

where *nodename* is either a valid nodename or blank.

If such a shared memory conflict does occur you can change the `SHMKEY_ID` value to resolve it.

WIS_CACHE_POOL_SIZE

WIS and WQS Process Configuration

Summary

This attribute defines the size (in threads) of the pool of threads that is used to perform caching of work queues.

Applies To

This attribute can be set for a WIS process (only).

Permissible Values

This attribute must be an integer in the range 1 to 100.

Default Value

The attribute is assigned the following default value when the iProcess Engine node is installed.

Machine ID	Process	Instance	Value
0	WIS	0	4

Notes

You may want to increase the WIS_CACHE_POOL_SIZE value if there are a large number of work queues that need caching at one time. When all the work queues have been cached you may want to reduce the value again, as the threads in this pool will not be used until a new queue is first handled by a WIS process.

See [Configuring When WIS Processes Cache Their Queues](#) for more information.

See Also

[WIS_CACHE_THRESHOLD](#), [WIS_CACHE_WAIT_TIME](#)

WIS_CACHE_THRESHOLD

[WIS and WQS Process Configuration](#)

Summary

This attribute defines the number of items that must exist in a work queue for it to be cached when the WIS process starts normally.

Applies To

This attribute can only be used when a WIS process starts normally.

Permissible Values

This attribute must be an integer in the range 0 to 500000.

Default Value

This attribute is not defined on a newly installed iProcess Engine node. In this case, the default value is:

Machine ID	Process	Instance	Value
0	WIS	0	1000

This attribute only appears in the output of the `SHOW_ALL_ATTRIBUTES` command if you have explicitly assigned a value to it using the `SET_ATTRIBUTE` command. The default setting is not displayed.

Notes

A queue is usually cached in the following two situations:

- When the WIS process first handles the queue (either on startup or after a `MoveSysInfo` operation).
- When the queue is first accessed by a client application.

This attribute is only used when the WIS process starts normally in conjunction with the `WISCACHE` queue attribute to control whether a queue is cached:

- If the value of `WISCACHE` is set to `YES`, the WIS process caches the queue (irrespective of how many work items there are in the queue).
- If `WISCACHE` is not created or set, the WIS process caches the queue if the number of work items in the queue equals or exceeds the value of the `WIS_CACHE_ITEM` attribute.

For more information, see [Configuring When WIS Processes Cache Their Queues](#).

See Also

[RESTART_WIS_CACHE_THRESHOLD](#), [WIS_CACHE_POOL_SIZE](#), [WIS_CACHE_WAIT_TIME](#), [WQS_PERSIST_SHMEM](#)

WIS_CACHE_WAIT_TIME

[WIS and WQS Process Configuration](#)

Summary

This attribute defines the maximum amount of time (in seconds) that an RPC processing thread in the WIS process waits for a work queue to be cached.

Applies To

This attribute can be set for a WIS process (only).

Permissible Values

This attribute must be an integer in the range 0 to unlimited.



Warning: This value must be set to a value less than:

- The iProcess Workspace RPC Timeout period (the default is 25 seconds). See *TIBCO iProcess Workspace Manager's Guide* for information.
- The iProcess Objects SAL RPC Timeout (the default is 25 seconds). See *TIBCO iProcess Objects Programmer's Guide* for information.

Default Value

The attribute is assigned the following default value when the iProcess Engine node is installed.

Machine ID	Process	Instance	Value
0	WIS	0	5

Notes

When a client application makes an RPC call to a work queue that has not already been cached, the WIS process immediately begins caching it. If the WIS_CACHE_WAIT_TIME value is reached and the work queue has still not been cached, the WIS process returns an ER_CACHING error to the client application.

For more information, see [Configuring When WIS Processes Cache Their Queues](#).

See Also

[WIS_CACHE_POOL_SIZE](#), [WIS_CACHE_THRESHOLD](#)

WIS_CDQP_DATA_RECACHE_BATCH

[WIS and WQS Process Configuration](#)

CDQP updates introduced in 10.4 by CR17048.

Summary

This attribute defines the number of work items that the CDQP update thread will update in a single operation when updating CDQP field values for a WIS process' queues.

Applies To

This attribute should be set for a WIS process (only).

Permissible Values

This attribute must be an integer in the range 1000 to 500000.

Default Value

The attribute is assigned the following default value when the iProcess Engine node is installed.

Machine ID	Process	Instance	Value
0	WIS	0	5000

Notes

The WIS process' CDQP update thread is used to update CDQP field values for work items in its queues following a `swutil QINFO PUBLISH` command, which is under the `SWDIR\bin` directory. The CDQP update thread updates each work item in each queue handled by the WIS process, updating `WIS_CDQP_DATA_RECACHE_BATCH` items at the same time.

The CDQP update thread obtains the updated CDQP field values from the `pack_data` database table, which prevents other processes from updating or deleting any rows in the table that the CDQP update thread is accessing.

If you find that performance is impacted after the `swutil QINFO PUBLISH` command, you should reduce the `WIS_CDQP_DATA_RECACHE_BATCH` value.

For more information, see [Configuring CDQP Updates](#).

WIS_CHECK_STAFFO_RETRY_COUNT

WIS and WQS Process Configuration



Note: This attribute is only applied on configured Oracle RAC.

Summary

This attribute defines the number of times the WIS process attempts to retrieve the unfound work items from the `staffo` database table because a delay occurred between two Oracle RAC instances.

Applies To

This attribute can be set for the WIS process.

Permissible Values

This attribute must be an integer.

Default Value

The attribute is assigned the following default value when the iProcess Engine node is installed.

Machine ID	Process	Instance	Value
0	WIS	0	3

The default value means the WIS process will retry 3 times if it failed to find the work items from the `staffo` database table.

Notes

With configured Oracle RAC, a commit transaction is divided into two actions: dequeue the REQUEST instruction by WISMBD and insert the new work items into the `staffo` table. These two actions are on two Oracle RAC instances. If the dequeue action completes before the committed the new work items to the table is replicated to the second node, the WIS process may not be able to read the work items from the `staffo` table. To find the new records in the table, you can configure this attribute to define the maximum number of retry times to retrieve the newly added work items.

See Also

[RETRY_OFF_FOR_RAC](#)

WIS_FILTER_THREAD_BOUNDARIES

[WIS and WQS Process Configuration](#)

Summary

This attribute defines the count boundary at which a work queue will be split into multiple blocks of work for filtering purposes, based on the number of work items in the queue.

Applies To

This attribute can be set for the WIS process (only).

Permissible Values

This attribute must be a string in the following format:

`“Threshold1[:Threshold2[:Threshold3[:Threshold4]]]”`

where the four *Threshold* parameters are numeric values indicating the number of work items in a work queue at which an additional block of filtering work will be created. Each subsequent value, if used, must be greater than the preceding value.

Default Value

The attribute is assigned the following default value when the iProcess Engine node is installed.

Machine ID	Process	Instance	Value
0	WIS	0	100,000

Notes

By default, the WIS process uses the thread that is processing an RPC request to perform any work queue filtering required by that RPC request. When the number of items in a work queue reaches one of the threshold values defined in this attribute, the queue is split into equal blocks of filtering work. The first block is still handled by the RPC processing thread. Subsequent blocks are handled by threads from the queue filtering thread pool (the number of which is defined by the [WIS_FILTER_THREAD_POOL_SIZE](#) attribute).

Modifying this attribute can therefore reduce the time taken by the WIS process to filter work queues, particularly when queues are large or use complex filter criteria involving expressions or CDQPs.

See [Configuring How Work Queues are Filtered](#) for more information.

Examples

The following example means that the queue will be split into two blocks of work for filtering purposes when the number of work items in the queue reaches 100000. The queue is split into two equal blocks of 50000 work items. The first block is handled by the original RPC processing thread and the second is handled by one of the queue filtering threads.

```
100000
```

The following example means that the queue will be split into two filtering blocks (each of 50000 work items) when the number of work items in the queue reaches 100000, and into three blocks (each of 60000 work items) when the number of items reaches 180000. The first block is handled by the original RPC processing thread. The second and third blocks are handled by the queue filtering threads.

```
100000:180000
```

See Also

[RPC_SVR_CONTROL](#), [WIS_FILTER_THREAD_POOL_SIZE](#)

WIS_FILTER_THREAD_POOL_SIZE

[WIS and WQS Process Configuration](#)

Summary

This attribute defines the number of threads in the queue filtering thread pool, used to process additional blocks of filtering work.

Applies To

This attribute can be set for the WIS process (only).

Permissible Values

This attribute must be an integer that is greater than or equal to 1.

Default Value

The attribute is assigned the following default value when the iProcess Engine node is installed.

Machine ID	Process	Instance	Value
0	WIS	0	8

Notes

By default, the WIS process uses the thread that is processing an RPC request to perform any work queue filtering required by that RPC request. When the number of items in a work queue reaches one of the threshold values defined in the [WIS_FILTER_THREAD_BOUNDARIES](#) attribute, the queue is split into equal blocks of filtering work. The first block is still handled by the RPC processing thread. Subsequent blocks are handled by threads from the queue filtering thread pool (the number of which is defined by this attribute).

Modifying this attribute can therefore reduce the time taken by the WIS process to filter work queues, particularly when queues are large or use complex filter criteria involving expressions or CDQPs.

For more information, see [Configuring How Work Queues are Filtered](#).

See Also

[RPC_SVR_CONTROL](#), [WIS_FILTER_THREAD_BOUNDARIES](#)

WIS_INDEX_REFRESH

[WIS and WQS Process Configuration](#)

Summary

This attribute value defines the interval (in seconds) after which an index on a work queue will be refreshed by a WIS process. You can set this attribute to fine tune the memory footprint of a WIS process.

Applies To

The attribute can be set for a WIS process.

Permissible Values

The attribute value must be an integer, with a minimum value of 10.

Default Value

This attribute is not defined on a newly installed iProcess Engine node. In this case, the default value is:

Machine ID	Process	Instance	Value
0	WIS	0	300

The attribute only appears in the output of the `SHOW_ALL_ATTRIBUTES` command if you have explicitly assigned a value to it using the `SET_ATTRIBUTE` command. The default setting is not displayed

Notes

When a user or process accesses a work queue, the WIS process creates an index in memory for subsequent use with that “view” of the queue. The WIS process holds a copy of all work item data for the queue in memory, referenced by the index, until the data is no longer needed. Refreshing the index clears out any information that is no longer needed for that “view”, thus reducing the memory footprint of the WIS process.

If users or processes have indexes onto a busy queue and these indexes are not refreshed, the WIS memory footprint grows (because old records are not released and new memory is required for new items entering the queue). For example, if a user leaves a TIBCO iProcess Workspace session logged in on a queue and does not refresh that queue, any items removed from the queue (through purging, forwarding or releasing) will still be held in memory, causing the WIS memory footprint to grow.

WIS_LOCK_POOL_SIZES

WIS and WQS Process Configuration

Summary

This attribute defines the number of locks in the internal lock pool used by the WIS process.



Warning: Do not change the value of this process attribute unless you are advised to do by TIBCO Support.

Applies To

The attribute can be set for a WIS process (only).

Permissible Values

The attribute value must be one of the following:

Value	Meaning
TINY	Sets the size of the internal lock pool. (The actual numbers represented by these values are set internally by iProcess Engine.)
SMALL	
MEDIUM	
LARGE	
HUGE	
GIGANTIC	
VAST	

Default Value

This attribute is not defined on a newly installed iProcess Engine node. In this case, the default value is:

Machine ID	Process	Instance	Value
0	WIS	0	MEDIUM

The attribute only appears in the output of the `SHOW_ALL_ATTRIBUTES` command if you have explicitly assigned a value to it using the `SET_ATTRIBUTE` command. The default setting is not displayed

Notes

The WIS process uses pools of locks to reduce its resource usage when handling large numbers of queues and work items. Because these locks are in pools, the resources required for locking do not increase as the number of work queues and work items increases. This attribute is only read when iProcess Engine starts up. Any changes that are made when iProcess Engine is running are ignored.

WIS_NEW_ITEM_BATCH_SIZE

[WIS and WQS Process Configuration](#)

Summary

This attribute value defines the number of new item requests to be batched together so more can be processed in a single write lock.

Applies To

The attribute can be set for a WIS process.

Permissible Values

The attribute value must be an integer between 0 and 500000 where 0 means that batching is not used.

Default Value

This attribute is not defined on a newly installed iProcess Engine node. In this case, the default value is:

Machine ID	Process	Instance	Value
0	WIS	0	0

Notes

If you have batching turned on and less than the batch size value number of items come into the queue, then the update thread, when it next wakes up, will process any items batched up. Or, if another RPC request comes in to add a new item that takes the batch size over the configured value, then all items will be processed.

Using this attribute means that incoming items from the WISMBD are batched up before the index is updated (similar to pre 10.3 versions). This reduces the load on the system, but does mean that new items take longer to appear in the queue (by at most the [WIS_INDEX_REFRESH](#) period of time).

WIS_QCHANGE_EXTENDED_CHECK

WIS and WQS Process Configuration

Summary

This attribute changes the behavior of a WIS process as to whether it counts changes to the lock status of work items as changes to the work items and work queues.

Applies To

The attribute can be set for a WIS process.

Permissible Values

The attribute value must be one of the following:

Value	Meaning
0	A change in the lock status of a work item is not counted as a change to the work item.
1	A change to the lock status of a work item is counted as a change to the work item.

Default Value

This attribute is not defined on a newly installed iProcess Engine node. In this case, the default value is:

Machine ID	Process	Instance	Value
0	WIS	0	0

The attribute only appears in the output of the `SHOW_ALL_ATTRIBUTES` command if you have explicitly assigned a value to it using the `SET_ATTRIBUTE` command. The default setting is not displayed.

Notes

If this attribute is not set, changes to the lock status of work items are not counted as changes to queues for the purpose of monitoring changes in queues. This means that if a user just locks or keeps an item without making any other changes to a queue, then iProcess Objects or the SAL does not flag that any changes have been made to the queue, and even if the queue is refreshed, no changes are apparent.

If this attribute is set then the lock status is changed (the QPAR version number is updated and the OREC version number is incremented) in the following situations:

- when a work item is opened
- when the first work item that is not locked is opened
- when a work item is kept

This allows iProcess Engine to detect these changes in the queue.

WIS_SESSION_TIMEOUT

WIS and WQS Process Configuration

Summary

This attribute defines the timeout period (in seconds) after which a WIS process will automatically shut down, starting from the time at which it was last accessed (by TIBCO iProcess Workspace, SAL application or iProcess Objects Server).

Applies To

The attribute can be set for a WIS process.

Permissible Values

The attribute value must be one of the following:

Value	Meaning
0	Do not timeout WIS processes.
n	The timeout period, where <i>n</i> is any integer value equal to or greater than 60.

Default Value

This attribute is not defined on a newly installed iProcess Engine node. In this case, the default value is:

Machine ID	Process	Instance	Value
0	WIS	0	28800

The default value gives a timeout period of 8 hours.

The attribute only appears in the output of the `SHOW_ALL_ATTRIBUTES` command if you have explicitly assigned a value to it using the `SET_ATTRIBUTE` command. The default setting is not displayed.

See Also

[WIS_SESSION_TIMEOUT_SHUTDOWN](#)

WIS_SESSION_TIMEOUT_SHUTDOWN

[WIS and WQS Process Configuration](#)

Summary

This attribute defines the timeout period (in seconds) after which a WIS process will automatically shut down, starting from the time at which iProcess Engine was shut down.

Applies To

The attribute can be set for a WIS process.

Permissible Values

The attribute value must be an integer, with a minimum value of 60.

Default Value

This attribute is not defined on a newly installed iProcess Engine node. In this case, the default value is:

Machine ID	Process	Instance	Value
0	WIS	0	300

The default value gives a timeout period of 5 minutes.

The attribute only appears in the output of the `SHOW_ALL_ATTRIBUTES` command if you have explicitly assigned a value to it using the `SET_ATTRIBUTE` command. The default setting is not displayed

See Also

[WIS_SESSION_TIMEOUT](#)

WIS_UNCACHE_PERIOD

[WIS and WQS Process Configuration](#)

Summary

This attribute defines the time period (in minutes) after which the cached work queue that waits to be handled by the WIS process is cleared from the cache, starting from the time at which the client who last accessed this work queue logs off.

i Note: This attribute only applies to the work queues that contain the number of work items less than the number you defined in the WIS_CACHE_THRESHOLD attribute.

Applies To

This attribute can be set for the WIS processes.

Permissible Values

The attribute value must be one of the following:

Value	Meaning
n	The timeout period, where <i>n</i> is any integer value in minutes.

Default Value

The attribute is assigned the following default value when iProcess Engine node is installed.

Machine ID	Process	Instance	Value
0	WIS	0	0

The default value means never un-cache the work queue. It performs like previous versions of TIBCO iProcess Engine that did not support this attribute.

Notes

This attribute is used in conjunction with the `WIS_CACHE_THRESHOLD` attribute. If the cached work queue contains a number of work items that equals or exceeds the value of the `WIS_CACHE_THRESHOLD` attribute, it cannot be cleared from the cache by using the `WIS_UNCACHE_PERIOD` attribute.

See Also

[WIS_CACHE_THRESHOLD](#)

WIS_UPDATE_LENGTH

[WIS and WQS Process Configuration](#)

Summary

This attribute defines the maximum amount of time (in seconds) that the queue update thread in the WIS process performs updates for before going back to the idle state.

Applies To

This attribute can be set for the WIS process (only).

Permissible Values

This attribute must be an integer with a minimum value of 5. There is no maximum value.

Default Value

The attribute is assigned the following default value when iProcess Engine node is installed.

Machine ID	Process	Instance	Value
0	WIS	0	120

Notes

The queue update thread wakes up every [WIS_UPDATE_PERIOD](#) seconds. It updates work queues for [WIS_UPDATE_LENGTH](#) seconds, then goes back to the idle state. If it has updated all the queues before the [WIS_UPDATE_LENGTH](#) period has expired, it goes back to the idle state immediately.

You should decrease the [WIS_UPDATE_LENGTH](#) value if you find that the update thread in the WIS process is using too much CPU.

See [Configuring Queue Updates](#) for more information.

See Also

[WIS_UPDATE_PERIOD](#)

WIS_UPDATE_PERIOD

[WIS and WQS Process Configuration](#)

Summary

This attribute defines how often the queue update thread in the WIS process wakes up and updates the queues handled by the WIS process.

Applies To

This attribute can be set for the WIS process (only).

Permissible Values

This attribute must be an integer in the range 1 to 3600.

Default Value

The attribute is assigned the following default value when iProcess Engine is installed.

Machine ID	Process	Instance	Value
0	WIS	0	20

Notes

The queue update thread wakes up every `WIS_UPDATE_PERIOD` seconds. It updates work queues for `WIS_UPDATE_LENGTH` seconds, then goes back to the idle state. If it has updated all the queues before the `WIS_UPDATE_LENGTH` period has expired, it goes back to the idle state immediately.

For more information, see [Configuring Queue Updates](#) .

See Also

[WIS_UPDATE_LENGTH](#)

WIS_USE_PRIORITY_ESCALATION

[WIS and WQS Process Configuration](#)

Summary

This attribute allows the use of priority escalation in the WIS process to be disabled.

Applies To

This attribute can be set for the WIS process (only).

Permissible Values

The attribute value must be one of the following:

Value	Meaning
0	Priority aging will no longer be processed. Every item that is displayed will use the default priority as set in the staffcfg file. Changes to priority fields will not affect the current priority value of a work item.
1	Priority aging will still function.

Default Value

The attribute is assigned the following default value when iProcess Engine is installed.

Machine ID	Process	Instance	Value
0	WIS	0	1

Notes

This attribute can be turned off for a small performance and CPU benefit. However, you should only do this if you are not using the Priority escalation feature as switching it off will prevent the priority value being automatically decremented. Be careful to ensure you are not using this feature before disabling it.

See Also

N/A

WQS_GATHER_RPC_STATS

[WIS and WQS Process Configuration](#)

Summary

This attribute allows the gathering of RPC call stats within the WQS process to be configurable.

Applies To

This attribute should be set for the WQS process.

Permissible Values

The attribute value must be one of the following:

Value	Meaning
0	RPC stats gathering is turned off.
1	RPC stats gathering is turned on.

Default Value

The attribute is assigned the following default value when iProcess Engine is installed.

Machine ID	Process	Instance	Value
0	WQS	0	0

Notes

When the attribute is turned off and then on again, any previously gathered stats are not retained.

To use the attribute, turn on R=2 debug on the WQS process, set the process attribute and the stats will be seen in the debug log.

TIBCO recommends that this attribute be turned off unless you specifically require these stats.

See Also

N/A

WQS_NUM_SEARCH_SLOTS

[WIS and WQS Process Configuration](#)

Summary

This attribute defines the maximum number of slots available in the SWRPCMTS multi-threaded RPC server shared library for threads to perform queue searching. This is an internal design feature that limits the number of “worker” threads available for the WQS process to use to process RPC requests.



Warning: Do not change the value of this process attribute unless you are advised to do so by TIBCO Support.

Applies To

This attribute should be set for ALL processes.

Permissible Values

This attribute must be an integer that is greater than or equal to the value of the [RPC_SVR_CONTROL](#) process attribute.

Default Value

The attribute is assigned the following default value when iProcess Engine is installed.

Machine ID	Process	Instance	Value
0	ALL	0	50

Notes

This attribute cannot be set when the WQS process is running. You must stop iProcess Engine if you want to change the value of this attribute.

When the iProcess Engine starts up the WQS process checks the value of the [RPC_SVR_CONTROL](#) process attribute. If it is:

- less than or equal to the WQS_NUM_SEARCH_SLOTS value, the WQS_NUM_SEARCH_SLOTS value is left unchanged.
- greater than the WQS_NUM_SEARCH_SLOTS value, WQS_NUM_SEARCH_SLOTS is reset to $2 * \text{RPC_SVR_NUM_THREADS}$.

See Also

[RPC_SVR_CONTROL](#)

WQS_PERSIST_SHMEM

[WIS and WQS Process Configuration](#)

Summary

This attribute defines how often (in seconds) the contents of the WQS/WIS shared memory are written to the wqs_index table in the database.

Applies To

This attribute can be set for the WQS process (only).

Permissible Values

The attribute value must be an integer in the range 1 to 3600.

Default Value

The attribute is assigned the following default value when iProcess Engine is installed.

Machine ID	Process	Instance	Value
0	WQS	0	300

Notes

When the WIS process starts up, it uses the `total_items` column in the `wqs_index` table to determine the number of work items in each work queue. It compares this value to the [WIS_CACHE_THRESHOLD](#) value to determine whether to cache the work queue.

If TIBCO iProcess Engine is started, cases are loaded into a work queue, then the system is shut down again within the `WQS_PERSIST_SHMEM` value, the item counts in the `wqs_index` table will not match the actual item counts.

See [Configuring When WIS Processes Cache Their Queues](#) for more information.

See Also

[WIS_CACHE_THRESHOLD](#)

WQS_WIS_USER_COUNT

[WIS and WQS Process Configuration](#)

Summary

This attribute defines the number of WIS processes that should be dedicated to handling user queues and group queues respectively.

Applies To

The attribute can be set for the WQS process.

Permissible Values

The attribute value must be a string, and can be either:

- a number, indicating the number of WIS processes that should be dedicated to handling user queues. For example:
"2"
- a percentage in the range 1% to 99%, indicating the percentage of WIS processes that should be dedicated to handling user queues. For example:
"20%"

Default Value

This attribute is not defined on a newly installed iProcess Engine. In this case (or if the attribute is defined incorrectly), queues are allocated to WIS processes alphabetically, irrespective of whether they are user or group queues (either by round robin or on-demand allocation - see [WQS_ROUND_ROBIN](#)).

Notes

The remaining WIS processes will be dedicated to handling group queues. Note that:

- There must always be at least one WIS available to handle user queues and one WIS to handle group queues if the attribute is defined. The attribute value should be set accordingly.
- If a percentage value is used, iProcess will round this figure down, subject to there being at least one WIS available to handle user queues. For example, the following table shows how different WQS_WIS_USER_COUNT values are interpreted, depending on the number of available WIS processes.

Value	Number of WIS processes	Resulting allocation for:	
		User queues	Group queues
"20%"	5	1	4
"50%"	5	2	3
"50%"	6	3	3
"90%"	5	4	1

Value	Number of WIS processes	Resulting allocation for:	
		User queues	Group queues
"90%"	20	18	2
"10%"	5	1	4

- If there are not enough WIS processes configured to create the specified allocation, the WQS_WIS_USER_COUNT value is ignored, default queue allocation is used, and one of the following messages is written to the sw_warn file:

```
WQS_WIS_USER_COUNT ignored - too big
```

or

```
WQS_WIS_USER_COUNT ignored - percentage too big
```

For example, if there are 5 WIS processes configured, the following WQS_WIS_USER_COUNT values would all generate an error as described:

```
"0" "0%" "5" "6" "100%" "150%"
```

- WIS processes can also be dedicated to handling explicitly specified queues - see [Assigning a Queue Explicitly to a WIS Process](#). Dedicated queues are not considered when calculating the allocation of WIS processes to user queue or group queue pools.

The following table shows how the allocations described in the example above would be affected if one of the WIS processes was subsequently dedicated to handling a specific queue. (The values in bold font show the changes.)

Value	Number of non-dedicated WIS processes	Resulting allocation for:	
		User queues	Group queues
"20%"	4	1	3
"50%"	4	2	2

Value	Number of non-dedicated WIS processes	Resulting allocation for:	
		User queues	Group queues
"50%"	5	2	3
"90%"	4	3	1
"90%"	19	17	2
"10%"	4	1	3

Message and Mbox Processing Configuration

The following process attributes allow you to configure how iProcess Engine processes messages.

Attribute	Description
DBQD_MAX_CACHED_MESSAGES	Defines the number of messages that are cached by the DBQD process when it requests a block of messages from a database message queue.
DBQD_MAX_FILE_SESSIONS	Defines the number of concurrent threads that the DBQD process uses to process RPC requests for messages from its cache from BG or WISMBD processes.
EMPTYMBOXSLEEP	Defines how long the Mbox Daemons will remain idle when all Mbox queues in the Mbox set are empty.
EMPTYMBOXSLEEP_INC	Defines the number of seconds to increment the EMPTYMBOXSLEEP value by when a BG or WISMBD process requests a message from an empty Mbox.
EMPTYMBOXSLEEP_MAX	Defines the maximum value (in seconds) that EMPTYMBOXSLEEP can be set to.

Attribute	Description
IQL_RETRY_COUNT	Defines how many times a failed message in a message queue is retried before being moved to the exception queue.
IQL_RETRY_DELAY	Defines the delay (in seconds) between each retry attempt for a failed message in a message queue, before the message is moved to the exception queue.
MBSET_DEQUEUE_TIMEOUT	Defines a time threshold (in milliseconds) for the duration of dequeuing a message from an Mbox set.
MBSET_READ_BG	Defines the unique identifier of the Mbox set to be used by a BG process when dequeuing messages received from a WISMBD process.
MBSET_READ_PREDICT	Defines the unique identifier of the Mbox set to be used by a BGPREDICT process when posting case changes messages to a BG process.
MBSET_READ_WIS	Defines the unique identifier of the Mbox set to be used by a WISMBD process when dequeuing messages received from a BG process.
MBSET_WRITE_BG	Defines the unique identifier of the Mbox set to be used by a process when writing to a BG process.
MBSET_WRITE_PREDICT	Defines the unique identifier of the Mbox set to be used by a BGPREDICT process when posting case changes messages to a BG process.
MBSET_WRITE_WIS	Defines the unique identifier of the Mbox set (as defined in the <code>mbox_set</code> table) to be used by the BG process when writing to a WISMBD process.
THRESHOLD_FAIL_TIMES_TO_REPORT_IQL_MESSAGE	Defines how many times a failed message in a message queue is retried before sending a message to the Process Sentinels.
USE_NEXT_MESSAGE_TO_DEQUEUE	Defines the ways to purge vast quantities of cases in the Oracle AQs.

DBQD_MAX_CACHED_MESSAGES

Message and Mbox Processing Configuration

i Note: This attribute is currently only used on the DB2 version of iProcess Engine. It has no effect on the Oracle or SQL Server versions.

Summary

This attribute defines the number of messages that are cached by the DBQD process when it requests a block of messages from a database message queue.

Applies To

This attribute can be set for the DBQD process (only).

Default Value

The attribute is assigned the following default value when iProcess Engine is installed.

Machine ID	Process	Instance	Value
0	DBQD	0	1000

Notes

Each BG and WISMBD process requests a message from one of its allocated message queues when it is not already processing a message or idle. The DBQD process receives this request and returns a message from its cache for the specified queue. If the cache is empty, the DBQD process requests another block of DBQD_MAX_CACHED_MESSAGES messages from the database message queue to refill the cache.

The rate at which messages are processed from the cache depends on the number of BG and WISMBD processes that are running, and the type of procedure being processed. For example, procedures involving significant use of deadlines or EAI steps would take longer to process than those involving normal steps.

Increasing the DBQD_MAX_CACHED_MESSAGES value increases the amount of memory used by the DBQD process and the time required to perform the caching operation. Decreasing this value means that the process needs to access the database to refill its cache more often.

See Also

[DBQD_MAX_FIL_SESSIONS](#), [EMPTYMBOXSLEEP](#)

DBQD_MAX_FIL_SESSIONS

[Message and Mbox Processing Configuration](#)



Note: This attribute is currently only used on the DB2 version of iProcess Engine. It has no effect on the Oracle or SQL Server versions.

Summary

This attribute defines the number of concurrent threads that the DBQD process uses to process RPC requests for messages from its cache from BG or WISMBD processes. You can alter this value according to the number of BG and WISMBD processes you have configured on the system.

Applies To

This attribute can be set for the DBQD process (only).

Default Value

The attribute is assigned the following default value when iProcess Engine is installed.

Machine ID	Process	Instance	Value
0	DBQD	0	5

See Also

[DBQD_MAX_CACHED_MESSAGES](#)

EMPTYBOXSLEEP

[Message and Mbox Processing Configuration](#)

Summary

This attribute defines the number of milliseconds or seconds that a BG or WISMBD process remains idle when all Mbox queues in its Mbox set are empty.

Applies To

This attribute can be set for the BG, WISMBD or ALL processes.

Default Value

The attribute is assigned the following default value when iProcess Engine is installed.

Machine ID	Process	Instance	Value
0	ALL	0	2

Notes

The value of the EMPTYBOXSLEEP process attribute can be treated as the idle time either in seconds or in milliseconds:

- If the value of this attribute is up to (including) 60, then it is treated as a measure of the time in seconds.
- If the value of this attribute is greater than 60, then it is treated as a measure of the time in milliseconds.

Whenever a BG or WISMBD process requests a message from an empty Mbox, the EMPTYBOXSLEEP value is incremented by the [EMPTYBOXSLEEP_INC](#) value until either:

- the [EMPTYMBOXSLEEP_MAX](#) value is reached, or
- a message is returned from the Mbox, in which case EMPTYMBOXSLEEP is reset to its configured value.

By tailoring the values of these three attributes to your particular system configuration, you can avoid unnecessary system overhead resulting from polling for messages on empty queues.

You may notice a delay in processing messages if the system is very quiet and the [EMPTYMBOXSLEEP](#) value has increased to its maximum. For example:

- A user releases a work item just after the BG process has polled the Mbox. The message remains in the Mbox until the idle period has expired.
- The BG processes the release instruction and sends out the next work item. That message arrives in its Mbox just after the WISMBD process has polled it, and so remains there until the next idle period has expired.

In this way, there could be a delay between the work item being released and the next work item arriving of approximately twice the [EMPTYMBOXSLEEP_MAX](#) value, even though the system is otherwise idle.

See Also

[EMPTYMBOXSLEEP_INC](#), [EMPTYMBOXSLEEP_MAX](#)

EMPTYMBOXSLEEP_INC

[Message and Mbox Processing Configuration](#)

Summary

This attribute defines the number of milliseconds or seconds to increment the [EMPTYMBOXSLEEP](#) value by when a BG or WISMBD process requests a message from an empty Mbox.

Applies To

This attribute can be set for the BG, WISMBD or ALL processes.

Permissible Values

The attribute value must be a numeric value in the range 0 to [EMPTYMBOXSLEEP_MAX](#).

Default Value

The attribute is assigned the following default value when iProcess Engine is installed.

Machine ID	Process	Instance	Value
0	ALL	0	2

See Also

[EMPTYMBOXSLEEP](#), [EMPTYMBOXSLEEP_MAX](#)

EMPTYMBOXSLEEP_MAX

[Message and Mbox Processing Configuration](#)

Summary

This attribute defines the maximum value (in milliseconds or seconds) that [EMPTYMBOXSLEEP](#) can be set to.

Applies To

This attribute can be set for the BG, WISMBD or ALL processes.

Default Value

The attribute is assigned the following default value when iProcess Engine is installed.

Machine ID	Process	Instance	Value
0	ALL	0	2

See Also

[EMPTYMBOXSLEEP](#), [EMPTYMBOXSLEEP_INC](#)

IQL_RETRY_COUNT

[Message and Mbox Processing Configuration](#)

i Note: This attribute value is only used on the SQL Server and DB2 iProcess Engine variants. On the Oracle variant this value is set using Oracle AQ parameters.

Summary

This attribute defines how many times a failed message in a message queue is retried before being moved to the exception queue.

Applies To

This attribute can be set for the BG process.

Default Value

The attribute is assigned the following default value when iProcess Engine is installed.

Machine ID	Process	Instance	Value
0	BG	0	12

Notes

If the IQL_RETRY_COUNT limit is exceeded, the message is moved to the exception queue (also known as the dead queue or poison queue), and manual intervention by a system administrator will be necessary to resolve the problem and progress the case that the message belongs to.

See Also

[IQL_RETRY_DELAY](#), [DEPLOY_XSL_OUT_ENCODING](#)

IQL_RETRY_DELAY

[Message and Mbox Processing Configuration](#)

i Note: This attribute value is only used on the SQL Server and DB2 iProcess Engine variants. On the Oracle variant this value is set using Oracle AQ parameters.

Summary

This attribute defines the delay (in seconds) between each retry attempt for a failed message in a message queue, before the message is moved to the exception queue.

Applies To

This attribute can be set for the BG process.

Default Value

The attribute is assigned the following default value when iProcess Engine is installed.

Machine ID	Process	Instance	Value
0	BG	0	300

Notes

A failed message is retried a number of times up to the [IQL_RETRY_COUNT](#) limit. If that limit is exceeded the message is moved to the exception queue (also known as the dead queue or poison queue), and manual intervention by a system administrator will be necessary to resolve the problem and progress the case that the message belongs to.

See Also

[IQL_RETRY_COUNT](#), [DEPLOY_XSL_OUT_ENCODING](#)

MBSET_DEQUEUE_TIMEOUT

[Message and Mbox Processing Configuration](#)

Summary

This attribute defines a time threshold (in milliseconds) for the duration of dequeuing a message from an Mbox set.

If the time for dequeuing the message is equal to or over the defined threshold, the dequeue operation keeps processing, and the time period of dequeuing the message will be logged in the `sw_warn` file. If the time for dequeuing the message is less than the threshold, the dequeue operation will be processed and no log is written in the `sw_warn` file.

Applies To

This attribute can be set for the BG process.

Permissible Values

The attribute value must be one of the following:

Value	Meaning
n	The timeout threshold, where n is any integer value that is 0 - 60000.

Default Value

The attribute is assigned the following default value when iProcess Engine is installed.

Machine ID	Process	Instance	Value
0	BG	0	200

Notes

If you set the value of the attribute to 0, the time period of dequeuing a message will be logged in the `sw_warn` file each time after dequeuing the message from an Mbox set. This may lead to an extremely large log file, since the log file records each time period of dequeuing messages, which may be problematic.

MBSET_READ_BG

Message and Mbox Processing Configuration

Summary

This attribute defines the unique identifier of the Mbox set (as defined in the `mbox_set` table) to be used by a BG process when dequeuing messages received from a process.

Applies To

This attribute can be set for the BG or ALL processes.

Default Value

The attribute is assigned the following default values when iProcess Engine is installed.

Machine ID	Process	Instance	Value	Notes
0	BG	1	3	for Mbox set WISBGMBSET1
0	BG	2	3	for Mbox set WISBGMBSET1

Machine ID	Process	Instance	Value	Notes
0	BG	3	4	for Mbox set WISBGMBSET2
0	BG	4	4	for Mbox set WISBGMBSET2
0	ALL	0	1	for all other processes (TIBCO iProcess Objects, swbatch etc.)

Notes

For more information about how these default values are used, see [Default Message Handling Configuration](#).

MBSET_READ_PREDICT

[Message and Mbox Processing Configuration](#)

Summary

This attribute defines the unique identifier of the Mbox set (as defined in the `mbox_set` table) to be used by a BGPREDICT process when dequeuing case change messages received from a BG process.

Applies To

This attribute can be set for the BGPREDICT or ALL processes.

Default Value

The attribute is assigned the following default value when iProcess Engine is installed.

Machine ID	Process	Instance	Value
0	ALL	0	3

MBSET_READ_WIS

Message and Mbox Processing Configuration

Summary

This attribute defines the unique identifier of the Mbox set (as defined in the `mbox_set` table) to be used by a WISMBD process when dequeuing messages received from a BG process.

Applies To

This attribute can be set for the WISMBD or ALL processes.

Default Value

The attribute is assigned the following default value when iProcess Engine is installed.

Machine ID	Process	Instance	Value
0	ALL	0	2

MBSET_WRITE_BG

Message and Mbox Processing Configuration

Summary

This attribute defines the unique identifier of the Mbox set (as defined in the `mbox_set` table) to be used by a process when posting messages to a BG process.

Applies To

This attribute can be set for the BG, WIS, SPO, RPC_POOL or ALL processes.

Default Value

The attribute is assigned the following default values when iProcess Engine is installed.

Machine ID	Process	Instance	Value	Notes
0	WIS	1	3	for Mbox set WISBGMBSET1
0	WIS	2	3	for Mbox set WISBGMBSET1
0	WIS	3	3	for Mbox set WISBGMBSET1
0	WIS	4	4	for Mbox set WISBGMBSET2
0	WIS	4	4	for Mbox set WISBGMBSET2
0	WIS	4	4	for Mbox set WISBGMBSET2
0	ALL	0	1	for all other processes (TIBCO iProcess Objects, swbatch etc.)

Notes

For more information about how these default values are used, see [Default Message Handling Configuration](#).

MBSET_WRITE_PREDICT

[Message and Mbox Processing Configuration](#)

Summary

This attribute defines the unique identifier of the Mbox set (as defined in the `mbox_set` table) to be used by a BG process when posting case change messages to a BGPREDICT process.

Applies To

This attribute can be set for the BG or ALL processes.

Default Value

The attribute is assigned the following default value when iProcess Engine is installed.

Machine ID	Process	Instance	Value
0	ALL	0	3

MBSET_WRITE_WIS

[Message and Mbox Processing Configuration](#)

Summary

This attribute defines the unique identifier of the Mbox set (as defined in the `mbox_set` table) to be used by a BG process when posting messages to a WISMBD process.

Applies To

This attribute can be set for the BG, RPCBG or ALL processes.

Default Value

The attribute is assigned the following default value when iProcess Engine is installed.

Machine ID	Process	Instance	Value
0	ALL	0	2

THRESHOLD_FAIL_TIMES_TO_REPORT_IQL_MESSAGE

Message and Mbox Processing Configuration

Summary

When a process fails to send an IQL message, it will try again for the number of times defined by [IQL_RETRY_COUNT](#). During this retry procedure, if the number of retries exceeds the value of this attribute (but does not reach the value of [IQL_RETRY_COUNT](#)), the process sends a warning message to the Process Sentinels.

Applies To

This attribute can be set for the BG process.

Default Value

The attribute is assigned the following default value when iProcess Engine is installed.

Machine ID	Process	Instance	Value
0	BG	0	3

See Also

[IQL_RETRY_COUNT](#), [IQL_RETRY_DELAY](#)

USE_NEXT_MESSAGE_TO_DEQUEUE

Message and Mbox Processing Configuration

i Note: This attribute value is only of benefit when there is a large buildup of messages in the Oracle AQs, for example, when a large number of messages are injected as part of a batch. If there is no buildup of messages in the Oracle AQs, there is no benefit to this setting.

Summary

This attribute defines the ways to purge vast quantities of cases in the Oracle AQs.

Applies To

This attribute can be set for the BG process.

Permissible Values

The attribute value must be one of the following:

Value	Meaning
0	To purge a large quantity of cases, the subsequent dequeue operations need to perform new queries for each message rather than to fetch the messages that are currently in the queue.
1	A large quantity of cases would be purged effectively by dequeuing messages, which are currently in the queue.

Default Value

This attribute is not defined automatically when you install or upgrade iProcess Engine. To use this attribute, you must explicitly assign a value to it.

Notes

When the value of the `USE_NEXT_MESSAGE_TO_DEQUEUE` attribute is set to 1, the dequeuing process loads all messages that are currently in the queue, and iterates through them as a single result set. In this way, it avoids performing any new queries for each message.

Any other messages outside the result set, even with higher internal message queue priorities, will not be picked up until all the messages in the result set have been dequeued.

See Also

None.

Sequence Numbering Configuration

The following process attributes allow you to configure how iProcess Engine caches sequence numbers. For more information about sequence numbers see [Sequence Number Caching](#).

Attribute	Description
CNUM_SEQ_CACHE	Defines the number of case numbers to be cached.
REQID_SEQ_CACHE	Defines the number of REQ IDs to be cached.
WIS_INDEX_REFRESH	Defines the number of Wait IDs to be cached.

CNUM_SEQ_CACHE

[Sequence Numbering Configuration](#)

Summary

This attribute defines the number of case numbers to be cached.

Applies To

This attribute can be set for the BG, SWBATCH, WIS, SPO, SSOLITE or ALL processes.

Default Value

The attribute is assigned the following default values when iProcess Engine is installed.

Machine ID	Process	Instance	Value
0	BG	0	50
0	SWBATCH	0	5
0	WIS	0	50
0	SPO	0	5
0	SSOLITE	0	5 (Oracle) or 10 (SQL and DB2)

Notes

Case number caching can provide a performance benefit when applied to the BG, WIS, RPC_POOL, and SWBATCH processes. It should not be used with other processes. For more information see [Sequence Number Caching](#).

If you use case number caching, you should note that it is possible for a lower case number to be started after a higher case number.

For example, suppose that a WIS process has 50 case numbers (1 to 50) cached, and a user uses the SWUTIL CSTART command to start a case. The case will have case number 51 - the next available number obtained from the cnum_sequence table.

However, if a user then starts a case through the WIS, that case will have case number 1 - the next available number in the cached sequence.

Thus, the start date/time for case number 1 will be later than the start date/time for case number 51.

See Also

[REQID_SEQ_CACHE](#), [WIS_INDEX_REFRESH](#)

REQID_SEQ_CACHE

Sequence Numbering Configuration

Summary

This attribute defines the number of REQ IDs to be cached.

Applies To

This attribute can be set for the BG, SWBATCH, WIS, SPO, SSOLITE or ALL processes.

Default Value

The attribute is assigned the following default values when iProcess Engine is installed.

Machine ID	Process	Instance	Value
0	BG	0	50
0	SWBATCH	0	5
0	WIS	0	50
0	SPO	0	5
0	SSOLITE	0	5 (Oracle) or 10 (SQL and DB2)

Notes

REQ ID caching can provide a performance benefit when applied to the BG, WIS, RPC_POOL and SWBATCH processes. It should not be used with other processes. For more information see [Sequence Number Caching](#).

See Also

[CNUM_SEQ_CACHE](#), [WIS_INDEX_REFRESH](#)

WAITID_SEQ_CACHE

Sequence Numbering Configuration

Summary

This attribute defines the number of Wait IDs to be cached.

Applies To

This attribute can be set for the BG or ALL processes.

Default Value

This attribute is not defined on a newly installed iProcess Engine node. In this case, the default value is:

Machine ID	Process	Instance	Value
0	ALL	0	0

The attribute only appears in the output of the `SHOW_ALL_ATTRIBUTES` command if you have explicitly assigned a value to it using the `SET_ATTRIBUTE` command. The default setting is not displayed.

Notes

Case number caching can provide a performance benefit when applied to the BG process (if waits are used in procedures being processed by the BG process). It should not be used with other processes. For more information see [Sequence Number Caching](#).

See Also

[CNUM_SEQ_CACHE](#), [REQID_SEQ_CACHE](#)

Transaction Control Configuration

The following process attributes allow you to configure how iProcess Engine handles transactions.

Attribute	Description
BG_MAX_ACTIONS_PER_TRANS	Defines the limit of actions per workflow transaction.
CHECK_EAIWITHDRAW_ONPURGE	Defines whether or not iProcess checks if any outstanding delayed release EAI steps have been successfully withdrawn before committing the purge transaction.
EAI_STEP_TIMEOUT	Defines a time threshold (in milliseconds) for the duration of processing an EAI step.

BG_MAX_ACTIONS_PER_TRANS

[Transaction Control Configuration](#)

Summary

This attribute limits the number of steps sent or withdrawn during the processing of a single workflow transaction (i.e. the number of EAI steps that can be processed in one transaction without any other step types in between).

Applies To

This attribute can be defined for the BG, RPCBG and BGPREDICT processes.

Default Value

This attribute is not defined on a newly installed iProcess Engine node. In this case, the default value is:

Machine ID	Process	Instance	Value
0	ALL	0	1000

The attribute only appears in the output of the `SHOW_ALL_ATTRIBUTES` command if you have explicitly assigned a value to it using the `SET_ATTRIBUTE` command. The default setting is not displayed

Notes

When this limit is reached the workflow transaction is aborted and an appropriate message is logged to the `sw_warn` log file. For more information, see [iProcess Engine Log Files](#).

CHECK_EAIWITHDRAW_ONPURGE

Transaction Control Configuration

Summary

When you purge a case that contains an outstanding delayed release EAI step, the BG process attempts to withdraw the EAI step (sending an instruction to the external system to remove any data associated with that step). By default, iProcess checks if any outstanding delayed release EAI steps have been successfully withdrawn before committing the purge transaction.

The `CHECK_EAIWITHDRAW_ONPURGE` process attribute allows you to configure this behavior to suit your requirements.

If the withdrawal fails, the data is left in the external system even though the case is purged. The external system and iProcess case are thus out of synchronization with each other. Therefore, TIBCO recommends that the default setting (1) is used instead.

Applies To

This attribute must be set for ALL processes.

Permissible Values

The attribute value must be one of the following:

Value	Meaning
0	iProcess assumes that the EAI step is successfully withdrawn, commits the transaction and purges the case. If the value is set to 0, iProcess assumes that the withdrawal succeeds, commits the transaction and purges the case.
1	<p>iProcess checks whether the EAI step is successfully withdrawn or not. If the withdraw:</p> <ul style="list-style-type: none"> • succeeds, iProcess commits the transaction and purges the case. • fails, iProcess rolls back the transaction and does not purge the case. <p>This is the default value.</p>

Default Value

The attribute is assigned the following default value when iProcess Engine is installed.

Machine ID	Process	Instance	Value
0	ALL	0	1

Notes

If CHECK_EAIWITHDRAW_ONPURGE is set to 1 you should note the following implications:

- If you are using a custom shell EAI Server Plug-in (developed using the EAI SDK), and you want to use delayed release EAI steps, you must implement the EAIRun_Withdraw function. The iProcess Suite uses the return value from this function to determine whether it should commit (EAI_SUCCESS) or rollback (any return value other than EAI_SUCCESS) the purge transaction.
- If the purge transaction fails, it will be automatically re-queued and retried a number of times, as determined by the values of the [IQL_RETRY_COUNT](#) and [IQL_RETRY_DELAY](#) process attributes.

- The external system is responsible for handling failed withdraws, and ensuring that the withdraw attempt ultimately succeeds. Otherwise, cases will be left in iProcess that cannot be purged.
- If you use the TIBCO iProcess Workspace's Case Administration tool to purge cases (by selecting a case and clicking the Purge Case(s) button), if the purge transaction fails the case will still be visible when you click the **Refresh** button.

EAI_STEP_TIMEOUT

Transaction Control Configuration

Summary

This attribute defines a time threshold (in milliseconds) for the duration of processing an EAI step.

If the time for processing an EAI step is equal to or over the defined threshold, the EAI step keeps processing, and the time period of processing the EAI step will be logged in the `sw_warn` file. If the time for processing an EAI step is less than the defined threshold, the EAI step will be processed and no log is written in the `sw_warn` file.

Applies To

This attribute can be set for the BG process.

Permissible Values

The attribute value must be one of the following:

Value	Meaning
<i>n</i>	The timeout threshold, where <i>n</i> is any integer value that is 0 - 60000.

Default Value

The attribute is assigned the following default value when iProcess Engine is installed.

Machine ID	Process	Instance	Value
0	BG	0	2000

Notes

If you set the value of the attribute to 0, the time period of processing an EAI step will be logged in the sw_warn file each time after processing the EAI step. This may lead to an extremely large log file, since the log file records each time period of processing EAI steps, which may be problematic.

Activity Monitoring and Work Queue Delta Configuration

The following process attributes allow you to configure how iProcess Engine performs activity monitoring and Work Queue Delta publication.

For more information about:

- administering activity monitoring and Work Queue Delta publication, see [Administering Activity Monitoring and Work Queue Delta Publication](#).
- configuring activity monitoring, see "Configuring Activity Monitoring" in *TIBCO iProcess Modeler Integration Techniques*.

Attribute	Description
AUDIT_CASEDATA_CHANGED	Defines whether or not to log the case data changes in the audit trail when these changes are made by iProcess Insight, iProcess Workspace (Browser), or the setCaseData TIBCO iProcess Server Objects interface, rather than by normal step processing.
IAPJMS_LANGUAGE	Defines the character set to be used for output encoding for messages published to the IAPJMS process from the BG or WIS process.
IAPJMS_PORTNO	Defines the port number that is used for message communications

Attribute	Description
	between the BG process and the IAPJMS library.
IAPJMS_PUBLISH	Defines whether or not the BG process is enabled to publish audit activities to the IAPJMS process.
IAPJMS_ROLLBACK	Defines whether or not failed message transactions should be rolled back.
IAPJMS_SIMPLETOPIC	Defines whether or not the JMS topic name is static or dynamically configured at run-time.
IAPJMS_SYNCHRONOUS	Defines whether message delivery is synchronous or asynchronous.
IAPJMS_TIMEOUT	Defines how long the IAPJMS process should wait before it times out if there is a network error.
IAPJMS_TOPICNAME	Defines the topic name for the JMS destination if activity monitoring is enabled.
JVMPROPS	Defines the JVM attributes that should be specified for the Java Virtual Machine when it is started.
PUBLISH_SYS_EVENT_METHOD	Defines in which way you want to publish system events.
SE_WORKER_PORTNO	Defines the port number that is used for message communications between the “worker” process (Process Sentinel) and the processes that audit system events if you want to published system events using TIBCO Hawk Agent.
SEJMS_TOPICNAME	Defines the JMS topic name for the JMS destination that is used to publish system events, if publishing system events is enabled.
SHUTDOWN_MIGRATION_	Defines whether or not to contain in the published Monitor Event Detail message the audit trail message (with message ID 34), which writes the

Attribute	Description
MESSAGE	information about procedure migration.
SWLIB_PATH	Defines the directory where the IAPJMS process will look for the Java libraries that it needs.
SYSTEM_EVENT_LOGGING	Defines whether you want to audit system events after installing or upgrading to TIBCO iProcess Engine 11.9.0.
WQDJMS_PORTNO	Defines the port number that is used for work queue delta messages between the WIS process and the IAPJMS process.
WQDJMS_TOPICNAME	Defines the default topic name for the JMS destination used by the WIS process for work queue delta publication.

AUDIT_CASEDATA_CHANGED

Activity Monitoring and Work Queue Delta Configuration

Summary

This attribute defines whether or not to log the case data changes in the audit trail when these changes are made by iProcess Insight, iProcess Workspace (Browser), or the setCaseData TIBCO iProcess Server Objects interface, rather than by normal step processing.

Applies To

This attribute applies to the SPO process.

Permissible Values

The attribute value must be one of the following:

Value	Meaning
0	Case data changes made by iProcess Insight, iProcess Workspace (Browser), or the setCaseData TIBCO iProcess Server Objects interface are not logged in the audit trail.
1	Case data changes made by iProcess Insight, iProcess Workspace (Browser), or the setCaseData TIBCO iProcess Server Objects interface are logged in the audit trail.

Default Value

This attribute is not defined automatically when you install or upgrade iProcess Engine. To use this attribute, you must explicitly assign a value to it using the `swadm set_attribute` command. In case, no value is defined in the process attributes, the engine takes 1 as the default value. For more information about this command, see [Set a Process Attribute](#).

Notes

If you change the value of this attribute, you do not need to stop and restart iProcess Engine to make the change take effect.

The changes of the case data made by iProcess Insight, iProcess Workspace (Browser), or the setCaseData TIBCO iProcess Server Objects interface are recorded as an audit message "133: Case data changed by *username*" in the `audit.mes` file located in the `SWDIR\etc\language.lng` directory.

See Also

None.

IAPJMS_LANGUAGE

[Activity Monitoring and Work Queue Delta Configuration](#)

Summary

This attribute defines the character set to be used for output encoding for messages published to the IAPJMS process from the BG or WIS process.

Applies To

The attribute should be set for BG, WIS, or ALL processes.

Permissible Values

This attribute value must be a valid character encoding name.

Default Value

The attribute is assigned the following default value when iProcess Engine is installed.

Machine ID	Process	Instance	Value
0	ALL	0	UTF-8

Notes

None.

See Also

[IAPJMS_PUBLISH](#), [IAPJMS_SYNCHRONOUS](#), [IAPJMS_ROLLBACK](#), [IAPJMS_TIMEOUT](#), [IAPJMS_TOPICNAME](#), [IAPJMS_SIMPLETOPIC](#), [JVMPROPS](#), [SWLIB_PATH](#)

IAPJMS_PORTNO

[Activity Monitoring and Work Queue Delta Configuration](#)

Summary

This attribute defines the port number that is used for message communications between the BG process and the IAPJMS process.

Applies To

The attribute should be set for ALL processes.

Default Value

The attribute is assigned the following default value when iProcess Engine is installed.

Machine ID	Process	Instance	Value
0	ALL	0	9071

Notes

If you change the value of this attribute, the change does not take effect until you stop and restart iProcess Engine.

See Also

[IAPJMS_PUBLISH](#), [IAPJMS_SYNCHRONOUS](#), [IAPJMS_ROLLBACK](#), [IAPJMS_TIMEOUT](#), [IAPJMS_TOPICNAME](#), [IAPJMS_SIMPLETOPIC](#), [JVMPROPS](#), [SWLIB_PATH](#)

IAPJMS_PUBLISH

[Activity Monitoring and Work Queue Delta Configuration](#)

Summary

This attribute defines whether or not the BG process is enabled to publish monitored activities to the IAPJMS process.

Applies To

The attribute must be set for ALL processes.

Permissible Values

The attribute value must be one of the following:

Value	Meaning
0	Activity monitoring is disabled.
1	Activity monitoring is enabled.

Default Value

The attribute is assigned the following default values when iProcess Engine is installed.

Machine ID	Process	Instance	Value
0	ALL	0	0

Notes

If activity monitoring is enabled then activity information about auditable objects (for example, procedures and steps) can be published to an external application. This enables real-time monitoring of auditable objects so that mission critical or important business events can be easily monitored.

See Also

[IAPJMS_PORTNO](#), [IAPJMS_SYNCHRONOUS](#), [IAPJMS_ROLLBACK](#), [IAPJMS_TOPICNAME](#), [IAPJMS_SIMPLETOPIC](#), [JVMPROPS](#), [SWLIB_PATH](#)

IAPJMS_ROLLBACK

[Activity Monitoring and Work Queue Delta Configuration](#)

Summary

This attribute defines whether or not failed message transactions should be rolled back.

Applies To

This attribute must be set for ALL processes.

Permissible Values

The attribute value must be one of the following:

Value	Meaning
0	The iProcess Engine transaction succeeds and is committed even if the message fails. This means that failed JMS messages cause an error to be written to the sw_error file but the failed message transaction is not rolled back.
1	Any error causes the BG process to fail the current instruction and roll back any outstanding iProcess Engine transactions.

Default Value

The attribute is assigned the following default values when iProcess Engine is installed.

Machine ID	Process	Instance	Value
0	ALL	0	1

Notes

To ensure reliable message delivery, TIBCO recommends that the value of this attribute be set to 1. This means that failed JMS messages cause an error to be written to the sw_error file and are rolled back. For more information about log files, see [iProcess Engine Log Files](#).

See Also

[IAPJMS_PUBLISH](#), [IAPJMS_PORTNO](#), [IAPJMS_SYNCHRONOUS](#), [IAPJMS_TOPICNAME](#), [IAPJMS_SIMPLETOPIC](#), [JVMPROPS](#), [SWLIB_PATH](#)

IAPJMS_SYNCHRONOUS

Activity Monitoring and Work Queue Delta Configuration

Summary

This attribute defines the JMS message delivery method. There are two delivery methods, synchronous or asynchronous.

Applies To

This attribute must be set for ALL processes.

Permissible Values

The attribute value must be one of the following:

Value	Meaning
0	The JMS message delivery method is asynchronous. The message is assumed to have been processed correctly if the message was sent successfully to the IAPJMS process.
1	The JMS message delivery method is synchronous. When the message is sent, a receipt is requested. The BG process waits until the IAPJMS process has confirmed the message has been published. If the message is not published, an error is written to the sw_error file.

Default Value

The attribute is assigned the following default values when iProcess Engine is installed.

Machine ID	Process	Instance	Value
0	ALL	0	1

Notes

If you chose the synchronous message delivery method, there will be an impact on the performance of your iProcess Engine.

See Also

[IAPJMS_PUBLISH](#), [IAPJMS_PORTNO](#), [IAPJMS_ROLLBACK](#), [IAPJMS_TIMEOUT](#), [IAPJMS_TOPICNAME](#), [IAPJMS_SIMPLETOPIC](#), [JVMPROPS](#), [SWLIB_PATH](#)

IAPJMS_TIMEOUT

[Activity Monitoring and Work Queue Delta Configuration](#)

Summary

This attribute defines the amount of time (in seconds) before the IAPJMS process should timeout, for example, if there is a network error.

Applies To

This attribute must be set for ALL processes.

Default Value

This attribute is not defined on a newly installed iProcess Engine node. In this case, the default value is:

Machine ID	Process	Instance	Value
0	ALL	0	30

The attribute only appears in the output of the `SHOW_ALL_ATTRIBUTES` command if you have explicitly assigned a value to it using the `SET_ATTRIBUTE` command. The default setting is not displayed

Notes

If you change the value of this attribute, the change does not take effect until you stop and restart iProcess Engine.

See Also

[IAPJMS_PUBLISH](#), [IAPJMS_PORTNO](#), [IAPJMS_SYNCHRONOUS](#), [IAPJMS_TOPICNAME](#), [IAPJMS_SIMPLETOPIC](#), [JVMPROPS](#), [SWLIB_PATH](#)

IAPJMS_TOPICNAME

[Activity Monitoring and Work Queue Delta Configuration](#)

Summary

This attribute defines the JMS topic name for the JMS destination that is used to audit an individual case of a procedure and system events, if activity monitoring is enabled.

Applies To

This attribute must be set for ALL processes.

Permissible Values

The attribute value must be a string. The JMS topic name format depends on your J2EE environment. See the documentation supplied with your J2EE Application Server for more information about how you should format your JMS topic name for your J2EE environment. However, iProcess Engine forces a maximum length of 511 characters for the length of the process attribute.

Default Value

The attribute is assigned the following default value when iProcess Engine is installed.

Machine ID	Process	Instance	Value
0	ALL	0	IATOPIC

Notes

If activity monitoring is enabled, the BG process sends JMS messages to a JMS topic name that you can specify using this attribute. The JMS topic name can be static or dynamically configured at run-time.

This attribute is used with the [IAPJMS_SIMPLETOPIC](#) process attribute:

- If the value of [IAPJMS_SIMPLETOPIC](#) is 1, the JMS topic name specified in the IAPJMS_TOPICNAME process attribute is static.
- If the value of [IAPJMS_SIMPLETOPIC](#) is 0, the JMS topic name specified in the IAPJMS_TOPICNAME process attribute is dynamically configured at run-time to include the iProcess procedure name and step name.

For example, if the IAPJMS_TOPICNAME is IAPTOPIC and [IAPJMS_SIMPLETOPIC](#) is 0, then all messages are addressed to one of the following JMS topic names, depending on the activity being audited:

- IAPTopic.*procedurename*.START
- IAPTopic.*procedurename.stepname*.START
- IAPTopic.*procedurename.stepname*.END
- IAPTopic.*procedurename*.END

where:

procedurename is the name of the iProcess procedure

stepname is the name of the step in the iProcess procedure.

Some applications demand that the JMS topic name be configured this way. However, you may want to configure the JMS topic name this way if you want to use lots of small topics as opposed to one single large topic.

The following table shows which audit trail messages are logged to which topics. (See [Understanding Audit Trails](#) for a complete listing of audit trail messages and their corresponding Message IDs).

JNDI Name	Activity (Message ID)
IAPTopic. <i>procedurename</i> .START	Case started by <i>UserName</i> (000)
IAPTopic. <i>procedurename.stepname</i> .START	StepDescription processed to <i>UserName</i> (001)
	StepDescription forwarded to <i>UserName</i> (004)
	Sub-Case started from <i>StepDescription</i> (016)
IAPTopic. <i>procedurename.stepname</i> .END	All activities not covered by any of the other listed topics.
IAPTopic. <i>procedurename</i> .END	Case terminated normally (009)
	Case terminated prematurely by <i>UserName</i> (008)
	Case terminated abnormally (007)
	Any other activity that has a blank stepname.

See Also

[IAPJMS_PUBLISH](#), [IAPJMS_PORTNO](#), [IAPJMS_ROLLBACK](#), [IAPJMS_SYNCHRONOUS](#), [IAPJMS_SIMPLETOPIC](#), [IAPJMS_TIMEOUT](#), [JVMPROPS](#), [SWLIB_PATH](#)

IAPJMS_SIMPLETOPIC

[Activity Monitoring and Work Queue Delta Configuration](#)

Summary

This attribute defines whether or not the JMS topic is static or dynamically configured at run-time.

Applies To

This attribute must be set for ALL processes.

Permissible Values

The attribute value must be one of the following:

Value	Meaning
1	The JMS topic name is static.
0	The JMS topic name is dynamically configured at run-time.

Default Value

The attribute is assigned the following default value when iProcess Engine is installed.

Machine ID	Process	Instance	Value
0	ALL	0	1

Notes

This attribute is used with the [IAPJMS_TOPICNAME](#) process attribute.

See Also

[IAPJMS_PUBLISH](#), [IAPJMS_PORTNO](#), [IAPJMS_SYNCHRONOUS](#), [IAPJMS_ROLLBACK](#),
[IAPJMS_TIMEOUT](#), [IAPJMS_TOPICNAME](#), [JVMPROPS](#), [SWLIB_PATH](#)

JVMPROPS

[Activity Monitoring and Work Queue Delta Configuration](#)

Summary

This attribute defines the JVM attributes that should be specified for the Java Virtual Machine when it is started.

Applies To

This attribute can be set for ALL processes.

Permissible Values

The attribute value must be a string. See the documentation supplied with your J2DK application for more information about how you should format the JVMPROPS attribute for your J2DK environment.

Default Value

The attribute is assigned the following default values when iProcess Engine is installed.

Machine ID	Process	Instance	Value
0	ALL	0	NULL

Notes

If activity monitoring is enabled, you can use this process attribute to configure any JVM attributes, for example debug values, that should be specified for the Java Virtual Machine when it is started.

If you change the value of this attribute, the change does not take effect until you stop and restart the process that you have changed the attribute value for.

See Also

[IAPJMS_PUBLISH](#), [IAPJMS_PORTNO](#), [IAPJMS_ROLLBACK](#), [IAPJMS_SIMPLETOPIC](#), [IAPJMS_SYNCHRONOUS](#), [IAPJMS_TIMEOUT](#), [IAPJMS_TOPICNAME](#), [SWLIB_PATH](#)

PUBLISH_SYS_EVENT_METHOD

[Activity Monitoring and Work Queue Delta Configuration](#)

Summary

This attribute defines in which way you want to publish system events.

Applies To

This attribute can be set for ALL processes.

Permissible Values

This attribute value must be one of the following:

Value	Meaning
0	System events are not published.
1	System events are published using Windows Event Viewer. Note: This function is only available for Microsoft Windows system.
2	System events are published as TIBCO Hawk alerts on TIBCO Hawk Event Service. For more information about TIBCO Hawk Event Service, see <i>TIBCO Hawk Installation, Configuration, and Administration Guide</i> .
3	System events are published using the IAPJMS process. You can check the published XML file in the <code>iapjms_java.log</code> file, which is located in the <code>SWDIR/logs</code> directory.

Default Value

The `PUBLISH_SYS_EVENT_METHOD` attribute is assigned the following default value when iProcess Engine is installed.

Machine ID	Process	Instance	Value
0	ALL	0	0

Note

If you want to publish system events, you must audit them first. Set the value of the [SYSTEM_EVENT_LOGGING](#) process attribute to 1 to audit system events.

If the system events are published using TIBCO Hawk Agent, the processes that audit the system events, send the event details to the “worker” process (Process Sentinel) through a socket. Then the “worker” process sends the event details to TIBCO Hawk Agent. To define a socket number in the connection between the “worker” process and processes, which audit system events, set the [SE_WORKER_PORTNO](#) process attribute.

If you use the IAPJMS process to publish system events, the topic name on which the events are published depends on the following conditions:

- If the value of the [SEJMS_TOPICNAME](#) process attribute is set, the events will be published under the topic name that is set in the [SEJMS_TOPICNAME](#) process attribute.
- Otherwise, the events will be published under the topic name that is set in the [IAPJMS_TOPICNAME](#) process attribute.

See Also

[SYSTEM_EVENT_LOGGING](#), [SEJMS_TOPICNAME](#), [IAPJMS_TOPICNAME](#), [SE_WORKER_PORTNO](#)

SE_WORKER_PORTNO

[Activity Monitoring and Work Queue Delta Configuration](#)

Summary

This attribute defines the port number that is used for message communications between the “worker” process (Process Sentinel) and the processes that audit system events if you want to publish system events using TIBCO Hawk Agent.

Applies To

This attribute can be set for ALL processes.

Default Value

This attribute is assigned the following default value when iProcess Engine is installed.

Machine ID	Process	Instance	Value
0	ALL	0	9085

Note

If you change the value of this attribute, the change does not take effect until you stop and restart iProcess Engine.

The port number must be unique for each installation of iProcess Engine on the same server even if system events are not configured to be published. Otherwise, the second subsequent instances will fail.

If the system events are published using TIBCO Hawk Agent, the processes that audit the system events, send the event details to the “worker” process (Process Sentinel) through a socket. Then the "worker" process sends the event details to TIBCO Hawk Agent. This process attribute is used to define a socket number for the connection between the "worker" process and processes, which audit system events.

See Also

[SYSTEM_EVENT_LOGGING](#), [PUBLISH_SYS_EVENT_METHOD](#)

SEJMS_TOPICNAME

[Activity Monitoring and Work Queue Delta Configuration](#)

Summary

This attribute defines the JMS topic name for the JMS destination that is used to publish system events, if publishing system events is enabled.

Applies To

This attribute can be set for ALL processes.

Permissible Values

This attribute value must be a string. The format of JMS topic name depends on your J2EE environment. See the documentation supplied with your J2EE Application Server for more information about how to format the JMS topic name for the J2EE environment. The maximum length of this process attribute is 511 characters.

Default Value

This attribute is not defined automatically when you install or upgrade TIBCO iProcess Engine. To use this attribute, you must specifically assign a value to it by using the `swadm set_attribute` command. For more information about this command, see [Set a Process Attribute](#).

Note

This attribute is used with the [PUBLISH_SYS_EVENT_METHOD](#) process attribute.

SHUTDOWN_MIGRATION_MESSAGE

[Activity Monitoring and Work Queue Delta Configuration](#)

Summary

This attribute defines whether or not to contain in the published Monitor Event Detail message the audit trail message (with message ID 34), which writes the information about procedure migration.

Applies To

This attribute can be set for the BG processes.

Permissible Values

The attribute value must be one of the following:

Value	Meaning
1	The information about procedure migration is not contained in the published Monitor Event Detail message.
0	The audit trail message (with message ID 34), which writes the information about procedure migration is contained in the Monitor Event Detail message.

Default Value

The attribute is assigned the following default values when iProcess Engine is installed.

Machine ID	Process	Instance	Value
1	BG	0	0

Notes

When releasing a new version of a procedure and choosing to migrate existing cases of that procedure to the new version, the following audit trail entry (message ID 34) is generated for each case:

Case migrated from Procedure *StepName* to *StepDescription* by *UserName*.

If TIBCO iProcess Engine is configured to publish activity information, and the value of the SHUTDOWN_MIGRATION_MESSAGE attribute is set to 0, then a corresponding Monitor Event Detail message is published for each case, containing this audit message (with ActivityID=34).

For more information about the audit trail message, see [Understanding Audit Trails](#).

See Also

None.

SWLIB_PATH

Activity Monitoring and Work Queue Delta Configuration

Summary

This attribute defines the directory where the IAPJMS process will look for the Java libraries that it needs.

Applies To

This attribute can be set for ALL processes, but is currently only used by the IAPJMS, BG, BGPREDICT and RPCBG process.

Permissible Values

The attribute value must be a fully qualified pathname to a directory that contains a full Java Runtime Environment (JRE).

Default Value

The attribute is assigned the following default values when iProcess Engine is installed.

Machine ID	Process	Instance	Value
0	ALL	0	See the Notes following.

Notes

When a process that uses this attribute starts up, it searches the system's shared library/command path for the Java libraries that it needs.

When SWLIB_PATH is set its value is prefixed to the system's shared library/command path. The default value points to the Java libraries that are distributed with iProcess Engine, as shown in the following table.

Platform	Default SWLIB_PATH Value...	...is prefixed to the environment variable
Linux	SWDIR/java/lib/i386/server: SWDIR/java/lib/i386	LD_LIBRARY_PATH
Windows	%SWDIR%java\bin\client	PATH



Warning: You must only change SWLIB_PATH if you have a specific requirement to use different Java libraries from the default versions distributed with iProcess Engine. If you specify a directory that does not contain the necessary Java libraries, the process using the attribute will fail.

See Also

[IAPJMS_PUBLISH](#), [IAPJMS_PORTNO](#), [IAPJMS_ROLLBACK](#), [IAPJMS_SIMPLETOPIC](#), [IAPJMS_SYNCHRONOUS](#), [IAPJMS_TIMEOUT](#), [IAPJMS_TOPICNAME](#)

SYSTEM_EVENT_LOGGING

[Activity Monitoring and Work Queue Delta Configuration](#)

Summary

This attribute defines whether you want to audit system events after installing or upgrading to TIBCO iProcess Engine version 11.9.0.

Applies To

This attribute can be set for ALL processes.

Permissible Values

This attribute value must be one of the following:

Value	Meaning
0	System events are not audited after installing or upgrading to TIBCO iProcess Engine version 11.9.0.
1	System events are audited after installing or upgrading to TIBCO iProcess Engine version 11.9.0.

Default Value

After installing TIBCO iProcess Engine version 11.9.0, the system events are audited by default. This attribute is assigned the following default value after installing TIBCO iProcess Engine version 11.9.0.

Machine ID	Process	Instance	Value
0	ALL	0	1

After upgrading to TIBCO iProcess Engine version 11.9.0, the system events are not audited by default. This attribute is assigned the following default value after upgrading to TIBCO iProcess Engine version 11.9.0.

Machine ID	Process	Instance	Value
0	ALL	0	0

Note

To publish system events after auditing the events, you have to set the [PUBLISH_SYS_EVENT_METHOD](#) process attribute after you have audited system events.

See Also

[PUBLISH_SYS_EVENT_METHODSE_WORKER_PORTNO](#)

WQDJMS_PORTNO

[Activity Monitoring and Work Queue Delta Configuration](#)

Summary

This attribute defines the port number that is used for work queue delta message communications between the WIS processes and the IAPJMS process. It is read when iProcess Engine starts up.

Applies To

The attribute should be set for ALL processes.

Default Value

The attribute is assigned the following default value when iProcess Engine is installed.

Machine ID	Process	Instance	Value
0	ALL	0	9075

Notes

If you change the value of this attribute, the change does not take effect until you stop and restart iProcess Engine.

See Also

[WQDJMS_TOPICNAME](#)

WQDJMS_TOPICNAME

[Activity Monitoring and Work Queue Delta Configuration](#)

Summary

This attribute defines the default JMS topic name for the JMS destination used for work queue delta messages, if Work Queue Delta Publication via JMS is in use. This default can be overridden for an individual subscription, if that subscription supplies a different topic name.

Applies To

By default this attribute applies to ALL processes.

Permissible Values

The attribute value must be a string. The JMS topic name format depends on your J2EE environment. See the documentation supplied with your J2EE Application Server for more information about how you should format your JMS topic name for your J2EE environment. However, iProcess Engine forces a maximum length of 511 characters for the length of the process attribute.

Default Value

The attribute is assigned the following default value when iProcess Engine is installed.

Machine ID	Process	Instance	Value
0	ALL	0	WQDTOPIC

Notes

If work queue delta monitoring is enabled, the WIS process sends JMS messages to a JMS topic name that you can specify using this attribute. The JMS topic name can be static or dynamically configured at run-time.

See Also

[WQDJMS_PORTNO](#)

Case Prediction Configuration

The following process attributes allow you to configure the use of case prediction on iProcess Engine.

Attribute	Description
ENABLE_CASE_PREDICTION	<p>Defines whether or not background case prediction is enabled on the node.</p> <p>Note: This attribute has no effect on live case prediction or case simulation.</p>
MAX_PREDICTION_LOOPS	<p>Defines the maximum number of times to loop during the prediction process.</p>

ENABLE_CASE_PREDICTION

Case Prediction Configuration

Summary

This attribute defines whether or not the case prediction server process (BGPREDICT) is enabled for the iProcess system.

Applies To

This attribute can be set for ALL processes.

Permissible Values

The attribute value must be one of the following:

Value	Meaning
0	BGPREDICT is disabled.
1	BGPREDICT is enabled.

Default Value

The attribute is assigned the following default value when iProcess Engine is installed.

Machine ID	Process	Instance	Value
0	ALL	0	0

Notes

This attribute only affects background case prediction. It has no effect on live case prediction or case simulation.

For more information about the use of case prediction, see “Using Case Prediction to Forecast Outstanding Work Items” in *TIBCO iProcess Modeler Advanced Design*.

MAX_PREDICTION_LOOPS

Case Prediction Configuration

Summary

This attribute defines the maximum number of times to loop during the prediction process. An error is reported if this value is exceeded - this prevents infinite loops occurring as a result of loops in the procedure.

Applies To

This attribute applies to the BGPREDICT process.

Default Value

The attribute is assigned the following default value when iProcess Engine is installed.

Machine ID	Process	Instance	Value
0	BGPREDICT	0	500

TIBCO iProcess Workspace (Windows) Configuration

The following process attributes allow you to configure aspects of TIBCO iProcess Workspace (Windows) behavior.

Attribute	Description
CSTART_AUTO_REFRESH	Defines whether or not the list of available procedures in the TIBCO iProcess Workspace's Case Start dialog box is automatically refreshed.
DISABLE_CASE_COUNTING	Defines whether case counts are displayed for procedures in the Live (Dead) Cases column of the Case Administrator dialog box, when a user starts iProcess Administrator from iProcess Workspace (Windows)
DISABLE_USER_CHECK	Defines whether or not a new user name is validated as an O/S user account when you add an iProcess user from the User Manager tool of TIBCO iProcess Administrator.
DISABLE_USER_LIST	Defines whether or not the Possible iProcess User List button is displayed in the User Manager tool of TIBCO iProcess Administrator.
OS_USER_LOCATIONS	Defines where iProcess Engine should obtain the list of users when it populates the Possible iProcess User List in the User Manager tool of TIBCO iProcess Administrator.
RPC_BLOCK	Defines whether or not iProcess Workspace (Windows) is able to access iProcess Engine.

CSTART_AUTO_REFRESH

TIBCO iProcess Workspace (Windows) Configuration

Summary

This attribute defines whether or not the list of available procedures in the TIBCO iProcess Workspace's Case Start dialog box is automatically refreshed.

Applies To

This attribute can be set for ALL processes.

Permissible Values

The attribute value must be one of the following:

Value	Meaning
0	The procedure list in the Case Start dialog box is not automatically refreshed when the dialog box is opened. The user must click the Refresh button to update the procedure list.
1	The procedure list in the Case Start dialog box is automatically refreshed when the dialog box is opened.

Default Value

This attribute is not defined on a newly installed iProcess Engine node. In this case, the default value is:

Machine ID	Process	Instance	Value
0	ALL	0	1

The attribute only appears in the output of the SHOW_ALL_ATTRIBUTES command if you have explicitly assigned a value to it using the SET_ATTRIBUTE command. The default setting is not displayed

Notes

When automatic refresh is enabled, the dialog box is refreshed when it is opened. This ensures that the list of available procedures and versions shown to the user is accurate.

However, you can disable automatic refresh if you want. You may want to do this if you have very large numbers of procedures, so that the refresh takes a noticeable time.

DISABLE_CASE_COUNTING

TIBCO iProcess Workspace (Windows) Configuration

Summary

This attribute defines whether case counts are displayed for procedures in the Live (Dead) Cases column of the Case Administrator dialog box, when a user starts iProcess Administrator from iProcess Workspace (Windows).

Applies To

This attribute can be set for ALL processes.

Permissible Values

The attribute value must be one of the following:

Value	Meaning
0	The Live (Dead) Cases column is populated when the Case Administrator dialog box loads.
1	The Live (Dead) Cases column is not populated when the Case Administrator dialog box loads. This improves the dialog box's loading time.

Default Value

This attribute is not defined on a newly installed iProcess Engine node. In this case, the default value is:

Machine ID	Process	Instance	Value
0	ALL	0	0

The attribute only appears in the output of the `SHOW_ALL_ATTRIBUTES` command if you have explicitly assigned a value to it using the `SET_ATTRIBUTE` command. The default setting is not displayed

Notes

Normally, procedures are only displayed in the Case Administrator dialog box if they have Case Administration access, have started cases, and the user is logged in to as either the procedure owner or an Administrator. However, when `DISABLE_CASE_COUNTING=1`, all procedures on the system are displayed in the Case Administrator dialog box.

DISABLE_USER_CHECK

TIBCO iProcess Workspace (Windows) Configuration



Note: This attribute has no effect if you are validating iProcess users against an external validation package rather than against the O/S. See [Specifying How iProcess Validates Users](#).

Summary

This attribute defines whether or not a new user name is validated as an O/S user account when you add an iProcess user (from the User Manager tool of TIBCO iProcess Administrator).

Applies To

This attribute must be set for ALL processes.

Permissible Values

The attribute value must be one of the following:

Value	Meaning
0	When you use User Manager to add a new user, the iProcess Suite checks if the username is a valid O/S user account. If it is not, the user is not created and an “Invalid User” error is displayed.
1	When you use User Manager to add a new user, the iProcess Suite does not check if the username is a valid O/S user account. The user is created even if it is not a valid O/S user account.

Default Value

This attribute is not defined on a newly installed iProcess Engine node. In this case, the default value is:

Machine ID	Process	Instance	Value
0	ALL	0	0

The attribute only appears in the output of the `SHOW_ALL_ATTRIBUTES` command if you have explicitly assigned a value to it using the `SET_ATTRIBUTE` command. The default setting is not displayed

See Also

[DISABLE_USER_LIST](#)

DISABLE_USER_LIST

[TIBCO iProcess Workspace \(Windows\) Configuration](#)

Summary

This attribute defines whether or not the Possible iProcess User List button is displayed in the User Manager tool of TIBCO iProcess Administrator.

Applies To

This attribute must be set for ALL processes.

Permissible Values

The attribute value must be one of the following:

Value	Meaning
0	The Possible iProcess User List button is displayed in User Manager.
1	The Possible iProcess User List button is not displayed in User Manager. You should use this setting if you want to prevent users from accessing the list of valid O/S users.

Default Value

This attribute is not defined on a newly installed iProcess Engine node. In this case, the default value is:

Machine ID	Process	Instance	Value
0	ALL	0	0

The attribute only appears in the output of the `SHOW_ALL_ATTRIBUTES` command if you have explicitly assigned a value to it using the `SET_ATTRIBUTE` command. The default setting is not displayed

Notes

By default, the iProcess Suite requires that an iProcess user is also a valid O/S user account. When you add a user in the User Manager, click the **Possible iProcess User List** button to display a list of valid O/S accounts, and thus choose a user name that you know will be valid as an iProcess user name.

However, if this model does not meet your security requirements, you can use the TIBCO iProcess User Validation API to create your own user validation method that matches your business requirements. You may, for example, want to maintain the list of users (and their

passwords) in a separate database, separating them entirely from O/S accounts. In this case, there is no requirement to display a list of O/S accounts in the User Manager. Indeed, for security reasons, you can choose not to display the list.

See Also

[DISABLE_USER_CHECK](#)

OS_USER_LOCATIONS

[TIBCO iProcess Workspace \(Windows\) Configuration](#)

Summary

This attribute defines where iProcess Engine should obtain the list of users when it populates the Possible iProcess User List in the User Manager tool of TIBCO iProcess Administrator.



Note: This attribute is only used on the Windows variant of iProcess Engine. It has no effect if it is set on a UNIX system.

Applies To

This attribute must be set for ALL processes.

Permissible Values

The attribute value must be a text string of 1024 characters or less, which consists of a comma-delimited list of machine and/or domain names in the following format:

```
"machine[,machine[,M:machine][,D:domain]...]"
```

Each name in the list can be explicitly identified as either:

- a *machine*, by using the **M:** prefix.

- a *domain*, by using the D: prefix. A domain name can be specified either as a simple name (for example, EMEA), or as a fully qualified domain name (for example, xyzCorp.dev.EMEA).

A name is treated as a machine name in the absence of either prefix.

Default Value

The attribute is assigned the following default value when iProcess Engine is installed.

Machine ID	Process	Instance	Value
0	ALL	0	See

The default value is:

machine, user

where:

- *machine* is the name of the computer hosting this iProcess Engine node installation.
- *user* is the location of the user that ran the Setup program to install this iProcess Engine node. (If *machine* is a standalone computer, rather than a member of a domain, *user* is blank.)

For example, if iProcess Engine was installed on a computer called SERVER_TIB3 using the domain user account \\EMEA\AJones, the default value for this attribute would be:

```
SERVER_TIB3,D:EMEA
```

If SERVER_TIB3 was a standalone computer and AJones a local account, the default value would be:

```
SERVER_TIB3
```

The existing attribute value is preserved when you upgrade iProcess Engine.

Notes

When a user clicks the **Possible iProcess User List** button in the User Manager tool of TIBCO iProcess Administrator, the iProcess Engine node populates the displayed list of

operating system (OS) logins with all the user names found in each location specified in this attribute value. User names are displayed in the format:

```
location\user
```

where *location* is the machine or domain specified in the OS_USER_LOCATIONS attribute, and *name* is the user name found in that location.

i Note: You can use the `plist -U` command to display the list of OS users that will be generated by the current setting of the OS_USERS_LOCATION value.

If iProcess Engine is unable to contact a specified machine or domain for any reason, it writes an appropriate error message (with message ID 1631) to the `sw_warn` file. For example:

```
2006/11/30 14:07:47(plist:2784:2784:0:stevec:filosuvvm.c:1.18:341): 1631-
WARNING: <osuv_get_nxt_user (): NetQueryDisplayInformation(dev1) failed:
Access is denied.><> <> <>
2006/11/30 14:07:54(plist:2784:2784:0:stevec:filosuvvm.c:1.18:341): 1631-
WARNING: <osuv_get_nxt_user (): NetQueryDisplayInformation(invalid)
failed: The RPC server is unavailable.> <> <> <>
2006/11/30 14:08:06(plist:2784:2784:0:stevec:filosuvvm.c:1.18:341): 1631-
WARNING: <priv_GetLocationMachineName (): GetDomainController(ff) failed:
The specified domain either does not exist or could not be contacted.> <>
<> <>
```

RPC_BLOCK

TIBCO iProcess Workspace (Windows) Configuration

Summary

This attribute defines whether or not iProcess Workspace (Windows) is able to access iProcess Engine.

Applies To

This attribute must be set for the `RPC_TCP_LI` processes.

Permissible Values

The attribute value must be one of the following:

Value	Meaning
0	iProcess Workspace (Windows) is prevented from accessing iProcess Engine.
1	iProcess Workspace (Windows) is able to access iProcess Engine.

Default Value

This attribute is not defined on a newly installed iProcess Engine node. In this case, the default value is:

Machine ID	Process	Instance	Value
0	RPC_TCP_LI	0	0

Notes

If the value of the `RPC_BLOCK` attribute is set to 1, the system will show you the following error message when you try to log in to TIBCO iProcess Workspace (Windows) or TIBCO iProcess Administrator:

L070: You are not allowed to access iProcess Engine with TIBCO iProcess Workspace Windows. Please contact your iProcess Engine Administrator.

See Also

None.

Procedure Configuration

The following process attributes allow you to configure how iProcess Engine handles iProcess procedures.

Attribute	Description
AUTO_PURGE_DELAY	Defines the number of days to delay the auto-purge operation.
DEF_MAJOR_VERS	Defines the default major version number that TIBCO iProcess Modeler will use when a new procedure is saved.
DEF_MINOR_VERS	Defines the default minor version number that TIBCO iProcess Modeler will use when a new procedure is saved.
FIL_PROCDEF_CACHE_SIZE	Defines the maximum number of procedure definitions that can be cached in memory by the BG, WIS and SPO processes.
MAX_SUB_PROCEDURE_DEPTH	Determines the maximum number of nested sub-procedures supported by the server.
RESTART_SPO_CACHE_PROC	Determines how many of the latest versions of the procedure definition to cache when the iProcess Objects Server process restarts or quick starts.
PROC_VER_COMMENT	Defines whether or not, in TIBCO iProcess Modeler, a user has to enter a comment whenever they save a procedure.
PROC_VER_INC	Defines whether or not, in TIBCO iProcess Modeler, a procedure's version number will be incremented whenever it is saved.
PROC_VER_NUM_INSTANCES	Defines the maximum number of instances of a procedure version.
SPO_CACHE_PROC	Determines how many of the latest versions of the procedure definition to cache when the iProcess Objects Server process starts normally.

AUTO_PURGE_DELAY

Procedure Configuration

Summary

This attribute defines the number of days to delay the auto-purge operation.

i Note: This attribute is used when the Purge On field in the Deadline tab of the Properties dialog box is set as a date field, and the value of the date field is not given.

Applies To

This attribute must be set for the BG processes.

Permissible Values

The attribute value must be a numeric value greater than or equal to 0.

Default Value

This attribute is not defined on a newly installed iProcess Engine node. In this case, the default value is:

Machine ID	Process	Instance	Value
0	ALL	0	90

The attribute only appears in the output of the `SHOW_ALL_ATTRIBUTES` command if you have explicitly assigned a value to it using the `SET_ATTRIBUTE` command. The default setting is not displayed.

Notes

For more information about setting auto-purge delay, see “Setting Auto-Purge and Deadlines” in *TIBCO iProcess Modeler Procedure Management*.

DEF_MAJOR_VERS

Procedure Configuration

Summary

This attribute defines the default major version number that TIBCO iProcess Modeler will use when a new procedure is saved.

Applies To

This attribute must be set for ALL processes.

Permissible Values

The attribute value must be a numeric value greater than or equal to 0.

Default Value

This attribute is not defined on a newly installed iProcess Engine node. In this case, the default value is:

Machine ID	Process	Instance	Value
0	ALL	0	0

The attribute only appears in the output of the `SHOW_ALL_ATTRIBUTES` command if you have explicitly assigned a value to it using the `SET_ATTRIBUTE` command. The default setting is not displayed.

Notes

For more information about the use of version numbering with procedures, see “Using Version Control” in *TIBCO iProcess Modeler Procedure Management*.

See Also

[DEF_MINOR_VERS](#), [PROC_VER_COMMENT](#), [PROC_VER_INC](#)

DEF_MINOR_VERS

Procedure Configuration

Summary

This attribute defines the default minor version number that TIBCO iProcess Modeler will use when a new procedure is saved.

Applies To

This attribute must be set for ALL processes.

Permissible Values

The attribute value must be a numeric value greater than or equal to 0.

Default Value

This attribute is not defined on a newly installed iProcess Engine node. In this case, the default value is:

Machine ID	Process	Instance	Value
0	ALL	0	0

The attribute only appears in the output of the `SHOW_ALL_ATTRIBUTES` command if you have explicitly assigned a value to it using the `SET_ATTRIBUTE` command. The default setting is not displayed.

Notes

For more information about the use of version numbering with procedures, see “Using Version Control” in *TIBCO iProcess Modeler Procedure Management*.

See Also

[DEF_MAJOR_VERS](#), [PROC_VER_COMMENT](#), [PROC_VER_INC](#)

FIL_PROCDEF_CACHE_SIZE

Procedure Configuration

Summary

This attribute defines the maximum number of procedure definitions that can be cached in memory by the BG and WIS processes.

Applies To

This attribute can be set for the WIS, BG, SPO or ALL processes.

Permissible Values

The attribute value must be a numeric value greater than or equal to 1.

Default Value

The attribute is assigned the following default value when iProcess Engine is installed.

Machine ID	Process	Instance	Value
0	ALL	0	64

Notes

The in-memory procedure definition cache is used by the BG, WIS and SPO processes for rapid access to recently-used procedure definitions. When a BG, WIS or SPO process first accesses a procedure definition, the definition is fetched from the database and written to the cache. Subsequent accesses will use the definition from the cache rather than from the database, and so will be faster.

The BG process uses the procedure definition cache for all procedures that it processes. The WIS and SPO processes use it to filter queues that contain CDQP definitions.

This attribute defines the maximum number of procedure definitions that can be cached by the specified process. Increasing this value:

- increases the number of procedure definitions that can be rapidly accessed from the cache, but also increases the memory footprint of the process.
- can speed up work item filtering on large queues by the WIS or SPO processes.

Once the `FIL_PROCDEF_CACHE_SIZE` limit is reached for a process, if a new procedure definition needs to be added to the cache, the oldest procedure definition is removed. When this happens, the following message (with ID 1631) is written to the `sw_warn` file:

proc_name has been bumped from the FIL procedure definition cache

where *proc_name* is the name of the procedure definition that has been deleted from the cache. If this occurs you may want to increase the `FIL_PROCDEF_CACHE_SIZE` value.



Note:

The SPO process caches every procedure version of every procedure. This means that if your iProcess Engine has many procedures each of which has many procedure versions, the `FIL_PROCDEF_CACHE_SIZE` limit may easily be reached, causing a `sw_warn` file to be generated. To avoid this, you should reset the value of the `FIL_PROCDEF_CACHE_SIZE` to be (number of procedures) * (number of procedure versions).

The `sw_warn` file that is generated contains messages like the example :

```
2007/04/05 08:42:39(SPO:1:2180:0:swadmin:\filpdcc.c::1253): 1631-
WARNING: <'$EMAIL' has been bumped from the FIL procedure
definition cache> <> <> <>
```

The number and frequency of these messages indicates whether you need to amend the `FIL_PROCDEF_CACHE_SIZE` limit. For example, a couple of messages generated over a few minutes means there is no need to alter the `FIL_PROCDEF_CACHE_SIZE` value. However, lots of messages generated in a short space of time means the `FIL_PROCDEF_CACHE_SIZE` has been greatly exceeded.

You should be aware that if you do increase the `FIL_PROCDEF_CACHE_SIZE` value, the process uses more memory so you may reach the Operating System memory limit sooner.

MAX_SUB_PROCEDURE_DEPTH

Procedure Configuration

Summary

This attribute defines the maximum number of nested sub-procedures supported by iProcess Engine.

Applies To

This attribute can be set for the BG, RPCBG and BGPREDICT processes.

Default Value

The attribute is assigned the following default values when iProcess Engine is installed.

Machine ID	Process	Instance	Value
0	BG	0	100
0	BGPREDICT	0	100

RESTART_SPO_CACHE_PROC

Procedure Configuration

Summary

This attribute determines how many of the latest versions of the procedure definition to cache when the iProcess Objects Server process restarts or quick starts.

Applies To

This attribute can only be set for an iProcess Objects Server (SPO) process.

Permissible Values

The attribute value must be one of the following:

Value	Meaning
-1	Caches all versions of each procedure.
n	Caches the latest <i>n</i> versions of each procedure (where <i>n</i> is an integer in the range 1 to 60000).

Default Value

The attribute is assigned the following default value when iProcess Engine is installed.

Machine ID	Process	Instance	Value
0	iProcess Objects Server (SPO)	0	1

See Also

[SPO_CACHE_PROC](#)

PROC_VER_COMMENT

[Procedure Configuration](#)

Summary

This attribute defines whether or not, in TIBCO iProcess Modeler, a user has to enter a comment whenever they save a procedure.

Applies To

This attribute must be set for ALL processes.

Permissible Values

The attribute value must be one of the following:

Value	Meaning
0	Not supported. The comment field is not displayed in the Procedure > Save dialog box(s) in TIBCO iProcess Modeler.
1	Optional. The comment field is displayed in the Procedure > Save dialog box(s) in TIBCO iProcess Modeler. The user can leave it blank if desired.
2	Required. The comment field is displayed in the Procedure > Save dialog box(s) in TIBCO iProcess Modeler. The user must fill it in before they can save the procedure.

Default Value

This attribute is not defined on a newly installed iProcess Engine node. In this case, the default value is:

Machine ID	Process	Instance	Value
0	ALL	0	1

The attribute only appears in the output of the `SHOW_ALL_ATTRIBUTES` command if you have explicitly assigned a value to it using the `SET_ATTRIBUTE` command. The default setting is not displayed

Notes

For more information about the use of version numbering with procedures, see “Using Version Control” in *TIBCO iProcess Modeler Procedure Management*.

See Also

[DEF_MAJOR_VERS](#), [DEF_MINOR_VERS](#), [PROC_VER_INC](#), [PROC_VER_NUM_INSTANCES](#)

PROC_VER_INC

[Procedure Configuration](#)

Summary

This attribute defines whether or not, in TIBCO iProcess Modeler, a procedure's version number will be incremented whenever it is saved.

Applies To

This attribute must be set for ALL processes.

Permissible Values

The attribute value must be one of the following:

Value	Meaning
0	The version number will be incremented only when a new version of the procedure is explicitly created.
1	The version number will be incremented every time the procedure is saved.

Default Value

This attribute is not defined on a newly installed iProcess Engine node. In this case, the default value is:

Machine ID	Process	Instance	Value
0	ALL	0	0

The attribute only appears in the output of the `SHOW_ALL_ATTRIBUTES` command if you have explicitly assigned a value to it using the `SET_ATTRIBUTE` command. The default setting is not displayed

Notes

For more information about the use of version numbering with procedures, see “Using Version Control” in *TIBCO iProcess Modeler Procedure Management*.

See Also

[DEF_MAJOR_VERS](#), [DEF_MINOR_VERS](#), [PROC_VER_COMMENT](#), [PROC_VER_NUM_INSTANCES](#)

PROC_VER_NUM_INSTANCES

Procedure Configuration

Summary

This attribute defines how many old instances of a procedure are kept in the iProcess database. The most recent instance of a procedure version is always kept.

Applies To

This attribute must be set for ALL processes.

Permissible Values

The attribute value must be one of the following:

Value	Meaning
0	There is no limit to the number of instances of a procedure that are kept. This is the default value.
n	<i>n</i> number of instances of a procedure will be kept in the iProcess database (where <i>n</i> is a positive integer).

Default Value

This attribute is not defined on a newly installed iProcess Engine node. In this case, the default value is:

Machine ID	Process	Instance	Value
0	ALL	0	0

The attribute only appears in the output of the `SHOW_ALL_ATTRIBUTES` command if you have explicitly assigned a value to it using the `SET_ATTRIBUTE` command. The default setting is not displayed

Notes

Every time you edit and save a version of a procedure, iProcess creates a new instance of that procedure version.

The `PROC_VER_NUM_INSTANCES` attribute applies to all old instances of a procedure. Each procedure instance is allocated an instance identifier. Each time a new instance is created the instance identifier is incremented by one.

The instances of a procedure are tidied up as when a procedure is saved. This is because a tidy operation is performed each time a procedure is saved which tidies up the number of instances according to the attribute value you have set.

The first time you set the attribute you can run the `swadm tidy_instances` command to force a tidy operation to tidy up the number of instances of some or all of your procedures, depending on your requirements. To do this you need to run the `swadm tidy_instances` command. See [Tidy Instances of Procedures](#) for more information.

For more information about the use of version numbering with procedures, see “Using Version Control” in *TIBCO iProcess Modeler Procedure Management*.

See Also

[DEF_MAJOR_VERS](#), [DEF_MINOR_VERS](#), [PROC_VER_COMMENT](#), [PROC_VER_INC](#)

SPO_CACHE_PROC

Procedure Configuration

Summary

This attribute determines how many of the latest versions of the procedure definition to cache when the iProcess Objects Server process starts normally.

Applies To

This attribute can only be set for an iProcess Objects Server (SPO) process.

Permissible Values

The attribute value must be one of the following:

Value	Meaning
-1	Caches all versions of each procedure.
n	Caches the latest n versions of each procedure (where n is an integer in the range 1 to 60000).

Default Value

The attribute is assigned the following default value when iProcess Engine is installed.

Machine ID	Process	Instance	Value
0	iProcess Objects Server (SPO)	0	-1

See Also

[RESTART_SPO_CACHE_PROC](#)

iProcess Objects Director

Process attributes that are used by the DIRECTOR process are not documented in this guide. For more information about attributes that are used by the DIRECTOR process, see *TIBCO iProcess Objects Director Administrator's Guide*.

Administering Message Queues and Mbox Sets

This section describes how to use the swadm server configuration utility to administer Mbox sets, message queues, and message instructions.

i Note: For more information about how iProcess Engine uses Mbox sets, message queues, and messages, see “iProcess Mbox Sets” in *TIBCO iProcess Engine Architecture Guide*.

Introduction

You can use the following utility to administer iProcess message queues:

- the swadm utility, which you can use to directly administer Mbox sets, queues, and messages. For more information, see [Using SWDIR\util\swadm to Administer Mbox Sets, Message Queues, and Messages](#).

i Note: You can administer the cases or work items’ priorities for internal message queues when passing messages between iProcess processes such as from the background process and the WISes, or from SSOLite to the BG processes. For more information, see the “Where can Priorities be Used” topic in *TIBCO iProcess Modeler Advanced Design*.

Using SWDIR\util\swadm to Administer Mbox Sets, Message Queues, and Messages

You can use the swadm utility, which is located in the SWDIR\util directory, to administer (view, add, delete, and modify) Mbox sets, queues, and messages. Note that:

- To use this utility, you must be logged in to iProcess Engine as an Administrator or (on UNIX) as a background user or root user.
- If you are using a node cluster architecture, you can run this utility from any server within the cluster (as long as that server has a connection to the TIBCO iProcess Engine database instance).

The following table summarizes the commands you can use to administer Mbox sets, message queues, and messages.

Area	Task	swadm Command
Mbox sets	Show Mbox Sets	show_mboxsets
	Add an Mbox Set	add_mboxset
	Add a Message Queue to an Mbox Set	add_queue_to_mboxset
	Delete a Message Queue From an Mbox Set	delete_queue_from_mboxset
	Rename an Mbox Set	update_mboxset
	Delete an Mbox Set	delete_mboxset
Queues	Show Message Queues	show_queues
	Add a Message Queue	add_queue
	Update a Message Queue	update_queue
	Delete a Message Queue	delete_queue
Messages	Show Messages in a Queue	show_messages
	Count Messages in a Queue	count_messages
	Show Details of a Message	detail_message
	Restore Dead Messages to a Queue	restore_dead_messages
	Delete Messages From a Queue	delete_messages

These commands read and update the `mbox_set`, `mbox_set_group`, and `iq1_queues` database tables.

Show Mbox Sets

To display a list of current Mbox sets defined on iProcess Engine, use the following command:

```
swadm show_mboxsets [v]
```

The command lists the following information for each Mbox set:

- `Mboxset ID` is the unique identifier for the Mboxset, assigned when the Mbox set is created.
- `Mboxset Name` is the descriptive name of the Mbox set.
- `Queue Type` identifies the type of messages held in queues in the Mbox set. This will be Local (for local messages).

If the `v` option has been specified, the following information is also displayed:

- `Queues in MBOX Set` list the queues that belong to the Mbox set. Queues are listed by their unique queue identifier. (You can use the `show_queues` command to find out more about each queue.)

The following example shows the use of the basic `show_mboxsets` command.

swadm show_mboxsets		
Mboxset ID	Mboxset Name	Queue Type
1	BGMBSET	Local
2	WMDMBSET	Local
3	PREDICTMBSET	Local

The following example shows the use of the `show_mboxsets v` command.

swadm show_mboxsets v			
Mboxset ID	Mboxset Name	Queue Type	Queues in MBOX Set
1	BGMBSET	Local	1,2
2	WMDMBSET	Local	3,4
3	PREDICTMBSET	Local	6,7

Add an Mbox Set

To add a new Mbox set to iProcess Engine, use the following command:

```
swadm add_mboxset mboxset_name message_type
```

where:

- *mboxset_name* is the name of the new Mbox set (up to a maximum of 32 characters). You can use this to identify what the Mbox set is used for, for example, processing Background messages.
- *message_type* is used to identify the message type. This should be Local (for local messages).

The following example adds a new Mbox set BGMBSET2 to iProcess Engine.

```
swadm add_mboxset BGMBSET2 Local
```

Add a Message Queue to an Mbox Set

You can add or remove message queues to Mbox sets at any time to alter the Mbox set configuration. For example, you might want to increase the number of queues in an Mbox to handle a larger volume of messages.

You must explicitly create a queue before you can add it to an Mbox set. You can do this using the `add_queue` command.

To add a queue to an Mbox set, use the following command:

```
swadm add_queue_to_mboxset mboxset_id queue_id
```

where:

- *mboxset_id* is the unique identifier for the Mbox set. You can find an Mbox set's identifier using the `show_mboxsets` command.
- *queue_id* is the unique identifier of the queue you want to add. You can find a queue's identifier using the `show_queues` command.

The following example adds the queue BGMBX3 to the BGMBSET Mbox set. (The `show_mboxsets` command is used first to identify the BGMBSET Mbox set's *mboxset_id*, which is 1.)

swadm show_mboxsets		
Mboxset ID	Mboxset Name	Queue Type
1	BGMBSET	Local
2	WMDMBSET	Local
3	PREDICTMBSET	Local


```
swadm add_queue_to_mboxset 1 BGMBX3
```

Delete a Message Queue From an Mbox Set

To remove a queue from an Mbox set, use the following command:

```
swadm delete_queue_from_mboxset mboxset_id queue_id
```

where:

- *mboxset_id* is the unique identifier for the Mbox set. You can find an Mbox set's identifier using the `show_mboxsets` command.
- *queue_id* is the unique identifier for the queue you want to delete. You can find a queue's identifier using the `show_queues` command.

The following example deletes the queue BGMBX3 from the BGMBSET Mbox set. (The `show_mboxsets` command is used first to identify the BGMBSET Mbox set's *mboxset_id*, which is 1.)

swadm show_mboxsets		
Mboxset ID	Mboxset Name	Queue Type
1	BGMBSET	Local
2	WMDMBSET	Local
3	PREDICTMBSET	Local

swadm delete_queue_from_mboxset 1 BGMBSET3		
--	--	--

Rename an Mbox Set

To change the name of an Mbox set, use the following command:

```
swadm update_mboxset mboxset_id new_name
```

where:

- *mboxset_id* is the unique identifier for the Mbox set. You can find an Mbox set's identifier using the `show_mboxsets` command.
- *new_name* is the new name for this Mbox set (up to a maximum of 32 characters).

The following example renames the BGMBSET2 Mbox set as BGMBSET3. (The `show_mboxsets` command is used first to identify the BGMBSET2 Mbox set's *mboxset_id*, which is 4.)

swadm show_mboxsets		
Mboxset ID	Mboxset Name	Queue Type
1	BGMBSET	Local
2	WMDMBSET	Local
3	PREDICTMBSET	Local
4	BGMBSET2	Local

swadm update_mboxset 4 BGMBSET3		
---------------------------------	--	--

Delete an Mbox Set

To delete an Mbox set, use the following command:

```
swadm delete_mboxset mboxset_id
```

where *mboxset_id* is the unique identifier of the Mbox set. You can find an Mbox set's identifier using the `show_mboxsets` command.

i Note: Any queues contained in the Mbox set are not affected by this command. If you also want to delete the queues you must use the `delete_queue` command after you have deleted the Mbox set.

The following example deletes the PREDICTMBSET Mbox set. (The `show_mboxsets` command is used first to identify the PREDICTMBSET Mbox set's *mboxset_id*, which is 3.)

swadm show_mboxsets		
Mboxset ID	Mboxset Name	Queue Type
1	BGMBSET	Local
2	WMDMBSET	Local
3	PREDICTMBSET	Local
swadm delete_mboxset 3		

Show Message Queues

To display a list of all the message queues currently set up on your system and view their queue names and identifiers, use the following command:

```
swadm show_queues [queue_name]
```

where *queue_name* is the optional name of a queue, which you can use to only display queues matching this name.

The command lists the following information for each queue:

- **Queue ID** is the unique identifier for the queue, assigned when the queue is created.
- **Queue Name** is the descriptive name of the queue.
- **Queue Type** identifies the type of messages held in the queue. This will be Local (for local messages).
- **Queues Desc** specifies the physical database table that is used to hold the queue. See the `add_queue` command for a full description of the format of this entry.

The following example lists all the queues currently defined on iProcess Engine (Windows version).

swadm show_queues			
Queue ID	Queue Name	Queue Type	Queue Desc
1	BGMBOX1	Local	0003:swpro.sw_db_bgqueue_1
2	BGMBOX2	Local	0003:swpro.sw_db_bgqueue_2
3	WISMBOX1	Local	0003:swpro.sw_db_wisqueue_1
4	WISMBOX2	Local	0003:swpro.sw_db_wisqueue_2
5	DEADQUEUE	Local	0003:swpro.sw_db_deadqueue
6	PREDICTMBOX1	Local	0003:swpro.sw_db_predictqueue_1
7	PREDICTMBOX2	Local	0003:swpro.sw_db_predictqueue_2

Add a Message Queue

When adding queues, you have to add:

1. a queue
2. an Mbox set
3. the queue to the Mbox set.

To set up a new queue on your system (so that you can then add it to an Mbox set), use the following command:

```
swadm add_queue queue_name message_type queue_description
```

where:

- *queue_name* is a descriptive alphanumeric name for the queue.
- *message_type* is used to identify the message type. This should be Local (for local messages).
- *queue_description* specifies the physical database table that is used to hold the queue, in the following format:

version: table

where:

- *version* is an internal number used by iProcess Suite to identify the physical syntax of the string that follows it. This should be either:
 - 0001, for Oracle AQ.
 - 0003, for queues that are held in the iProcess database.
- *table* is the name of the database table that holds the queue, and must be specified in the format needed to access the table (e.g. MS-SQL, DB2, or Oracle AQ).

The database table used to hold the queue must already exist and must conform to the appropriate format. If it does not, messages cannot be added to or read from the queue and iProcess Engine will not function correctly. For more information, see:

- “Oracle AQ Queue Tables and Queues” in *TIBCO iProcess Engine (Oracle) Administrator's Guide* (for Oracle AQ tables).
- “iProcess DB2 Database Queues” in *TIBCO iProcess Engine (DB2)s Administrator's Guide* (for iProcess database tables in a DB2 database).

“iProcess SQL Server Database Queues” in *TIBCO iProcess Engine (SQL): Administrator's Guide* (for iProcess database tables in a SQL Server database).

**Note:**

If you are using queues held in the iProcess database (*version = 0003*), you should note that:

- Each queue used by iProcess Engine must be held in its database table. These tables must be held in either:
 - the database being used by iProcess Suite (the default option).
 - a different database on the same database server.
- Wherever the tables are held, the following permissions must be set up:
 - The iProcess Engine database schema owner (default *swpro*) must have at least insert, select and delete permissions on the database table used to hold the queue.
 - The iProcess Engine database user (default *swuser*) must have at least insert permissions on the database table used to hold the queue.

Examples

1. This example (for Windows/SQL Server) adds a queue called BGMBX3. This queue is the physical queue *sw_db_wisqueue3*, owned by *swpro*, in the current iProcess database.

```
swadm add_queue BGMBX3 Local 0003:swpro.sw_db_wisqueue3
```

2. This example (for Windows/SQL Server) adds a queue called BGMBX4. This queue is the physical queue *sw_db_bgqueue4* owned by user *Bart*, in the *sw* database (on the SQL server hosting the iProcess database).

```
swadm add_queue BGMBX4 Local 0003:sw.bart.sw_db_bgqueue4
```

Update a Message Queue

You can change the queue name, message type, and/or queue description using the following command:

```
swadm update_queue queue_id | queue_name new_name message_type queue_description
```

where:

- *queue_id* is the unique identifier for the queue. You can find a queue's identifier using the `show_queues` command.
- *queue_name* is the descriptive alphanumeric name for the queue.
- *new_name* is the new name to be used for this queue. If you want to leave the existing name unchanged, use a hyphen '-'.
- *message_type* is used to identify the message type. This value must be either Local (for local messages), or a hyphen '-' (to leave the value unchanged).
- *queue_description* specifies the physical database table that holds the queue. If you want to leave the existing name unchanged, use a hyphen '-'.

See the description of this parameter under the `add_queue` command for a full description of the syntax and requirements for this parameter.

Examples

1. This example (for Windows/SQL Server) points the queue BGMBX3 to use a different physical queue, `sw_db_bgqueue5` owned by `swpro` (in the current database used by iProcess Engine). The queue's current name and message type are left unchanged.

```
swadm update_queue BGMBX3 - - 0003:swpro.sw_db_bgqueue5
```
2. This example renames the queue BGMBX3 to BGMBX5. The queue will continue to use its existing message type and physical queue.

```
swadm update_queue BGMBX3 BGMBX5 - -
```

Delete a Message Queue

Before deleting a queue you should remove it from the Mbox set, using the `delete_queue_from_mboxset` command.

To delete a queue, use the following command:

```
delete_queue queue_id | queue_name
```

where:

- *queue_id* is the unique identifier for the queue. You can find a queue's identifier using the `show_queues` command.
- *queue_name* is the descriptive alphanumeric name for the queue.

swadm displays a warning message if you have not already removed the queue from the Mbox set.

The following example deletes the BGMBBOX3 queue.

```
swadm delete_queue BGMBBOX3
```

Show Messages in a Queue

To display a summary list of all the iProcess messages that are currently in a queue, use the following command:

```
swadm show_messages queue_id|ALL [EXP] [-x]
```

where:

- *queue_id* is the unique identifier of the queue you want to view messages for. You can find a queue's identifier using the `show_queues` command. Enter ALL to show the messages in all queues.
- EXP is an optional parameter used with Oracle databases only. Use it to show all the Oracle exception messages. If this parameter is not specified, when `show_messages` is used on an Oracle system, it will list only normal messages. But, with other types of database, it will show all the messages.
- -x is an optional parameter that changes the format in which messages are displayed. If this parameter is specified, one message is displayed per line and fields in the message are separated by '|' characters.

The following example (for Windows/SQL Server) lists all the messages in the DEADQUEUE queue. (The `show_queues` command is used first to identify the DEADQUEUE's *queue_id*, which is 5.) In this case the DEADQUEUE contains just a single RELEASE instruction that has failed to be processed.

```
swadm_show_queues
```

Queue ID	Queue Name	Queue Type	Queue Desc
1	BGMBBOX1	Local	0003:swpro.sw_db_bgqueue_1

2	BGMBBOX2	Local	0003:swpro.sw_db_bgqueue_2
3	WISMBOX1	Local	0003:swpro.sw_db_wisqueue_1
4	WISMBOX2	Local	0003:swpro.sw_db_wisqueue_2
5	DEADQUEUE	Local	0003:swpro.sw_db_deadqueue
swadm show_messages 5			

Queue ID	5	291E84BA-A898-4D6A-A812-A76BE108B21D
Message ID:		RELEASE
Instruction:		pro
Addressee:		TESTBW2
Procedure:		STEP1
Step Name:		1253
Case Number:		2504
Req ID:		0
Failed Count:		BG
Failed By:		

The following command displays the same messages in the alternative format:

```
swadm show_messages 5 -x 5|291E84BA-A898-4D6A-A812-A76BE108B21D|RELEASE|pro|TESTBW2|STEP1|1253|2504|0|BG
```

Count Messages in a Queue

To display the total count of all the iProcess messages that are currently in a given queue, use the following command:

```
swadm count_messages queue_id|ALL [EXP]
```

where:

- *queue_id* is the unique identifier of the queue you want to count messages for. You can find a queue's identifier using the `show_queues` command. Enter ALL to count the messages in all queues.

- EXP is an optional parameter used with Oracle databases only. Use it to count all the Oracle exception messages. If this parameter is not specified, count _messages when used on an Oracle system will only include normal messages, with other types of database it will count all the messages.

The following example counts the messages in queue 5:

```
swadm count_messages 5
```

The total count of the messages in the queue 5: 6

The following example counts the messages in all queues:

```
swadm count_messages all
```

The total count of the messages in the queue 1: 0

The total count of the messages in the queue 2: 0

The total count of the messages in the queue 3: 0

The total count of the messages in the queue 4: 0

The total count of the messages in the queue 5: 6

The total count of the messages in the queue 6: 0

The total count of the messages in the queue 7: 0

Show Details of a Message

To display the header and body information of a message, use the following command:

```
swadm detail_message queue_id message_id [-x]
```

where

- *queue_id* is the unique identifier of the queue containing the message for which you want to display details. You can find a queue's identifier using the show_queues command.
- *message_id* is the identifier of a specific message in the queue *queue_id*. This ID is part of the information displayed by swadm show_messages - see [Show Messages in a Queue](#).

- `-x` is an optional parameter that changes the format in which messages are displayed. If this parameter is specified, the message is displayed on one line and fields in the message are separated by '|' characters.

The following example shows the detail of one message in queue 5:

swadm detail_message 5 291E84BA-A898-4D6A-A812-A76BE108B21D		
<hr/>		
Queue ID	5	291E84BA-A898-4D6A-A812-A76BE108B21D
Message ID:	RELEASE	
Instruction:	16:0:0	
Procedure	1253	
Number:	swpro	
Case Number:	STEP1	
User Name:	13/03/2008	
Step Name:	09:07	
Step Desc:	swpro	
Release Date:	RELEASE^staffw_107^16:0.0^1^staffw_107,swpro,2504,staffw_	
Release Time:	107^1253^1253^staffw_	
Addressee	107^swpro^STEP1^^3^13/03/2008^09:07^2504^staffw_107^swpro^1^	
User:		
Message		

The following example shows the same message using the alternative display option:

```
swadm detail_message 5 291E84BA-A898-4D6A-A812-A76BE108B21D -x
5|291E84BA-A898-4D6A-A812-A76BE108B21D|RELEASE|16:0.0|1253|swpro|STEP1||13/03/2008|09:07|swpro|RELEASE^staffw_107^16:0.0^1^staffw_107,swpro,2504,staffw_107^1253^1253^staffw_107^swpro^STEP1^^3^13/03/2008^09:07^2504^staffw_107^swpro^1^
```

Restore Dead Messages to a Queue

To restore one or more dead iProcess messages to the queue from which they came, and make the messages live again, use the following command:

```
swadm restore_dead_messages to_queue_id ALL [BG|WISMBD|BGPREDICT] |message_id|-f file_name
```

where:

- `to_queue_id` is the queue identifier of the destination queue, the queue to which you want to restore messages.

- The usage of the parameter ALL [BG|WISMBD|BGPREDICT] varies according to database type:

- In SQL Server, there is a specific dead queue that holds all the dead messages that have been failed from any of the live queues. Messages in this dead queue have a unique additional field, called FAILED_BY, which identifies the type of queue from which the dead message comes. This field has one of three values:

- BG: the dead message comes from a BG queue
- WISMBD: the dead message comes from a WISMBD queue
- BGPREDICT: the dead message comes from a BGPREDICT queue

Because there is more than one BG, WIS, or BGPREDICT queue in the system, you must tell this command what type of dead message you want to move from the dead queue (one of BG, WIS, or BGPREDICT), and the number of the live queue to which the message is to be restored. For example, the command:

```
RESTORE_DEAD_MESSAGES 1 ALL BG
```

moves all dead messages failed from the BG queue from the dead queue to queue 1.

- In DB2 usage is similar because the DB2 version has the same database structure as SQL Server, but there is one difference. The FAILED_BY field contains the name of the actual queue from which the dead message was failed, instead of a queue type. Neither this queue name nor the queue type needs to be specified in the command line. For example, the command:

```
RESTORE_DEAD_MESSAGES 1 ALL
```

moves all the dead messages failed by queue 1 from the dead queue to queue 1.

- In Oracle, there is no specific dead queue. If a message in any given queue is failed, it is stored in that same queue and is just marked as a dead message. This command, therefore, does not move messages from one queue to another, it merely changes them from dead messages to live messages within the same queue. It is therefore only necessary to specify in the command which queue you want to restore. For example, the command:

```
RESTORE_DEAD_MESSAGES 1 ALL
```

restores all the dead messages in queue 1 to being live messages in queue 1.

- *message_id* specifies the ID of the message that you want to restore. The following example restores an exception message to queue 1:

```
swadm restore_dead_messages 1 291E84BA-A898-4D6A-A812-A76BE108B21D
```

- `-f file_name` identifies a text file that contains one or more message IDs, separated from each other by a return character. If the beginning of a line has a semi-colon (;) character, that line is treated as a comment and all the content in the line is omitted.

Delete Messages From a Queue

To delete one or more iProcess messages from a queue, use the following command:

```
swadm delete_messages queue_id ALL [EXP] | message_id | -f file_name
```

where

- `queue_id` is the unique identifier of the queue containing the messages which you want to delete. You can find a queue's identifier using the `show_queues` command. Enter ALL to delete the messages in all queues.
- EXP is an optional parameter used with Oracle databases only. Use it to delete all the Oracle exception messages in the queue. If this parameter is not specified, only normal messages will be deleted on an Oracle system, with other types of databases, all types of messages are deleted.
- `message_id` specifies the ID of the message that you want to delete. The following example deletes an exception message from queue 1:

```
swadm delete_messages 1 291E84BA-A898-4D6A-A812-A76BE108B21D
```
- `-f file_name` identifies a text file that contains one or more message-IDs for deletion. The file must be located in the **SWDIR**/util directory. Message-IDs are separated from each other by a return character. If the beginning of a line has a semi-colon (;) character, that line is treated as a comment and all the content in the line is omitted.

Example

The following command deletes the specified message from queue 5:

```
swadm delete_messages 5 AB87DAEF-CEAD-4EC2-A44B-6F5DF716E4D6
```

Default Message Handling Configuration

This section describes the message handling configuration that is used on a default iProcess Engine installation.

Default Mbox Sets

The following table shows the default Mbox sets that are created when iProcess Engine is installed. See [Show Mbox Sets](#) for an explanation of the Mboxset ID, Mboxset Name and Queues in Mboxset columns.

Mboxset ID	Mboxset Name	Queues in Mboxset
1	BGMBSET	BGMBOX1, BGMBOX2
2	WMDMBSET	WISMBOX1, WISMBOX2
3	WISBGMBSET1	BGMBOX1
4	WISBGMBSET2	BGMBOX2
5	PREDICTMBSET	PREDICTMBOX1, PREDICTMBOX2

Default Message Queues

The following sections describe the default message queues that are created when iProcess Engine is installed on a Windows or UNIX system. See [Add a Message Queue](#) for an explanation of the Queue Name and Queue Description columns.

Windows/SQL Server or UNIX/DB2

The following tables show the default message queues that are created when iProcess Engine is installed on a Windows/SQL Server or UNIX/DB2 system.

Queue Name	Queue Description
BGMBOX1	0003:swpro.sw_db_bgqueue_1
BGMBOX2	0003:swpro.sw_db_bgqueue_2
WISMBOX1	0003:swpro.sw_db_wisqueue_1
WISMBOX2	0003:swpro.sw_db_wisqueue_2
DEADQUEUE	0003:swpro.sw_db_deadqueue
PREDICTMBOX1	0003:swpro.sw_db_predictqueue_1
PREDICTMBOX2	0003:swpro.sw_db_predictqueue_2



Note: Each queue used by iProcess Engine must be held in its database table. These tables exist by default in the same database as the other iProcess tables, but they do not have to be held there. For more information, see [Add a Message Queue](#).

UNIX/Oracle or Windows/Oracle

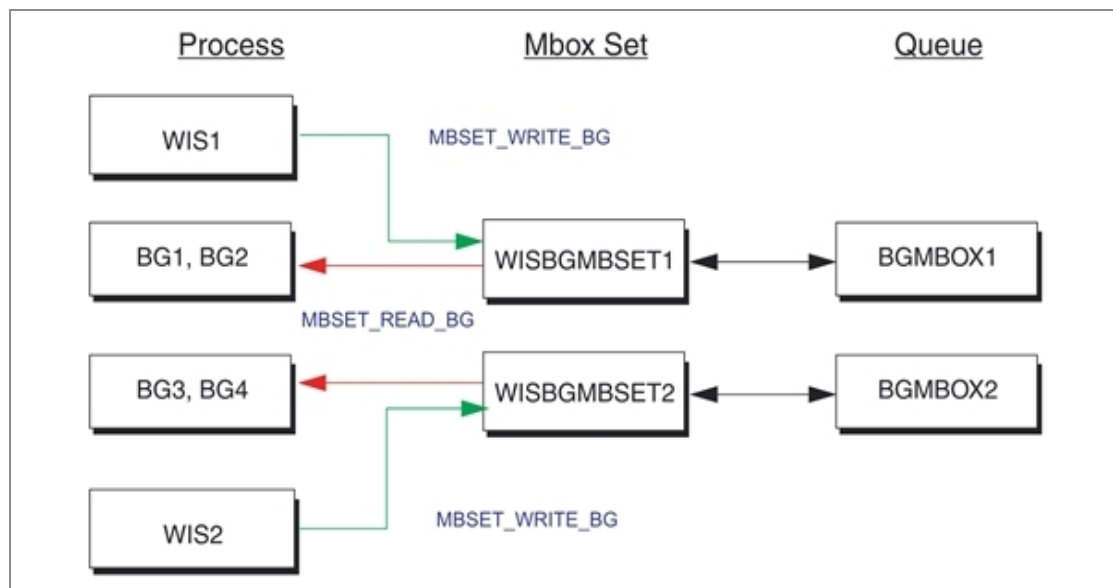
The following table shows the default Oracle AQ message queues that are created when iProcess Engine is installed on a UNIX/Oracle or Windows/Oracle system.

Queue Name	Parameters
BGMBOX1	0001::bgmboxtable1:bgmboxqueue1
BGMBOX2	0001::bgmboxtable2:bgmboxqueue2
WISMBOX1	0001::wismboxtable1:wismboxqueue1
WISMBOX2	0001::wismboxtable2:wismboxqueue2

Queue Name	Parameters
PREDICTMBOX1	0001::predictmboxtable1:predictmboxqueue1
PREDICTMBOX2	0001::predictmboxtable2:predictmboxqueue2

How WIS Processes Send Messages to BG Processes

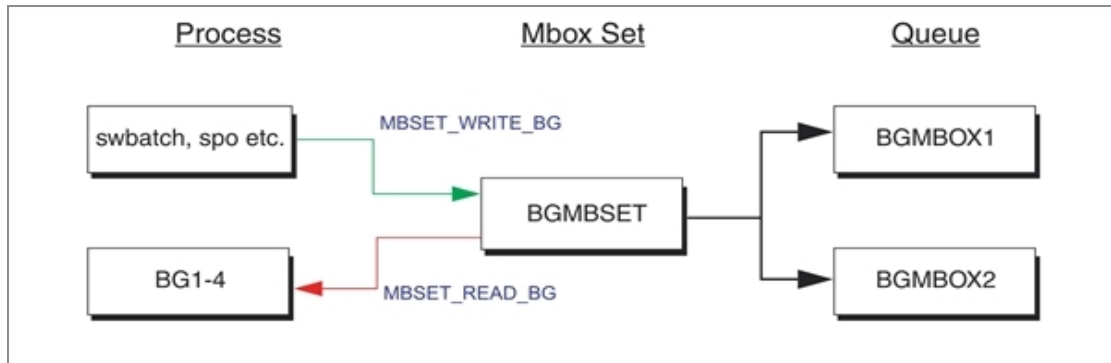
The following diagram shows how the WIS processes send messages to the BG processes using the default configuration.



1. One WIS process is configured to write messages to each WISBGMBOXSET Mbox set.
2. Each WISBGMBOXSET Mbox set contains a single message queue, BGMBOX.
3. Two BG processes are configured to read messages from each WISBGMBOXSET Mbox set.

How non-WIS Processes Send Messages to BG Processes

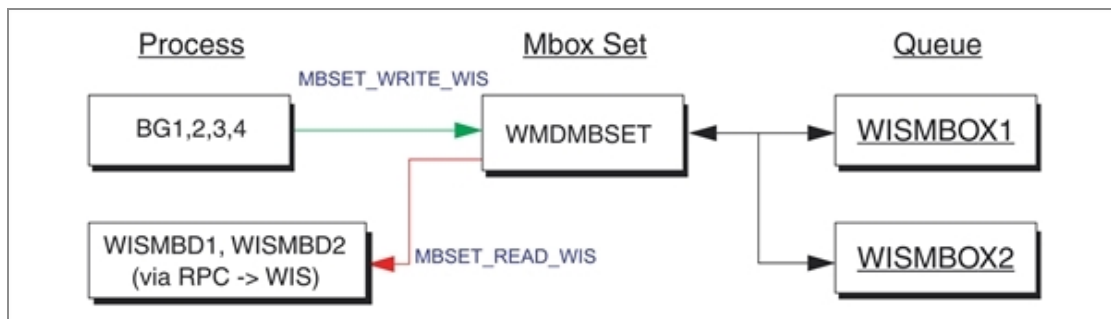
The following diagram shows how non-WIS processes send messages to the BG processes using the default configuration.



1. All non-WIS processes (such as swbatch) are configured to write messages to the BGMBSET Mbox set.
2. The BGMBSET Mbox set contains two message queues, BGMBBOX1 and BGMBBOX2.
3. All BG processes are configured to read messages from the BGMBSET Mbox set.

How BG Processes Send Messages to WIS Processes

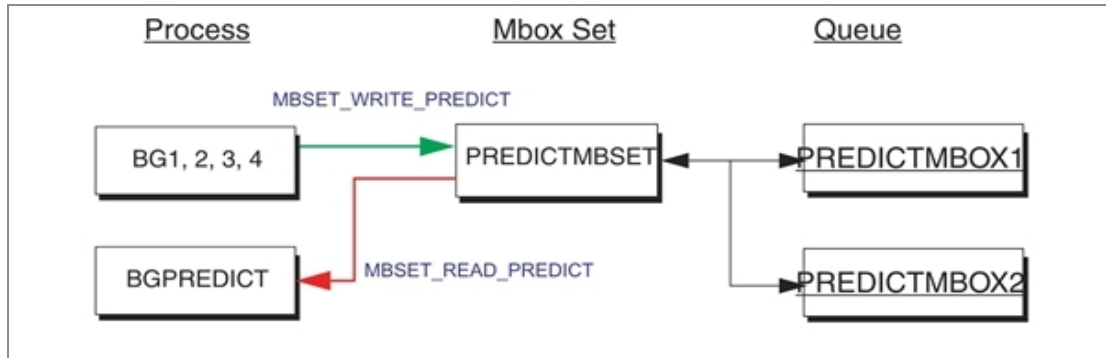
The following diagram shows how the BG processes send messages to the WIS processes using the default configuration.



1. All four BG processes are configured to write messages to a single Mbox set, WMDMBSET.
2. The WMDMBSET Mbox set contains two message queues, WISMBBOX1 and WISMBBOX2.
3. Both WISMBD processes are configured to read messages from the WMDMBSET Mbox set. (Each WISMBD process then forwards each message to the appropriate WIS process via RPC.)

How BG Processes Send Messages to the Prediction Process

The following diagram shows how the BG processes send messages to the BGPREDICT process using the default configuration.



1. All four BG processes write messages to the PREDICTMBSET Mbox set.
2. The PREDICTMBSET Mbox set contains two Mboxes, PREDICTMBOX1 and PREDICTMBOX2.
3. The BGPREDICT process reads messages from the PREDICTMBSET Mbox set.

Administering Procedure Objects

This section explains how to use the `swadm` server configuration utility, which is under the `SWDIR\util` directory to administer the procedures (including sub-procedures and sub-procedure parameter templates) and libraries that are defined on this iProcess Engine node.

**Note:**

To use this utility, you must be logged in to iProcess Engine as an Administrator or (on UNIX) as a background user or root user.

If you are using a node cluster architecture, you can run this utility from any server within the cluster (as long as that server has a connection to the TIBCO iProcess Engine database instance).

These commands read and update data in the `pm_objects`, `proc_index`, `proc_version`, `proc_instance`, `proc_audit`, `proc_defn`, and `proc_mgt_hierarchy` database.

Show Procedures and Libraries



Note: TIBCO recommends that you run this command if you have problems when importing procedures or procedure libraries.

To display a list of procedures and libraries that are defined on this iProcess Engine node, enter the following command:

```
swadm show_procedures [fix]
```

where `fix` is an optional parameter that you can use to fix any errors that are reported - for example, if a database record in the `pm_objects` table has become corrupt. (See [Errors](#).)

Output

The list of procedures and libraries (objects) is displayed. The following information is displayed about each object:

(*type*) *ObjectName* – *ObjectGUID*

where:

- *type* is one of the following single characters that indicates what the object is:
 - F is a library.
 - P is a procedure.
 - S is a sub-procedure.
 - T is a sub-procedure parameter template.
- *ObjectName* is the name of the procedure or library.
- *ObjectGUID* is the unique identifier for this procedure or library.

The contents of libraries are indented to indicate their hierarchical relationship.



Note:

To identify a list of sub-procedure parameter templates, you can also use the `SWDIR\util\plist -p` command. In the Flag column returned by the command:

- the flag T indicates that the procedure is a sub-procedure parameter template.
- the flag I indicates that the procedure is a sub-procedure.

For more information about the `plist -p` command, see "Procedure Information" in [Using the plist Utility to Obtain Information About TIBCO iProcess Engine Facilities](#).

Errors

ERROR messages are displayed if any errors are detected. If the `fix` parameter has been specified, and the error can be fixed, a FIX message is displayed immediately after the ERROR message, indicating what has been done.

The following list shows the errors that can occur and be fixed, and the fixes that are applied if you specify the `fix` parameter:

```
ERROR: PM_OBJECTS ObjectName - ObjectGUID refers to proc_id: proc_id which does
not exist
FIX: delete PM_OBJECTS record ObjectName - ObjectGUID
ERROR: PM_OBJECTS ObjectName - ObjectGUID refers to proc_id: proc_id which is
the proc_id for procedure proc_name
FIX: delete PM_OBJECTS record ObjectName - ObjectGUID
ERROR: PROC_MGT_HIERARCHY record refers to non existent object ObjectGUID
FIX: delete PROC_MGT_HIERARCHY record ObjectGUID
ERROR: PROC_MGT_HIERARCHY record refers to non existent folder ParentGUID
FIX: change PROC_MGT_HIERARCHY record ObjectGUID to point to Root
ERROR: PM_OBJECTS ObjectName - ObjectGUID not in hierarchy
FIX: add PROC_MGT_HIERARCHY record ObjectGUID to point to Root
```

The following list shows the errors that can occur but that cannot currently be fixed by specifying the `fix` parameter. If any of these errors occur you should contact TIBCO Support for further assistance.

```
ERROR: PM_OBJECTS ObjectName - ObjectGUID refers to proc_id: proc_id which is
too small
ERROR: PM_OBJECTS ObjectName - ObjectGUID refers to proc_id: proc_id which is
too big(>pcount)
ERROR: PM_OBJECTS ObjectName - ObjectGUID refers to proc_id: proc_id which is
referred to by other record(s)
ERROR: PM_OBJECTS ObjectName - ObjectGUID (PROC) refers to proc_id: proc_id which
is a SUBPROC
ERROR: PM_OBJECTS ObjectName - ObjectGUID (SUBPROC) refers to proc_id: proc_id
which is a PROC
ERROR: PROC_INDEX p_ix - proc_name is not referred to by any PM_OBJECTS
records
```

Examples

1. This example shows the output from the `swadm show_procedures` command. The root library contains the CARPOOL, HIRING, and QUOTA procedures and two libraries - Purchasing and Admin, each of which contains further procedures.

A corrupt TEST3 record, which references a procedure that does not exist, has also been found.

swadm show_procedures

```

ERROR: PM_OBJECTS TEST3 - DA22EA30-FE69-11D7-A619-0050DAC9102A refers
to proc_id: -1 which does not exist
(F) ROOT_LIBRARY - ROOT_LIBRARY_GUID
    (F) Purchasing - A14E77B0-D268-11D7-BE25-0050DAC9102A
        (P) PROC1 - 96EFB7C0-F5D0-11D7-BAB5-0050DAC9102A
        (P) TEST1 - ACABECB0-D268-11D7-9833-0050DAC9102A
        (P) TEST3 - DA22EA30-FE69-11D7-A619-0050DAC9102A
        (S) DOCHECK - 99C651A0-E3C8-11D7-911C-0050DAC9102A
        (S) SUB1 - 306F0B50-DFD9-11D7-A8AC-0050DAC9102A
        (T) TEMPL1 - 3F956EB0-DFDA-11D7-A683-0050DAC9102A
    (F) Admin - 66D85000-E321-11D7-B184-0050DAC9102A
        (P) DYNAMIC1 - 272CA750-E3C7-11D7-A96A-0050DAC9102A
        (P) TEST2 - 43F72230-F507-11D7-BFCF-0050DAC9102A
        (P) WAIT1 - C88236B0-E329-11D7-BCB9-0050DAC9102A
        (S) DOCHECK - 99C651A0-E3C8-11D7-911C-0050DAC9102A
        (T) TEMPL1 - 3F956EB0-DFDA-11D7-A683-0050DAC9102A
    (P) CARPOOL - 9E697DC0-D4F7-11D7-B115-0050DAC9102A
    (P) HIRING - 75A4BB20-D4F7-11D7-9E50-0050DAC9102A
    (P) QUOTA - 94A58F00-D4F7-11D7-88D0-0050DAC9102A

```

2. This example shows the output when the `swadm show_servers fix` command is used to correct the problem found in the previous example. The corrupt TEST3 record is deleted.

swadm show_procedures fix

```

ERROR: PM_OBJECTS TEST3 - DA22EA30-FE69-11D7-A619-0050DAC9102A refers
to proc_id: -1 which does not exist
FIX: delete PM_OBJECTS record TEST3 - DA22EA30-FE69-11D7-A619-
0050DAC9102A
(F) ROOT_LIBRARY - ROOT_LIBRARY_GUID
    (F) Purchasing - A14E77B0-D268-11D7-BE25-0050DAC9102A
        (P) PROC1 - 96EFB7C0-F5D0-11D7-BAB5-0050DAC9102A
        (P) TEST1 - ACABECB0-D268-11D7-9833-0050DAC9102A
        (S) DOCHECK - 99C651A0-E3C8-11D7-911C-0050DAC9102A
        (S) SUB1 - 306F0B50-DFD9-11D7-A8AC-0050DAC9102A
        (T) TEMPL1 - 3F956EB0-DFDA-11D7-A683-0050DAC9102A
    (F) Admin - 66D85000-E321-11D7-B184-0050DAC9102A
        (P) DYNAMIC1 - 272CA750-E3C7-11D7-A96A-0050DAC9102A

```

```
# swadm show_procedures fix
```

```
(P) TEST2 - 43F72230-F507-11D7-BFCF-0050DAC9102A
(P) WAIT1 - C88236B0-E329-11D7-BCB9-0050DAC9102A
(S) DOCHECK - 99C651A0-E3C8-11D7-911C-0050DAC9102A
(T) TEMPL1 - 3F956EB0-DFDA-11D7-A683-0050DAC9102A
(P) CARPOOL - 9E697DC0-D4F7-11D7-B115-0050DAC9102A
(P) HIRING - 75A4BB20-D4F7-11D7-9E50-0050DAC9102A
(P) QUOTA - 94A58F00-D4F7-11D7-88D0-0050DAC9102A
```

Tidy Instances of Procedures

Each time you edit and save a version of a procedure, a new instance of the procedure version is created. By default, all the instances of a procedure are kept. If you want to limit the amount of old instances that are kept for each procedure (for example, in order to save space in the iProcess database), you need to set the [PROC_VER_NUM_INSTANCES](#) attribute.



Note: Even if you have set the [PROC_VER_NUM_INSTANCES](#) attribute, the most recent instance of a procedure version is always kept.

The first time you set the [PROC_VER_NUM_INSTANCES](#) attribute, you can use the `swadm tidy_instances` command to tidy up the old instances of a procedure so that they match the value you have set for the [PROC_VER_NUM_INSTANCES](#) attribute. Otherwise, the instances of a procedure are tidied up as and when a procedure is saved. This is because a tidy operation is performed each time a procedure is saved.

To tidy up the instances of a procedure defined on iProcess Engine, use the following command:

```
swadm tidy_instances machine_ID proc_ID
```

where:

- *machine_ID* is the unique identifier for the server. If you specify a value of 0, the command will apply to all servers in iProcess Engine.
- *proc_ID* is the unique identifier for the procedure. If you specify a value of 0, the command will apply to all procedures in iProcess Engine.

Administering Firewall Port Ranges

This section explains how to use the `swadm` server configuration utility, which is under the `SWDIR\util` directory, to set up and use port ranges for iProcess Engine, for use with the firewall filters, when iProcess Engine is being used in a firewalled environment.

Note: To use this utility, you must be logged in to iProcess Engine as an Administrator, or (on UNIX) as a background user, or root user.

If you are using a node cluster architecture, you can run this utility from any server within the cluster (as long as that server has a connection to the TIBCO iProcess Engine database instance).

Overview

If you are using iProcess Engine in a firewalled environment, you can define specific port ranges which the firewall administrator can add to the network firewall filter.

A port range is a specific range of either port numbers, RPC numbers or both. Once you have defined a port range, you can place the iProcess Engine node behind it. iProcess Engine processes will then only accept incoming RPC requests from within that port range.

Note: For more information about how iProcess Engine works in a firewalled environment, see "Using iProcess Engine in a Firewalled Environment" in *TIBCO iProcess Engine Architecture Guide*.

Using Port Ranges with a Node Cluster

If your iProcess Engine uses a node cluster configuration, each server in the iProcess Engine node can sit behind the same port range, sit behind a different port range, or not sit behind a port range at all, according to your network configuration requirements.

How Port Range Information is Stored

Port range information is stored in the following tables in the iProcess Engine database:

- `port_range` - contains the firewall data about individual port/RPC numbers that lie within each port range defined on this iProcess Engine node.
- `port_range_active` - lists what port/RPC numbers are being actively used to provide RPC services by iProcess Engine processes.
- `port_range_conf` - lists the port ranges currently defined for this iProcess Engine node.
- `port_range_nodes` - lists which port range configurations are being used by which machines in the iProcess Engine node.

For more information about these tables, see "Firewall Port Ranges" in the appropriate database guide.

How to Set up and use a Port Range

To set up and use a port range on iProcess Engine:

1. Use the [ADD_RANGE](#) command to define the port range.
2. Use the [SET_RANGE](#) command to place the required iProcess Engine server(s) behind the defined port range.
3. Pass the details of the port range to the firewall administrator, to include in the network firewall filter.

i Note: If iProcess Engine servers are configured to run behind port ranges, a log file detailing the resource allocation is stored in the `rpcport.log` file, which is located in the `SWDIR\logs` directory. For more information, see [iProcess Engine Log Files](#).

Port Range swadm Commands

The following table summarizes all the `swadm` commands that you can use to administer port ranges. Each command is fully described in the following sections.

To do this...	Use this command...
Define a new port range.	ADD_RANGE
Delete an existing port range.	DEL_RANGE
Modify an existing port range (for example, to change the number range or operating mode).	MOD_RANGE
Place an iProcess Engine server behind a defined port range, or remove an iProcess Engine server from behind a defined port range.	SET_RANGE
Show how the ports for a particular port range are currently allocated.	SHOW_PORTS
Show the details of all defined port ranges and the iProcess Engine servers that are sitting behind them.	SHOW_RANGES

ADD_RANGE

swadm command

Syntax

```
swadm ADD_RANGE [-m Range_mode] [-p Port_range_start] [-r RPC_range_start] [-s Range_size]
```

Description

This command defines a new port range for use with this iProcess Engine node. You can then use the [SET_RANGE](#) command to place a server behind this port range.

The port range is stored as a record in the port_range_conf table.

Options

Option	Description
-m <i>Range_ mode</i>	<p>Defines how servers that use this port range configuration should allocate ports. Specify one of the following values:</p> <p>0 - Do not use port or RPC ranges. A process can use any port number and RPC number (as assigned by the operating system).</p> <p>1 - Use port ranges. A process must use a port number allocated from within the defined range, but can use any RPC number.</p> <p>2 - Use RPC ranges. A process must use an RPC number allocated from within the defined range, but can use any port number.</p> <p>3 - Use port ranges and RPC ranges. A process must use both a port number and an RPC number allocated from within the defined ranges.</p> <p>If this value is omitted the range mode defaults to 3.</p>
-p <i>Port_ range_ start</i>	<p>The port number that the range should start from. (The range will therefore end at <i>Port_range_start</i> + <i>Range_size</i>.)</p> <p>If this value is omitted, the port range start value defaults to 10000.</p>
-r <i>RPC_ range_ start</i>	<p>The RPC number that the range should start from. (The range will therefore end at <i>RPC_range_start</i> + <i>Range_size</i>.)</p> <p>If this value is omitted, the RPC range start value defaults to 400000.</p>
-s <i>Range_ size</i>	<p>The number of slots in the defined port and/or RPC number ranges.</p> <p>If this value is omitted, the range size value defaults to 20.</p>

Errors

The following error messages may be returned by this command.

Message	Description
Unable to	swadm cannot update the iProcess Engine database. Examine the sw_error

Message	Description
access the port_range_conf table	and sw_warn files, located in the SWDIR\logs directory, for more information about the cause of the error. See iProcess Engine Log Files for more information.

See Also

[DEL_RANGE](#), [MOD_RANGE](#), [SET_RANGE](#), [SHOW_PORTS](#), [SHOW_RANGES](#)

DEL_RANGE

swadm command

Syntax

```
swadm DEL_RANGE Port_range_ID
```

Description

This command deletes an existing port range from iProcess Engine. The port range is deleted from the port_range_conf table.

When you run this command, if any servers are currently configured to run behind this port range the following prompt is displayed:

```
Deleting this port range will cause the following servers to be removed
from the port_range_nodes table:
server_ids, ...
Are you sure you want to do this (Y/N)?
```

where *server_ids* is a comma-separated list of server identifiers and names for the servers that are currently configured to run behind this port range. If you answer:

- Y, the port range is deleted. The indicated servers are no longer running behind a port range. (The appropriate entries are deleted from the port_range_nodes table.)
- N, the port range is not deleted. The indicated servers are still running behind it.

Options

Option	Description
<i>Port_range_ID</i>	<p>The ID of the port range that you want to delete.</p> <p>You can use the SHOW_RANGES command to find out what port range IDs are defined.</p>

Errors

The following error messages may be returned by this command.

Message	Description
The specified port_range_ID parameter Port_range_ID is invalid.	You have used a <i>Port_range_ID</i> value that does not exist. Re-run the command using the correct <i>Port_range_ID</i> value.
Unable to access the database table.	swadm cannot update the iProcess Engine database. Examine the sw_error and sw_warn files, located in the SWDIR\logs directory, for more information about the cause of the error.

See Also

[ADD_RANGE](#), [MOD_RANGE](#), [SET_RANGE](#), [SHOW_PORTS](#), [SHOW_RANGES](#)

MOD_RANGE

swadm command

Syntax

```
swadm MOD_RANGE Port_range_ID [-m Range_mode] [-p Port_range_start] [-r RPC_range_start]
[-s Range_size]
```

Description

This command modifies one or more values for an existing port range. The port range record in the `port_range_conf` table is updated.



Note: You cannot use this command if the port range you want to modify is currently in use. For example, if any of the ports within the range are currently allocated to iProcess Engine processes. You can check this using the [SHOW_PORTS](#) command.

Options

Option	Description
<i>Port_range_ID</i>	The ID of the port range that you want to modify. You can use the SHOW_RANGES command to find out what port range IDs are defined.
<i>-m Range_mode</i>	Specify an allowed value as defined for the same parameter in the ADD_RANGE command.
<i>-p Port_range_start</i>	If one or more of these parameters is omitted, the current value is left unchanged.
<i>-r RPC_range_start</i>	
<i>-s Range_size</i>	

Errors

The following error messages may be returned by this command.

Message	Description
There are currently n records allocated from this port range configuration.	You cannot update the <i>Port_range_ID</i> port range because it is currently in use.

Message	Description
Unable to access the port_range_conf table.	swadm cannot update the iProcess Engine database. Examine the sw_error and sw_warn files, located in the SWDIR\logs directory, for more information about the cause of the error.

See Also

[ADD_RANGE](#), [DEL_RANGE](#), [SET_RANGE](#), [SHOW_PORTS](#), [SHOW_RANGES](#)

SET_RANGE

swadm command

Syntax

```
swadm SET_RANGE Machine_ID [Port_range_ID]
```

Description

This command can be used for the following actions:

- place an iProcess Engine server behind a defined port range.
- remove an iProcess Engine server from behind a defined port range.

This information is updated in the port_range_nodes table.

Options

Option	Description
<i>Machine_ID</i>	The server ID of the machine that you want to add to or remove from a port range. You can use the SHOW_SERVERS command to find out the server IDs of servers in

Option	Description
	this iProcess Engine node.
<i>Port_range_ID</i>	<p>If you want to:</p> <p>add the specified <i>Machine_ID</i> to a port range, specify the ID of the port range that you want to place this server behind.</p> <p>You can use the SHOW_RANGES command to find out what port range IDs are defined.</p> <p>remove the specified <i>Machine_ID</i> from the port range that it is currently placed behind, you should omit this parameter.</p>

Errors

The following error messages may be returned by this command.

Message	Description
<i>Machine_ID</i> is not a valid logical machine ID. Use 'swadm SHOW_SERVERS' to see the correct list.	You have used a <i>Machine_ID</i> that does not exist. Re-run the command using the correct server ID.
The specified Port Range ID parameter is invalid.	You have used a <i>Port_range_ID</i> value that does not exist. Re-run the command using the correct <i>Port_range_ID</i> value.
Unable to add the specified iPE machines to the port range configuration. Check sw_error/sw_warn for more details.	swadm cannot update the iProcess Engine database. Examine the sw_error and sw_warn files, located in the SWDIR\logs directory, for more information about the cause of the error.

See Also

[ADD_RANGE](#), [DEL_RANGE](#), [MOD_RANGE](#), [SHOW_PORTS](#), [SHOW_RANGES](#)

SHOW_PORTS

swadm command

Syntax

```
swadm SHOW_PORTS [-m Machine_ID] [-p Process_name]
```

Description

This command displays information about which ports are currently being used by processes on this iProcess Engine node. This information is read from the `port_range_active` table.

Options

Option	Description
- <i>m Machine_ID</i>	<p>The server ID of the machine that you want to show details for.</p> <p>You can use the <code>SHOW_SERVERS</code> command to find out the server IDs of servers in this iProcess Engine node.</p> <p>If this parameter is omitted the local machine is used.</p>
-p <i>Process_name</i>	<p>The logical process name (in full) that you want to show details for.</p> <p>You can use the <code>SHOW_PROCESSES</code> command to find out the different logical process names.</p> <p>If this parameter is omitted all iProcess Engine processes that currently have port/RPC numbers allocated are shown.</p>

Output

The command displays the current port number and RPC number allocations for the specified parameters. For example:

```

-----
--
Machine ID  Process Name Process Instance Port Number RPC Number Process
ID
-----
--
1           RPCBG          1           1147           1073745660 3836
1           RPC_POOL        1           1196           1073746828 5004
1           RPC_TCP_LI       1           1121           391875      3784
1           WIS             1           1145           1073745652 3828
1           WIS             2           1138           1073745636 3812
1           WQS             1           1131           1073744748 2924

```

Errors

The following error messages may be returned by this command.

Message	Description
Unable to access the port_range table.	swadm cannot read the information from the iProcess Engine database. Examine the sw_error and sw_warn files, located in the SWDIR\logs directory, for more information about the cause of the error.

See Also

[ADD_RANGE](#), [DEL_RANGE](#), [MOD_RANGE](#), [SET_RANGE](#), [SHOW_RANGES](#)

SHOW_RANGES

swadm command

Syntax

```
swadm SHOW_RANGES
```

Description

This command shows the port ranges that are currently defined on this iProcess Engine node, and the servers that are currently running behind each of them. This information is read from the `port_range_conf` and `port_range_nodes` tables.

Output

The command displays the following information about the port ranges (values shown are examples):

Port	Range	ID	Range	Mode	Range	Size	Port	Start	RPC	Start	Server	ID's
1		0			20		10000		400000			
2		2			50		11000		410000			
3		1			20		15000		400000			

where:

- `Range ID` is the ID of this port range
- `Range Mode`, `Range Size`, `Port Start`, and `RPC Start` are the configuration values for this port range. See the [ADD_RANGE](#) command for a full description of these values.
- `Server ID's` is a comma-delimited list of server IDs of the servers that are currently running behind this port range. You can use the `SHOW_SERVERS` command to find out the details of each server ID.

See Also

[ADD_RANGE](#), [DEL_RANGE](#), [MOD_RANGE](#), [SET_RANGE](#), [SHOW_PORTS](#)

ADD_AQ_PORT_RANGE

swadm command

Syntax

```
swadm ADD_AQ_PORT_RANGE {machine_ID|ALL|0} start_port count
```

Description

Applies to TIBCO iProcess Engine for Oracle only.

This command adds a new port range in the `aq_port_range_conf` table.

Options

Option	Description
<i>machine_ID</i>	The ID of the machine to which the port range is added. If this field is input as "ALL" or "0", the port range will be added to all machines.
<i>start_port</i>	The port at which the port range starts.
<i>count</i>	The range size for the port range.

Output

This command outputs a *range_ID* which identifies this port range.

See Also

[MOD_AQ_PORT_RANGE](#), [DEL_AQ_PORT_RANGE](#)

MOD_AQ_PORT_RANGE

swadm command

Syntax

```
swadm MOD_AQ_PORT_RANGE machine_ID range_ID start_port count
```

Description

Applies to TIBCO iProcess Engine for Oracle only.

This command modifies a port range in the `aq_port_range_conf` table.

Options

Option	Description
<i>machine_ID</i>	The ID of the machine to which the port range identified by the <i>range_ID</i> argument applies.
<i>range_ID</i>	The range identifier of the port range you want to modify.
<i>start_port</i>	The port at which the modified port range now starts.
<i>count</i>	The new range size for the modified port range.

See Also

[ADD_AQ_PORT_RANGE](#), [DEL_AQ_PORT_RANGE](#)

DEL_AQ_PORT_RANGE

swadm command

Syntax

```
swadm DEL_AQ_PORT_RANGE range_ID
```

Description

Applies to TIBCO iProcess Engine for Oracle only.

This command deletes a port range from the `aq_port_range_conf` table.

Options

Option	Description
<i>range_ID</i>	The <code>range_ID</code> of the port range you want to delete.

See Also

[ADD_AQ_PORT_RANGE](#), [MOD_AQ_PORT_RANGE](#)

iProcess Engine Metrics

This section describes how to use the `swadm` server configuration utility, which is located in the `SWDIR\util` directory, to query iProcess Engine metrics.

Using `SWDIR\util\swadm` to Query iProcess Engine Metrics

iProcess Engine periodically collects data about its current state. Based on the nature of the data, it is collected per minute, per hour, and even per day. The data that is collected per hour and per day is aggregated into average or maximum values.

You can get this data in graphical form by using the iProcess Administration Console. See *Monitoring* in *TIBCO iProcess Administration Console User's Guide* for more information. Likewise, you can also use the `swadm` utility to view or export this data in CSV format for analyzing it using other third-party analytics tools.

You can use the `swadm` utility to get iProcess Engine metrics. Note that:

- To use this utility, you must be logged in to iProcess Engine as an Administrator or (on UNIX) as a background user or root user.
- If you are using a node cluster architecture, you can run this utility from any server within the cluster (as long as that server has a connection to the TIBCO iProcess Engine database instance).

You can use the following commands to get iProcess Engine metrics based on different frequencies. Using these commands displays data for all metrics (applicable for the queried frequency) listed in [Output Parameter Metrics](#).

Commands to Query iProcess Engine Metrics

Command	Description
<code>swadm METRICS -m</code>	Allows you to query metrics on a per-minute basis.

Command	Description
<code>swadm METRICS -h</code>	Allows you to query metrics on an hourly basis.
<code>swadm METRICS -d</code>	Allows you to query metrics daily.

To query more specific information, you can append the command to include the following parameters:

Output (-o)

The `-o` parameter allows you to query a more specific output using one of the different metrics. For example, you can query data for metrics like process, version, user information, database information, etc.

When querying data for a metric, all data for that metric is retrieved. However, you can add filters to your query such that data for only a particular process, or instance, or queue is retrieved.

The following table lists metrics and filters which you can use to query data and syntax examples for each metric and filter:

Output Parameter Metrics

Metric	Description	Applicable for Frequency
PROCESS	<p>Allows you to query data specific to one or multiple processes. The following is an example to query data for all processes:</p> <pre>swadm METRICS -m -o PROCESS</pre> <h3>Name Filter</h3> <p>The following is an example to query data for a single process:</p> <pre>swadm METRICS -m -o PROCESS{"NAME=WIS"}</pre>	All

Metric	Description	Applicable for Frequency
--------	-------------	--------------------------

The following is a sample output for this command:

```
[pro@centos199 1170RC2]$ swadm METRICS -m -o PROCESS("NAME=WIS")
groups[0]=PROCESS filters[0]=NAME=WIS
cap_date machine_id process_name instance_id pid cpu cputime memory threads starttime command /
2019-04-01-12.12.00.000000 1 WIS 1 25360 0.02 33.07 509956 35 2019-03-27-09.28.49.000000 /
staffware/installs/1170RC2//etc/wisrnc -- -m 1 -p WIS -i 1 -s 36690 -b MEMSET,ALL=1,G=13,m=41,R=5,w=5,Q=5,T=3
2019-04-01-12.13.00.000000 1 WIS 1 25360 0.00 33.07 509956 35 2019-03-27-09.28.49.000000 /
staffware/installs/1170RC2//etc/wisrnc -- -m 1 -p WIS -i 1 -s 36690 -b MEMSET,ALL=1,G=13,m=41,R=5,w=5,Q=5,T=3
2019-04-01-12.12.00.000000 1 WIS 2 25359 0.00 31.82 510952 35 2019-03-27-09.28.49.000000 /
staffware/installs/1170RC2//etc/wisrnc -- -m 1 -p WIS -i 2 -s 38267 -b MEMSET,ALL=1,G=13,m=41,R=5,w=5,Q=5,T=3
2019-04-01-12.13.00.000000 1 WIS 2 25359 0.02 31.83 510952 35 2019-03-27-09.28.49.000000 /
staffware/installs/1170RC2//etc/wisrnc -- -m 1 -p WIS -i 2 -s 38267 -b MEMSET,ALL=1,G=13,m=41,R=5,w=5,Q=5,T=3
```

To query data for more than one process, separate the processes by an OR operator (|). For example:

```
swadm METRICS -m -o PROCESS{"NAME=WIS|BG"}
```

The following is a sample output for this command:

```
[pro@centos199 1170RC2]$ swadm METRICS -m -o PROCESS("NAME=WIS|BG")
groups[0]=PROCESS filters[0]=NAME=WIS|BG
cap_date machine_id process_name instance_id pid cpu cputime memory threads starttime command /
2019-04-01-12.15.00.000000 1 BG 2 25218 0.02 67.95 473216 4 2019-03-27-09.28.35.000000 /
staffware/installs/1170RC2//etc/swbgmbd -- -m 1 -p BG -i 2 -s 35555 -b MEMSET,ALL=1,G=13,c=15,T=3,m=41,q=57
2019-04-01-12.16.00.000000 1 BG 2 25218 0.02 67.96 473216 4 2019-03-27-09.28.35.000000 /
staffware/installs/1170RC2//etc/swbgmbd -- -m 1 -p BG -i 2 -s 35555 -b MEMSET,ALL=1,G=13,c=15,T=3,m=41,q=57
2019-04-01-12.15.00.000000 1 BG 3 25221 0.00 68.09 473216 4 2019-03-27-09.28.35.000000 /
staffware/installs/1170RC2//etc/swbgmbd -- -m 1 -p BG -i 3 -s 45797 -b MEMSET,ALL=1,G=13,c=15,T=3,m=41,q=57
2019-04-01-12.16.00.000000 1 BG 3 25221 0.03 68.11 473216 4 2019-03-27-09.28.35.000000 /
staffware/installs/1170RC2//etc/swbgmbd -- -m 1 -p BG -i 3 -s 45797 -b MEMSET,ALL=1,G=13,c=15,T=3,m=41,q=57
2019-04-01-12.15.00.000000 1 BG 4 25216 0.00 68.01 475288 4 2019-03-27-09.28.35.000000 /
staffware/installs/1170RC2//etc/swbgmbd -- -m 1 -p BG -i 4 -s 36799 -b MEMSET,ALL=1,G=13,c=15,T=3,m=41,q=57
2019-04-01-12.16.00.000000 1 BG 4 25216 0.00 68.01 475288 4 2019-03-27-09.28.35.000000 /
staffware/installs/1170RC2//etc/swbgmbd -- -m 1 -p BG -i 4 -s 36799 -b MEMSET,ALL=1,G=13,c=15,T=3,m=41,q=57
2019-04-01-12.15.00.000000 1 WIS 1 25360 0.03 33.09 509956 35 2019-03-27-09.28.49.000000 /
staffware/installs/1170RC2//etc/wisrnc -- -m 1 -p WIS -i 1 -s 36690 -b MEMSET,ALL=1,G=13,m=41,R=5,w=5,Q=5,T=3
2019-04-01-12.16.00.000000 1 WIS 1 25360 0.00 33.09 509956 35 2019-03-27-09.28.49.000000 /
staffware/installs/1170RC2//etc/wisrnc -- -m 1 -p WIS -i 1 -s 36690 -b MEMSET,ALL=1,G=13,m=41,R=5,w=5,Q=5,T=3
2019-04-01-12.15.00.000000 1 WIS 2 25359 0.02 31.85 510952 35 2019-03-27-09.28.49.000000 /
staffware/installs/1170RC2//etc/wisrnc -- -m 1 -p WIS -i 2 -s 38267 -b MEMSET,ALL=1,G=13,m=41,R=5,w=5,Q=5,T=3
2019-04-01-12.16.00.000000 1 WIS 2 25359 0.00 31.85 510952 35 2019-03-27-09.28.49.000000 /
staffware/installs/1170RC2//etc/wisrnc -- -m 1 -p WIS -i 2 -s 38267 -b MEMSET,ALL=1,G=13,m=41,R=5,w=5,Q=5,T=3
```

Instance Filter

You can also specify a particular instance of a process in your query. For example:

```
swadm METRICS -m -o PROCESS{"NAME=BG,INSTANCE=2"}
```

The following is a sample output for this command:

```
[pro@centos199 1170RC2]$ swadm METRICS -m -o PROCESS{"NAME=BG,INSTANCE=2"}
groups[0]=PROCESS filters[0]=NAME=BG,INSTANCE=2
cap_date machine_id process_name instance_id pid cpu cputime memory threads starttime command /
2019-04-01-12.18.00.000000 1 BG 2 25218 0.07 68.01 475288 4 2019-03-27-09.28.35.000000 /
staffware/installs/1170RC2//etc/swbgmbd -- -m 1 -p BG -i 2 -s 35555 -b MEMSET,ALL=1,G=13,c=15,T=3,m=41,q=57
```

MESSAGE

Allows you to query data specific to messages in one or multiple queues. The following is an example to query data for all messages:

All

```
swadm METRICS -d -o MESSAGE
```

Metric	Description	Applicable for Frequency
--------	-------------	--------------------------

Queue Filter

You can also query data from a specific queue by defining the queue name. For example:

```
swadm METRICS -d -o MESSAGE{"NAME=BGMBBOX1"}
```

The following is a sample output for this command:

```
[pro@centos199 1170RC2]$ swadm METRICS -d -o MESSAGE{"NAME=BGMBBOX1"}
groups[0]=MESSAGE filters[0]=NAME=BGMBBOX1
cap_date    queue_id    queue_name    max_count    min_count    avg_count    exp_msg_count
2019-04-01-00.00.000000    1    BGMBBOX1    0    0    0    0
```

USERINFO¹

Allows you to query data for iProcess Engine users. The following is an example syntax of this command:

```
swadm METRICS -h -o USERINFO
```

The following is a sample output for this command:

```
[pro@centos199 1170RC2]$ swadm METRICS -h -o USERINFO
groups[0]=USERINFO filters[0]=NULL
cap_date    user_sum    group_sum    queues_sum    max_log_count    avg_log_count
2019-04-01-12.00.000000    1    0    1    0    0
```

EVENT¹

Allows you to query data specific to events. The following is an example syntax of this command:

```
swadm METRICS -h -o EVENT
```

The following is a sample output for this command:

```
[pro@centos199 1170RC2]$ swadm METRICS -h -o EVENT
groups[0]=EVENT filters[0]=NULL
cap_date    event test
2019-04-01-12.00.000000    Events working correctly. Received loopback message in 1 second(s).
```

PROCINFO¹

Allows you to query procedure information. The following is an example syntax of this command:

```
swadm METRICS -d -o PROCINFO
```

The following is a sample output for this command:

¹The output for these metrics cannot be filtered any further.

Metric	Description	Applicable for Frequency
--------	-------------	--------------------------

```
[pro@centos199 1170RC2]$ swadm METRICS -d -o PROCINFO
groups[0]=PROCINFO filters[0]=NULL
cap_date      proc_sum      proc_ver_sum      proc_name      proc_most_ver
2019-03-29-00.00.00.000000      2      2      $SYSTEM      1
2019-03-30-00.00.00.000000      2      2      $SYSTEM      1
2019-03-31-00.00.00.000000      2      2      $SYSTEM      1
2019-04-01-00.00.00.000000      2      2      $SYSTEM      1
```

PROCVERS¹

Allows you to query information specific to procedure versions. The following is an example syntax of this command:

Daily

```
swadm METRICS -d -o PROCVERS
```

The following is a sample output for this command:

```
[pro@centos199 1170RC2]$ swadm METRICS -d -o PROCVERS
groups[0]=PROCVERS filters[0]=NULL
cap_date      flags      maj_ver      min_ver      start_step      directory      max_casenum      total_cases      dead_cases
2019-03-27-00.00.00.000000      $EMAIL      -----P:REL      0      0      MESSAGE1      $email.p      0      0      0
2019-03-28-00.00.00.000000      $EMAIL      -----P:REL      0      0      MESSAGE1      $email.p      0      0      0
2019-03-29-00.00.00.000000      $EMAIL      -----P:REL      0      0      MESSAGE1      $email.p      0      0      0
2019-03-30-00.00.00.000000      $EMAIL      -----P:REL      0      0      MESSAGE1      $email.p      0      0      0
2019-03-31-00.00.00.000000      $EMAIL      -----P:REL      0      0      MESSAGE1      $email.p      0      0      0
2019-04-01-00.00.00.000000      $EMAIL      -----P:REL      0      0      MESSAGE1      $email.p      0      0      0
2019-03-27-00.00.00.000000      $SYSTEM      -----P:REL      0      0      SYSINFO      $system.p      0      0      0
2019-03-28-00.00.00.000000      $SYSTEM      -----P:REL      0      0      SYSINFO      $system.p      0      0      0
2019-03-29-00.00.00.000000      $SYSTEM      -----P:REL      0      0      SYSINFO      $system.p      1      1      0
2019-03-30-00.00.00.000000      $SYSTEM      -----P:REL      0      0      SYSINFO      $system.p      1      1      0
2019-03-31-00.00.00.000000      $SYSTEM      -----P:REL      0      0      SYSINFO      $system.p      1      1      0
2019-04-01-00.00.00.000000      $SYSTEM      -----P:REL      0      0      SYSINFO      $system.p      1      1      0
```

CASEINFO¹

Allows you to query data specific to cases. The following is an example syntax of this command:

Daily and hourly

```
swadm METRICS -h -o CASEINFO
```

The following is a sample output for this command:

```
[pro@centos199 1170RC2]$ swadm METRICS -h -o CASEINFO
groups[0]=CASEINFO filters[0]=NULL
cap_date      outstanding_item_count
2019-04-01-12.00.00.000000      1
```

WISINFO¹

Allows you to query data for the Work Item Server like the number of queues, items, queue name, etc. The following is an example syntax of this command:

Hourly and per minute

```
swadm METRICS -m -o WISINFO
```

The following is a sample output for this command:

```
[pro@centos199 1170RC2]$ swadm METRICS -m -o WISINFO
groups[0]=WISINFO filters[0]=NULL
cap_date      wis_lq_queue      lq_queue_name      lq_queue_size      wis_most_que      most_que_sum      wis_most_que_items      wis_most
t_item      wis_most_items_sum
2019-04-01-12.26.00.000000      1      swadm 0      1      1      0      1      0      1
```

Metric	Description	Applicable for Frequency
DBINFO¹	<p>Allows you to query information about the database server. The following is an example syntax of this command:</p> <pre>swadm METRICS -d -o DBINFO</pre> <p>The following is a sample output for this command:</p> <pre>[prodcentos199 1178622] swadm METRICS -d -o DBINFO groups[0]=DBINFO filters[0]=NULL cap date max_dbtming min_dbtming avg_dbtming case_information_size case_data_size audit_trail_size c 2019-03-29-00.00.000000 60 16 28 1 4 2 1970-01-01-00.00.000000 1970-01-01-00.0 0.00.000000 1970-01-01-00.00.00.000000 2019-03-30-00.00.000000 52 16 24 0 0 0 1970-01-01-00.00.00.000000 1970-01-01-00.0 0.00.000000 1970-01-01-00.00.00.000000 2019-03-31-00.00.000000 70 16 22 1 4 2 1970-01-01-00.00.00.000000 1970-01-01-00.0 0.00.000000 1970-01-01-00.00.00.000000 2019-04-01-00.00.000000 59 16 29 0 0 0 1970-01-01-00.00.00.000000 1970-01-01-00.0 0.00.000000 1970-01-01-00.00.00.000000</pre>	Daily and hourly
VERSION¹	<p>Allows you to query version information for iProcess Engine. The following is an example syntax of this command:</p> <pre>swadm METRICS -m -o VERSION</pre> <p>The following is a sample output for this command:</p> <pre>[prodcentos199 1178622] swadm METRICS -d -o VERSION groups[0]=VERSION filters[0]=NULL cap date machine_id machine_name iPE_ver SP0_ver operating_sys_ver 2019-03-27-00.00.000000 1 centos199 i11.7-u(0.0) i11.7(0.0) - Linux/Intel [3.1.6] Linux centos199 3.10.0-514.el7.x86_64 #1 SMP Tue Nov 22 16:42:41 UTC 2016 x86_64 x86_64 x86_64 GNU/Linux 2019-03-28-00.00.000000 1 centos199 i11.7-u(0.0) i11.7(0.0) - Linux/Intel [3.1.6] Linux centos199 3.10.0-514.el7.x86_64 #1 SMP Tue Nov 22 16:42:41 UTC 2016 x86_64 x86_64 x86_64 GNU/Linux 2019-03-29-00.00.000000 1 centos199 i11.7-u(0.0) i11.7(0.0) - Linux/Intel [3.1.6] Linux centos199 3.10.0-514.el7.x86_64 #1 SMP Tue Nov 22 16:42:41 UTC 2016 x86_64 x86_64 x86_64 GNU/Linux 2019-03-30-00.00.000000 1 centos199 i11.7-u(0.0) i11.7(0.0) - Linux/Intel [3.1.6] Linux centos199 3.10.0-514.el7.x86_64 #1 SMP Tue Nov 22 16:42:41 UTC 2016 x86_64 x86_64 x86_64 GNU/Linux 2019-03-31-00.00.000000 1 centos199 i11.7-u(0.0) i11.7(0.0) - Linux/Intel [3.1.6] Linux centos199 3.10.0-514.el7.x86_64 #1 SMP Tue Nov 22 16:42:41 UTC 2016 x86_64 x86_64 x86_64 GNU/Linux 2019-04-01-00.00.000000 1 centos199 i11.7-u(0.0) i11.7(0.0) - Linux/Intel [3.1.6] Linux centos199 3.10.0-514.el7.x86_64 #1 SMP Tue Nov 22 16:42:41 UTC 2016 x86_64 x86_64 x86_64 GNU/Linux</pre>	Daily

Start Time (-s) and End Time (-e)

When querying information, you can restrict it to a specific period by defining the start time and end time. The start or end time must be specified in the following format:

```
-s "DD/MM/YYYY HH:MM" -e "DD/MM/YYYY HH:MM"
```

For example, the following syntax queries data for the BG process from 23/03/2019 to 25/03/2019.

```
swadm METRICS -d -o PROCESS{"NAME=BG,INSTANCE=1"} -s "23/03/2019" -e "25/03/2019"
```

With a time specified, the same syntax would look as follows:

```
swadm METRICS -d -o PROCESS{"NAME=BG,INSTANCE=1"} -s "23/03/2019 03:15" -e "25/03/2019 15:15"
```

Latest Entries (-l)

This parameter allows you to the query latest data entries for any given metric.

i Note: In a query, this parameter can be added in place of a start date and end date parameter. However, both parameters cannot be specified in the same query.

This parameter applies to all frequency types. For example, the following syntax queries data for the BG process for the last 2 days:

```
swadm METRICS -d -o PROCESS{"NAME=BG,INSTANCE=1"} -l 2
```

The same command can be used to get entries for the last 2 hours as follows:

```
swadm METRICS -h -o PROCESS{"NAME=BG,INSTANCE=1"} -l 2
```

Likewise, you can also use it to get entries for the last 2 minutes:

```
swadm METRICS -m -o PROCESS{"NAME=BG,INSTANCE=1"} -l 2
```

Export to CSV (-w)

To export the metric data to a CSV file, append the command to include `-w <filename>.csv`.

For example, the following command would export daily data for the PROCESS metric to the `bg1ddata.csv` file.

```
swadm METRICS -d -o PROCESS{"NAME=BG,INSTANCE=1"} -w bg1ddata.csv
```

Administering Activity Monitoring and Work Queue Delta Publication

This section explains how to configure iProcess Engine to publish iProcess Engine activity information and Work Queue Deltas to external applications.

Overview

The TIBCO iProcess Engine node can be enabled to publish both iProcess Engine activity information and iProcess Engine Work Queue Deltas to external applications, using JMS queues.

An activity is any instruction in iProcess Engine that creates an audit trail entry, for example, Case started or Event Issued. You can configure any combination of steps and/or activities to be monitored. This enables an external application to monitor important business events during the processing of cases.

A BG process can identify if a step is being processed and if activity monitoring has been configured for it. The BG process then sends details of the configured activities in XML format to the IAPJMS process.

Work Queue Delta publication enables an external application (iProcess Server Objects (Java) or iProcess Server Objects (.NET)) to monitor a queue and to retrieve only those work items in a given work queue that have changed since the subscription started. The WIS process sends messages reporting Work Queue changes to the IAPJMS process.

For both activity monitoring and Work Queue Delta publication, the IAPJMS process sends the XML message to a specified JMS topic, from which an external application (for example, iProcess Objects, or an external application that you have written yourself) can receive the JMS messages.

i Note: The Work Queue Delta publication via JMS functionality is independent of the ability to obtain Work Queue Delta items via the iProcess Server Objects interface, as described in *TIBCO iProcess Server Objects (Java) Programmer's Guide*.

Enabling Activity Monitoring

Activity monitoring and Work Queue Delta publication can be configured when iProcess Engine is installed. If this has not been done, you can subsequently enable them manually. To do this, you need to complete the following steps:

1. Make sure that the [SWLIB_PATH](#) process attribute points to the directory containing the Java libraries that you want the IAPJMS process to use. See [SWLIB_PATH](#).

i Note: By default, [SWLIB_PATH](#) points to the Java libraries distributed with iProcess Engine. You do not need to change this value unless you have a specific requirement for the IAPJMS process to use a different version of these libraries.

2. Enable activity monitoring on your iProcess Engine node by configuring the [IAPJMS_PUBLISH](#) process attribute. See [IAPJMS_PUBLISH](#).
3. Specify the JMS message delivery method by configuring the [IAPJMS_SYNCHRONOUS](#) and [WQDJMS_TOPICNAME](#) process attributes. See [IAPJMS_SYNCHRONOUS](#) and [WQDJMS_TOPICNAME](#).
4. For activity monitoring, configure the port number that is used for message communications between the BG process and IAPJMS process by configuring the [IAPJMS_PORTNO](#) process attribute. See [IAPJMS_PORTNO](#).
5. For Work Queue Delta publication, configure the port number that is used for message communications between the WIS process and IAPJMS process by configuring the [WQDJMS_PORTNO](#) process attribute. See [WQDJMS_PORTNO](#).
6. Configure the JNDI name for the JMS topic and whether it should be static or dynamic by configuring the [IAPJMS_TOPICNAME](#), [IAPJMS_SIMPLETOPIC](#) and [WQDJMS_TOPICNAME](#) process attributes. See [IAPJMS_TOPICNAME](#), [IAPJMS_SIMPLETOPIC](#) and [WQDJMS_TOPICNAME](#).

i Note: If you are using WebLogic as your JMS provider, you must ensure that the WebLogic JNDI name and topic name are the same as the topic name specified in the [IAPJMS_TOPICNAME](#) and the [WQDJMS_TOPICNAME](#) attributes. (See WebLogic documentation for more information.)

7. Specify whether you want the IAPJMS process to generate messages in a basic or extended format. See [IAPSCHEMA](#).

8. Configure the JMS message error handling by configuring the [IAPJMS_ROLLBACK](#) process attribute. See [IAPJMS_ROLLBACK](#).
9. Configure the JVM Attributes that should be specified when the Java Virtual Machine is started by configuring the [JVMPROPS](#) process attribute. See [JVMPROPS](#).
10. Depending on your requirements, you can filter MER messages and Work Queue Delta messages using the message properties. See [Filtering Message Event Request \(MER\) Messages](#).
11. Configure the IAP JMS configuration files - see [Configuring the iProcess Activity Publication \(IAP\) Configuration Files](#)
12. Update the IAP security principle and credentials - see [Updating the IAP Security Principle and Credentials](#)

Filtering Message Event Request (MER) Messages

Every MER message sent to the iProcess database to update the activity monitoring configuration information consists of XML requesting the events to monitor. The MER XML format is defined by the `SWMonitorList.xsd` schema.

The table describes the properties of the MER message:.

Property	Description
IAPMessageType	The message type is MER (Monitor Event Request)
IAPProcedureName	The iProcess Engine procedure name
IAPNodeName	The name of iProcess Engine.
IAPComputerName	The name of the machine where iProcess Engine is installed.

You can filter the MER messages using these properties. See the information supplied with your J2EE Application Server for more information on filtering messages.

Configuring the iProcess Activity Publication (IAP) Configuration Files

If you want to enable IAP, there are two configuration files that you can configure. If necessary consult the administrator for your JMS provider software. The configuration files are found in `SWDIR\etc` directory:

- `iapjms.properties` - contains all the configuration information for the IAPJMS process.
- `iapjms_classpath.properties` - contains a list of the required JAR files for each of the supported application servers.

Configuring the IAP JMS Properties File

The `iapjms.properties` file contains all the configuration information for the IAPJMS process. The `iapjms.properties` file enables you to configure the following settings:

IAP JMS Properties File

Property	Description
<code>IAPJMSConnect.InitialContextFactory</code>	Defines the J2EE initial context factory to be used for all J2EE connections within the application.
<code>IAPJMSConnect.InitialURL</code>	Defines the initial context URL, if required.
<code>IAPJMSConnect.SecurityPrinciple</code>	Defines the username, if security is set in the InitialContextFactory. For more information, see Updating the IAP Security Principle and Credentials .
<code>IAPJMSConnect.SecurityCredentials</code>	Defines the password, if security is set in the InitialContextFactory. For more information, see Updating the IAP Security Principle and Credentials .

Property	Description
IAPJMSConnect.SecurityEncryption	<p>Defines the encryption method used for the IAPJMSConnect.SecurityCredentials parameter. Valid values are:</p> <ul style="list-style-type: none"> • PLAIN - Plain text format (default) • IPE - iPE proprietary encryption (this mechanism is used by the swconfig utility when writing the password) <p>For more information, see Updating the IAP Security Principle and Credentials.</p>
IAPJMSConnect.TopicConnectionFactory	<p>Defines where the JMS topic details are configured. If a topic cannot be looked up then the topic is dynamically created by the IAPJMS process, if possible.</p>
IAPJMSConnect.TimeToLive	<p>Defines the maximum time to live for the JMS messages in milliseconds. If the property is set to 0 the messages never time out. For more information, see the documentation supplied with your J2EE Application Server.</p>
IAPJMSConnect.Priority	<p>Defines the priority of the JMS message in the system. For more information, see the documentation supplied with your J2EE Application Server.</p>
WQDJMSConnect.ListenerThreads	<p>Defines the number of socket listener threads that are created when the IAPJMS process starts up.</p> <div> <p>Note: This property is not present in the <code>iapjms.properties</code> file by default. It should only be set on instructions from TIBCO Support.</p> </div>

Property	Description
WQDJMSConnect.ConnectionPoolSize	<p>Each work queue is required to publish its messages on the same JMS connection to ensure that messages appear in the correct order. Therefore, the IAPJMS process keeps a pool of JMS connection caches and ensures that all messages from each unique work queue are sent using the same connection. The connection pool is created when the IAPJMS process starts up.</p> <p>This property, therefore, defines the connection pool size, which is the maximum number of connections available for JMS publication. Each connection will always be used for all items for a single work queue.</p> <p>Note: This property is not present in the <code>iapjms.properties</code> file by default. It should only be set on instructions from TIBCO Support.</p>

Configuring the IAPJMS Classpath File

The `iapjms_classpath.properties` file contains:

- A list of the IAPJMS internal libraries, as shown :

```
#####
###
# Internal libraries
#####
###
#
#
# The following entries are required by the IAPJMS process and
should NOT be modified
#
classpath.internal.log4j=thirdparty/log4j-1.2.8.jar
classpath.internal.common=common_swprocess_library.jar,common_
bootstrap_library.jar,common_utils_library.jar
```

```
classpath.internal.socket=socketproxy_socketproxy_library.jar
classpath.internal.iapjms=iapjms_iapjms_library.jar
```

The internal libraries are required by the IAPJMS process and should not be modified.

- The required JAR files for each of the supported application servers. Shown is an extract of the `iapjms.classpath` file that describes the JAR files for Websphere.

```
#####
#WebSphere 5.1
#####
#classpath.basedir.WAS=c:/program files/WebSphere/AppServer/lib
#classpath.WAS.1=bootstrap.jar,iwsorb.jar,j2ee.jar,wsexception.jar
#classpath.WAS.2=ffdc.jar,namingClient.jar,ras.jar,utils.jar,idl.jar
#classpath.WAS.3=messagingClient.jar,ecutils.jar,naming.jar
#classpath.WAS.MQ=com.ibm.mq.jar,com.ibm.mqjms.jar
#classpath.WAS.ext=ibmext.jar,ibmorb.jar
```

You must configure this file for the application server you are using. You must uncomment the lines of the file that apply to the application server you are using. For example, if you are using Websphere, you should uncomment the paths to the JAR files as shown :

```
#####
#WebSphere 5.1
#####
classpath.basedir.WAS=c:/program files/WebSphere/AppServer/lib
classpath.WAS.1=bootstrap.jar,iwsorb.jar,j2ee.jar,wsexception.jar
classpath.WAS.2=ffdc.jar,namingClient.jar,ras.jar,utils.jar,idl.jar
classpath.WAS.3=messagingClient.jar,ecutils.jar,naming.jar
classpath.WAS.MQ=com.ibm.mq.jar,com.ibm.mqjms.jar
classpath.WAS.ext=ibmext.jar,ibmorb.jar
```

Updating the IAP Security Principle and Credentials

If you enabled IAP, default values for the JNDI/JMS user name and password are contained in the `iapjms.properties` file, which is located in the **\$WDIR\etc** directory (in

the properties `SecurityPrincipal` and `SecurityCredentials` respectively). For security reasons, you can change the user name/password using the `swconfig` utility as described.

i Note: When you use the `swconfig` utility to modify the `iapjms.properties` file, a backup file (`iapjms.properties.bak`) is created, preserving the previous settings.

Resetting the User Name and Password

i Note: If you want to update the username and password without encrypting the password, you can directly edit the `iapjms.properties` file to add the new user name and password; otherwise use the procedure described.

1. From the `SWDIR\util` directory, enter the following command:

```
swconfig -i
```

2. The `swconfig` utility displays the current user name and prompts you to enter a new one.
3. The `swconfig` utility echoes the current password and prompts you to enter a new one.
4. The password is encrypted and the properties `IAPJMSConnect.SecurityPrincipal` and `IAPJMSConnect.SecurityCredentials` are updated accordingly.

Deleting the User Name and Password

If you do not want to use security, you can delete the current user name and password as follows:

1. Enter the following command:

```
swconfig -i -x
```

2. The properties `IAPJMSConnect.SecurityPrinciple` and `IAPJMSConnect.SecurityCredentials` are deleted from the file `iapjms.properties` file.

Testing the Password

1. Enter the following command:

```
swconfig -i -t
```

2. The `swconfig` utility prompts you to enter the user name and password.
The password saved in `IAPJMSConnect.SecurityCredentials` is decrypted and compared with the password you supplied.
3. The `swconfig` utility indicates whether the password is valid.

Using `SWDIR\util\swadm` to Administer Work Queue Delta Publication

You can use the `swadm` utility to administer (view and delete) subscriptions to work queues. Note that:

- To use this utility, you must be logged in to iProcess Engine as an Administrator or (on UNIX) as background user or root user.
- If you are using a node cluster architecture, you can run this utility from any server within the cluster (as long as that server has a connection to the TIBCO iProcess Engine database instance).

The following table summarizes the commands you can use to administer work queue subscriptions.

Area	Task	swadm Command
Publication	List Subscriptions	SHOW_ALL_SUBSCRIPTIONS
	Clear Subscriptions	CLEAR_SUBSCRIPTION

List Subscriptions

To display a list of all publications of Work Queue Deltas currently enabled, use the following command:

```
swadm SHOW_ALL_SUBSCRIPTIONS
```

The command lists the following information for each publication:

- **WIS No** is the identifying number of the WIS process.
- **Work Queue** is the unique identifier for the queue subscribed to.
- **WQDID** is the Work Queue Delta ID.
- **JMS Topic** is the topic that is used for Work Queue Delta messages. By default, it is the topic specified by the [WQDJMS_TOPICNAME](#) process attribute but a different topic can be specified by the subscribing application.

Example

This example shows the output from the `swadm SHOW_ALL_SUBSCRIPTIONS` command.

WIS No	Work Queue	WQDID	JMS Topic
1	user002@swnod102	16D3B33A-D305-11DC-8FE2-0017A499ABAD	WQD TOPIC
1	user002@swnod102	2DB0E050-D305-11DC-8029-0017A499ABAD	WQD.TOPIC.USER002
1	user002@swnod102	E2AC427A-D304-11DC-AB61-0017A499ABAD	WQD TOPIC

Clear Subscriptions

To clear a work queue delta subscription, use the following command:

```
swadm clear_subscription queue_name WQD_ID
```

where:

- *queue_name* is the descriptive alphanumeric name for the queue.
- *WQD_ID* is the Work Queue Delta ID.

Administering System Events

This section explains how to audit, publish, review, or remove information about system events and how to import and export the configuration of system events.

Configuring System Events Information

To configure system event information, you might have to complete the following tasks:

- [Audit System Events](#)
- [Publish System Events](#)
- [Import and Export System Event Configurations](#)
- [Display System Event Information](#)
- [Remove System Event Information](#)

Audit System Events

Set the value of the `SYSTEM_EVENT_LOGGING` process attribute to 1 to audit system events. See [SYSTEM_EVENT_LOGGING](#).

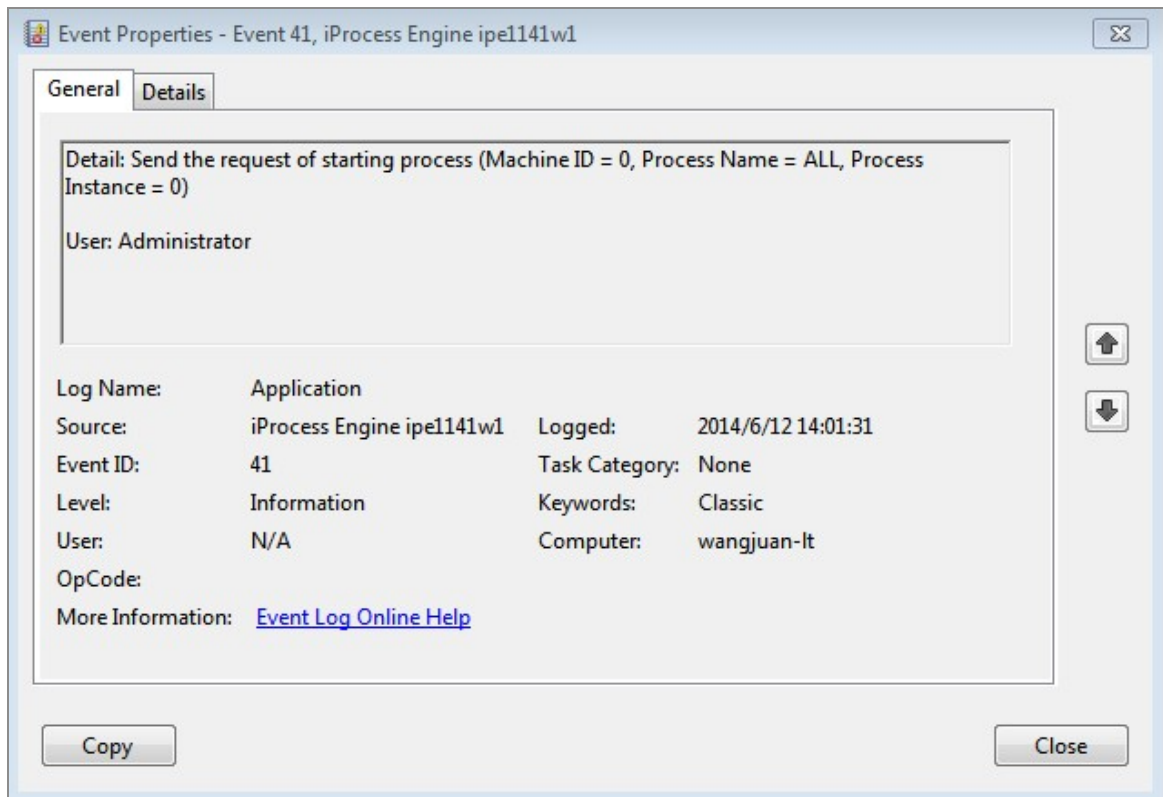
Publish System Events

After auditing system events, set the `PUBLISH_SYS_EVENT_METHOD` process attribute to decide in which way to publish system events. Three ways to publish system events:

- Windows Event Viewer

Set the `PUBLISH_SYS_EVENT_METHOD` process attribute to 1. This function is only available for Microsoft Windows system.

The following is an example of a published system event shown in Windows Event Viewer.

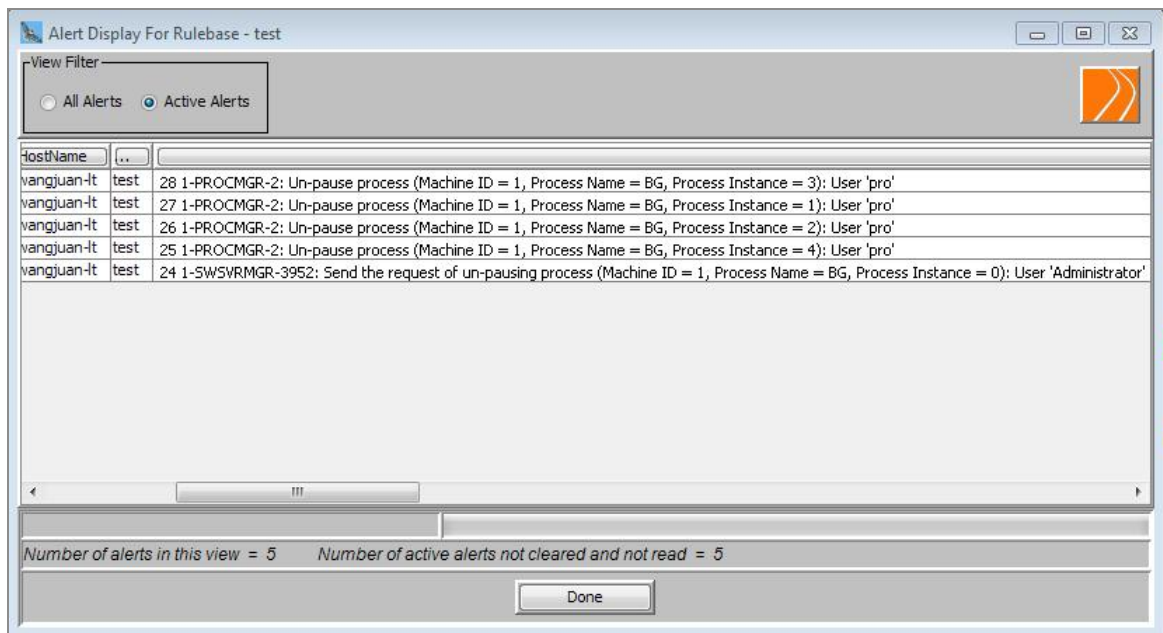


- TIBCO Hawk Agent

Set the PUBLISH_SYS_EVENT_METHOD process attribute to 2. The following is the format of the alert message about published system events in TIBCO Hawk:

Logical Machine ID-Logical Process Name-Logical Process Instance: Details in DB:User

The following is an example of a published system event in TIBCO Hawk.



- The IAPJMS process

Set the PUBLISH_SYS_EVENT_METHOD process attribute to 3. You can check the published system events in the XML format in the `iapjms_java.log` file, which is located in the `SWDIR/logs` directory.

The following is an example of a published system event in the `iapjms_java.log` file:

```
<SystemEvent xmlns="http://bpm.tibco.com/2014/IAPSE/1.0"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://bpm.tibco.com/2014/IAPSE/1.0
  SWSEMessage.xsd">
  <ActivityID>1</ActivityID>
  <EventDesc>Successful login</EventDesc>
  <DetailInfo>
    <MachineName>WANGJUAN-LT</MachineName>
    <ProcessName>RPC_POOL</ProcessName>
  </DetailInfo>
  <AuditUser>administrator</AuditUser>
  <AuditDate Microseconds="611534">2014-05-15T14:35:41</AuditDate>
</SystemEvent>
```

If the value of the SEJMS_TOPICNAME process attribute is set, the events are published on the topic name that is set in the SEJMS_TOPICNAME process attribute. Otherwise, the events are published on the topic name that is set in the IAPJMS_TOPICNAME process attribute.

For more information, see [PUBLISH_SYS_EVENT_METHOD](#).

Import and Export System Event Configurations

You can specify publishing and auditing system events in a configuration file. To import and export a configuration file, use the `swutil IMPEVENTCONF [filename]` and `swutil EXPEVENTCONF` commands. The `sysevents.cfg` configuration file is used by default, which is located in the `SWDIR/etc/english.lng` directory.

For more information, see "System Event Monitoring" in *TIBCO iProcess swutil and swbatch Reference Guide*.

Display System Event Information

If you want to review the information about system events, use the `plist -e` command.

For more information, see [System Event Information](#).

Remove System Event Information

If you want to delete system event information from the database, use the `swadm delete_system_event` command.

For more information, see [Removing System Events Information from the iProcess Database](#).

Removing System Events Information from the iProcess Database

To clean system event information or to delete information about system events from the iProcess database before a specific date, enter the following command:


```
swadm delete_system_event <typeid[,typeid...]|ALL[,!typeid[,!typeid...]>
[DD/MM/YYYY]
```

where:

- `typeid` specifies the ID of a system event.

To review events and their corresponding ID, see the `sysevents.cfg` file in the `SWDIR/etc/english.lng` directory.

- `ALL` specifies all the system events.
- `!typeid` specifies the ID of a system event that will not be removed from the iProcess database. Except for this system event, all other events will be removed from the iProcess database.

 **Note:** The `!typeid` parameter must be used together with the `ALL` parameter.

- `DD/MM/YYYY` specifies that all the system events published in the iProcess database before this date will be removed.

For example:

- To delete information about the system event where the type ID is equal to 1:
`swadm delete_system_events 1`
- To delete information about the system events where the type IDs are equal to 1, 2, and 3:
`swadm delete_system_events 1,2,3`
- To delete the system event information except for the events with the type IDs equal to 5 and 6:
`swadm delete_system_events ALL,!5,!6`
- To delete the system event information that was published before 23/10/2013:
`swadm delete_system_events ALL 23/10/2013`

Administering the Work Queue Server and Work Item Server Processes

This section describes how you can configure the Work Queue Server (WQS) and Work Item Server (WIS) processes for optimum performance.

Overview

The iProcess work queues, which contain all the iProcess users' work items, are managed by the following processes:

- Work Queue Server (WQS), which handles the listing of queues. This process is run by `wqsrpc`, which is located in the `SWDIR\etc` directory. There is only a single `wqsrpc` process running at any time. See [The WQS Process](#) for more information.
- Work Item Server (WIS), which handles the listing of work items in the queues. This process is run by `wisrpc`, which is located in the `SWDIR\etc` directory. The number of `wisrpc` processes running is controlled by the Process Sentinels (the `process_config` table). See [The WIS Process](#) for more information.

i Note: The WQS process handles what is displayed in the left-hand pane of the Work Queue Manager (the queue list) and the WIS process handles the contents of the right-hand pane (the work items list).

The WQS Process

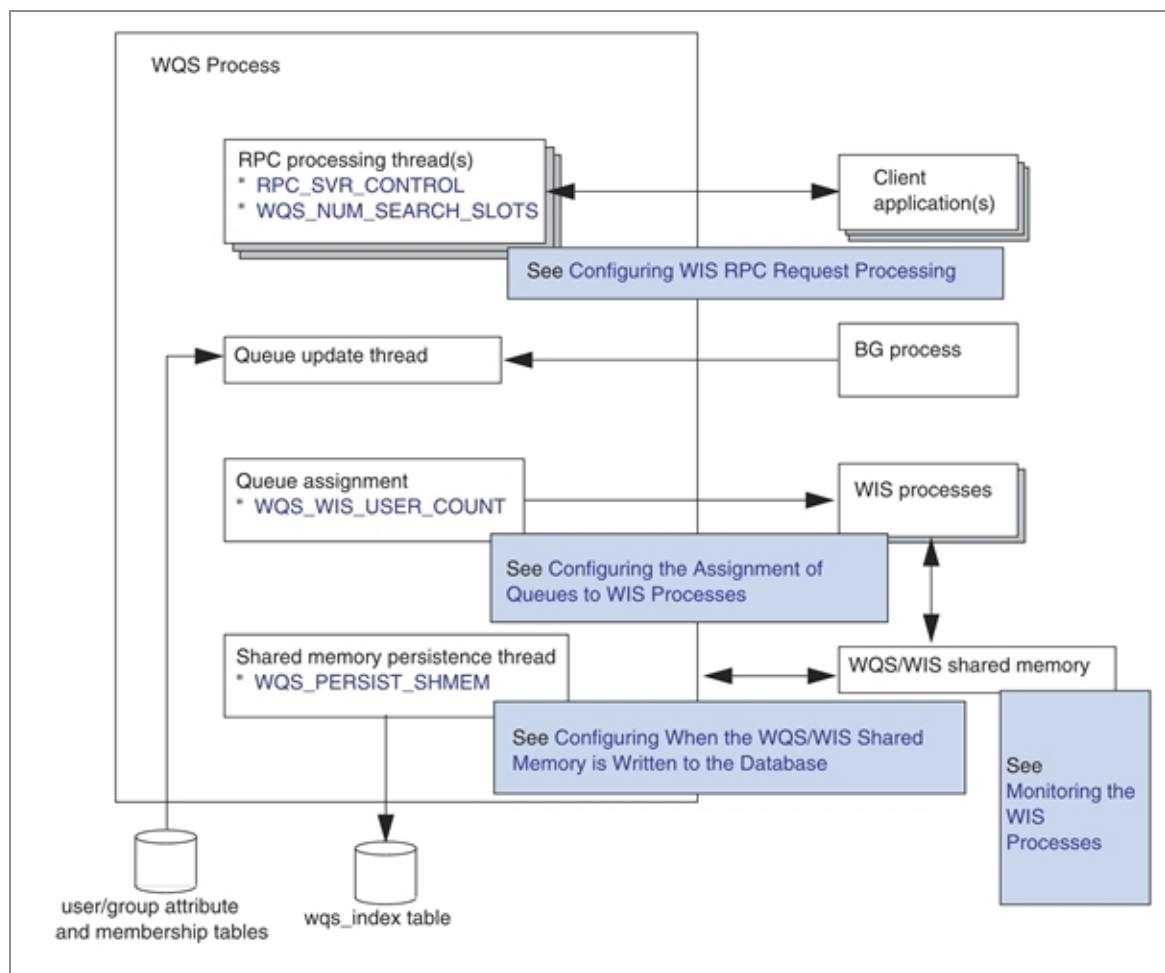
The Work Queue Server (WQS) process handles the listing of work queues. The WQS process allocates one or more queues to each WIS process and responds to client RPC requests to access these queues.

The WQS process is multi-threaded, allowing it to perform multiple tasks simultaneously. Different threads are used to:

- process RPC requests from client applications.
- update work queues following a MOVESYSINFO event.
- persist the contents of the WQS/WIS shared memory to the database.

The following diagram shows:

- the different aspects of the WQS process' behavior that you can configure.
- the process attributes that you can use to do this.
- a reference for more information on how to configure each aspect of the WQS process' behavior.



Configuring WQS RPC Request Processing

To process RPC requests, both the WQS and WIS processes access a pool of “worker” threads, that is provided by a multi-threaded RPC server shared library (SWRPCMTS). You can use the [RPC_SVR_CONTROL](#) process attribute to define the number of threads that are available in the SWRPCMTS library to process RPC requests.

You can adjust the value of this process attribute to optimize the WQS and WIS process’ response times when processing RPC requests against available CPU capacity. Increasing the number of threads will improve the throughput of client RPC requests, but at the cost of increased CPU usage.

i Note: The RPC processing threads perform their work independently of and concurrently with the queue update thread. In pre-10.4 versions of iProcess Engine, where the WQS process was single-threaded, the WQS process had to switch between processing RPC requests and updating work queues.

Configuring the Assignment of Queues to WIS Processes

When iProcess Engine starts up, the WQS process is responsible for assigning all the work queues to WIS processes.

By default, queues are assigned to WIS processes dynamically, using the round-robin or on-demand method (as determined by the [WQS_ROUND_ROBIN](#) parameter in the `staffcfg` file, which is located in the `SWDIR\etc` directory- see [WQS_ROUND_ROBIN](#)):

- Round-robin. This method assigns a work queue to each WIS process alphabetically, cycling around until all work queues are assigned. For example, if a system has 5 WIS processes and 20 work queues A to O then:
 - queues A, F, K are allocated to WIS process 1,
 - queues B, G, L are allocated to WIS process 2,
 - queues C, H, M are allocated to WIS process 3, etc.

The round-robin method takes no account of queue size. It is best used when the messages are fairly evenly distributed between the majority of queues and user access is also evenly spread.

- On-demand. This method assigns work queues to WIS processes based on cost. All work queues have a weighting (determined by the [WQS_QUEUE_WEIGHTING](#) parameter) that determines the cost of the work queue to the WIS process. Queues are assigned to the WIS process with the lowest overall cost. The more work queues that are allocated to a WIS process, the higher the cost of the WIS process. So fewer new work queues are allocated to it. The cost calculation is as follows:

$$\text{cost} = \text{wicount} + (\text{WQS_QUEUE_WEIGHTING} * \text{qcount})$$

where:

- *wicount* is the number of work items the WIS process is currently processing.
- *qcount* is the number of work queues the WIS process is currently processing.

The number of items in a work queue is taken from data that has been persisted to the `wqs_index` database table. If, for example, a new queue has been added to iProcess Engine after it has been started, it means the allocation of the work queues may not reflect the actual count of work items in the work queue. To overcome this, restart iProcess Engine. This results in the work queues being re-allocated according to the latest work item count.

To control how work queues are allocated to WIS processes, you can adjust the [WQS_QUEUE_WEIGHTING](#) parameter. This parameter changes the cost of a work queue to a WIS process. For example, the larger the value, the more that the number of work queues rather than the number of work items in the work queues determines whether a work queue is allocated to a WIS process. Therefore, if you have lots of work queues with an even amount of work items in each, you may want to increase the value of the [WQS_QUEUE_WEIGHTING](#) parameter. If you only have a few work queues that contain large amounts of work items, you may want to lower the value.

The effect of the on-demand assignment is that work queues are distributed across WIS processes based on their cost, so a more even distribution of work queues is achieved.

However, there are two additional methods you can use to customize the assignment process to better reflect your system requirements, and so optimize performance.

The following sections describe these methods.

Using Different WIS Processes to Handle User and Group Queues

User queues and group queues frequently have different characteristics, in terms of the amount of load they carry.

For example, if group queues are far more active than user queues on your system, you may want to give them higher priority for WIS process allocation.

You can do this by specifying the [WQS_WIS_USER_COUNT](#) process attribute for the WQS process. This attribute defines the number of WIS processes that should be dedicated to handling user queues and group queues respectively (either as a fixed number or as a percentage of the available processes). See [WQS_WIS_USER_COUNT](#) for more information.

Assigning a Queue Explicitly to a WIS Process

If you have certain queues that are very large or very busy, you may find it useful to dedicate specific WIS processes to handling only those queues (leaving the remaining queues to be dynamically assigned to the remaining WIS processes).

To dedicate a specific WIS process to handling a specific queue:

1. Start the Process Administrator, and then start the User Manager. (See “Using TIBCO iProcess Administrator” in *TIBCO iProcess Workspace (Windows) Manager's Guide* for more information.)
2. To make it possible to allocate queues to specific WIS processes, define a new attribute called SW_WISINST. This should have a Type of Numeric, with a Decimal value of 0.

See “Adding a New Attribute” in *TIBCO iProcess Workspace (Windows) Manager's Guide* for more information.
3. To assign a queue to a specific WIS process, assign the WIS instance number that you want the queue to use as the value of the SW_WISINST attribute for that queue. (You can use the `swadm show_processes` command to list the available WIS instances - see [Show Server Processes](#).)

See “Setting User Values for an Attribute” in *TIBCO iProcess Workspace (Windows) Manager's Guide* for more information.
4. Save your changes, exit from User Manager, and perform a MoveSysInfo event to register your changes on iProcess Engine.

See “Moving System Information” in *TIBCO iProcess Workspace (Windows) Manager's Guide* for more information.
5. If the queue is already in use (and therefore already allocated to a WIS process), you will need to stop and restart iProcess Engine before the change takes effect.

Once a WIS process has been dedicated to handling a specific queue or queues, it will handle only those queues. It is no longer available for dynamic queue allocation.

There is one exception to this: if all the available WIS processes are dedicated to handling specific queues, and a new queue is added, the queues are no longer treated as dedicated. This means that:

- the new queue will be dynamically assigned to the appropriate WIS process, according to the current dynamic allocation rules. All dedicated WIS processes are considered to be available to handle the queue. See [Using Different WIS Processes to Handle User and Group Queues](#).
- the dedicated WIS processes continue to handle their assigned queues (but they may also have to handle the newly assigned queue as well).

An Example of How to Use These Assignment Methods

By using the methods described above, you can configure your system to operate more efficiently under load. For example, consider a system that has 6 WIS processes (WIS 1-6), 8 group queues (GQ1-8), and 500 users (UQ1-500). Queue characteristics are:

- GQ1 has 100K items and is a holding queue (sometimes searched).
- GQ2 has 50K items and is the most active queue.
- GQ3-8 are all fairly busy with up 10K items in each.
- User queues are not used extensively.

The system is now configured as follows:

- GQ1 is assigned to WIS 1.
- GQ2 is assigned to WIS 2.
- [WQS_WIS_USER_COUNT](#) is set to 2

This means that:

- The two biggest queues, GQ1 and GQ2, are each handled by their own dedicated WIS process, WIS 1 and WIS 2.
- The remaining 6 group queues, GQ3 to GQ8, are handled by 2 of the 4 remaining WIS processes. The queues are dynamically assigned to WIS processes.
- The remaining 2 WIS processes handle the 500 user queues. The queues are dynamically assigned to WIS processes.

Configuring When the WQS/WIS Shared Memory is Written to the Database

The WQS/WIS shared memory cache holds summary information about work queues, such as which WIS process is handling a queue, how many work items it contains, how many new items, items with deadlines, and so on. This information is constantly updated by the WQS and WIS processes.

The shared memory persistence thread wakes up every `WQS_PERSIST_SHMEM` seconds and writes the contents of the WQS/WIS shared memory to the `wqs_index` database table.

When the WIS process starts up, it needs to know how many work items are in each queue that it is handling, so that it can determine whether or not to cache the queue immediately (see [Configuring When WIS Processes Cache Their Queues](#)). The WIS process can therefore read this information from the `total_items` column in the `wqs_index` database table.

The WIS Process

The Work Item Server (WIS) process handles the listing of work items in user and group queues. Each WIS process is allocated one or more queues to handle by the WQS process and responds to client RPC requests to process work items held in these queues.

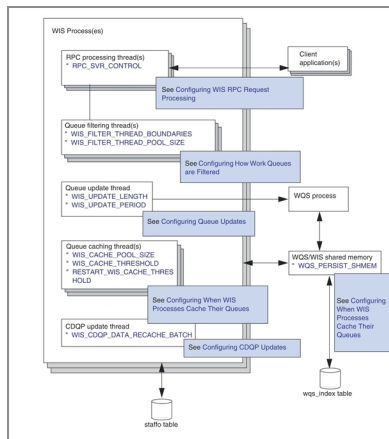
You can use the `swadm add_process` and `delete_process` commands to change the number of WIS processes on your system according to your requirements. See [Using SWDIR\util\swadm to Administer Server Processes](#) for more information about how to use these commands.

The WIS process is multi-threaded, allowing it to perform multiple tasks simultaneously. Different threads are used to:

- process RPC requests from client applications.
- filter work queues. For example, only show work items started by a particular user.
- update each queue being handled. For example, checking for expired deadlines, priority escalations, or for new queues to be handled.
- cache the information that the WIS process maintains about each work queue that it is handling, allowing the WIS processes to respond quickly to RPC requests from client applications.
- dynamically update CDQP definitions for work items.

The following diagram shows:

- the different threads that are used by the WIS process.
- the process attributes that you can use to control each type of thread.
- a reference for more information on how to configure this aspect of the WIS process' behavior.



Monitoring the WIS Processes

You can use the `SWDIR\util\plist -w` command to monitor the operation of the WIS processes. TIBCO recommends you do this regularly, particularly in the following circumstances:

- On the initial configuration of your system. The default values can be used but when cases, users, or groups are added, you will need to monitor and perhaps configure the system.
- After several new queues have been added.
- After a significant increase in the number of cases in the system. If there are only a small number of queues, for example, less than 10, monitor the system after you add more users or group queues so you can monitor the load balancing of the WIS processes.

The format of the `SWDIR\util\plist -w` command is:

```
plist -w[V][v] [WIS]
```

where:

- `v` can be used to display additional information (the `LastCacheTime` and `CDQPVer` columns)
- `v` can be used to display additional information (the `Version`, `NewVers`, `DelVers`, `ExpVers`, `UrgVers`, and `QParamV` columns)
- `WIS` is the number of a specific WIS process and can be used to display details only for that WIS process. If this parameter is omitted, the command displays details for all the WIS processes.

Use the `plist -w` command to view detailed information about the WIS processes such as the number of items in the queue, whether the queue is disabled, and the number of new items in each WIS process.

Use the `plist -wv` command to view all the additional information that is returned by the `plist -wV` and the `plist -wv` commands.

For example (using `plist -w`):

WIS	QueueName	Flags	#Items	#Newp	#Dead	#Urgent	LastCacheTime(ms)	CDQPVer
1	sblanch	----- NM	3000	3000	0	0	766	-1
1	steveb	-----	0	0	0	0	11	-1
1	swadmin	----- NM	2	2	0	0	29	-1
1	swgrp0000	--G--- -	0	0	0	0	12	-1
1	swgrp0001	--G--- -	0	0	0	0	11	-1
1	swgrp0002	--G--- -	0	0	0	0	11	-1
1	swgrp0003	--G--- -	0	0	0	0	-1	-1

The `plist -w[V][v] [WIS]` command displays the following information:

Information Returned by the `plist -w[V][v] [WIS]` Command

Column	Description
WIS	The number of this WIS process instance.
QueueName	The name of the work queue allocated to this WIS instance.
Flags	<p>Any combination of the following, in order. A "-" in place of the indicated letter means that the corresponding flag is not set:</p> <ul style="list-style-type: none"> • D = The queue is disabled (this would normally be when the system has just been started and the queues have not yet been allocated to a WIS. • U = There are urgent items in this queue. • G = This is a group queue. • T = This is a test queue. • D = There are items in this queue with deadlines set. • N = There is new mail in this queue. • M = There is mail in this queue (i.e. it is not empty).
#Items	The total number of work items in this work queue.
#NewP	The total number of new (unread) work items in this work queue.
#Dead	The total number of work items in this work queue that have deadlines.
#Urgent	The total number of urgent work items in this work queue.
LastCacheTime	<p>Displayed if the <code>-V</code> option is used.</p> <p>The number of milliseconds that the WIS process took to cache this work queue. Note that:</p> <ul style="list-style-type: none"> • The time shown is the time taken when the queue was last cached (which could be either when the WIS process was started or when the queue was first accessed). The number of items in the queue at that time may have been different from the number of items

Column	Description
	<p>currently in the queue as shown in the #Items column.</p> <ul style="list-style-type: none"> A value of -1 indicates that the queue has not been cached yet.
CDQPVer	<p>Displayed if the -v option is used.</p> <p>The current CDQP definition version for this work queue. (This should match the version number of the cdqp row in the version database table.)</p>
#New	<p>Displayed if the -v option is used.</p> <p>The total number of new (unread) work items in the work queue.</p>
Version	<p>Displayed if the -v option is used.</p> <p>The total number of work items in the work queue that are processed from the time when the queue was last cached.</p>
NewVers	<p>Displayed if the -v option is used.</p> <p>The total number of new (unread) work items in the work queue from the time when the queue was last cached.</p>
DelVers	<p>Displayed if the -v option is used.</p> <p>The total number of work items in the work queue that are deleted from the time when the queue was last cached.</p>
ExpVers	<p>Displayed if the -v option is used.</p> <p>The total number of work items in the work queue that are expired from the time when the queue was last cached.</p>
UrgVers	<p>Displayed if the -v option is used.</p> <p>The total number of urgent work items in the work queue from the time when the queue was last cached.</p>
QParamV	<p>Displayed if the -v option is used.</p> <p>The current QParam definition version for the work queue.</p>

Configuring WIS RPC Request Processing

To process RPC requests, both the WIS and WQS processes access a pool of “worker” threads, that is provided by a multi-threaded RPC server shared library (SWRPCMTS). You can use the [RPC_SVR_NUM_THREADS](#) process attribute to define the number of threads that are available in the SWRPCMTS library to process RPC requests.

You can adjust the value of this process attribute to optimize the WQS and WIS process’ response times when processing RPC requests against available CPU capacity. Increasing the number of threads will improve the throughput of client RPC requests, but at the cost of increased CPU usage.

i Note: The RPC processing threads perform their work independently of and concurrently with the queue update thread. In pre-10.4 versions of iProcess Engine, where the WIS process was single-threaded, the WIS process had to switch between processing RPC requests and updating work queues.

Configuring How Work Queues are Filtered

When filter criteria are applied to a work queue - for example, only show work items started by a particular user - the WIS process has to filter the work queue to find the correct items to display.

By default, the WIS process uses the thread that is processing an RPC request to perform any work queue filtering required by that RPC request. This is perfectly adequate if the queues are small and the filter criteria are simple. However, the time taken to filter a queue can increase significantly as the number of work items in the queue grows and/or the complexity of the filter criteria increases. This can result in a perceptible delay for the user viewing the work queue.

For example, filtering a queue that contains over 100000 work items using filter criteria that includes CDQPs can take over 6 seconds. (Obviously, CPU availability on the machine is also a factor in determining how long the filtering operation takes.)

To cope with this situation, the WIS process contains a pool of queue filtering threads that can be used to filter work queues more quickly. The following process attributes allow you to configure how and when these threads are used:

- [WIS_FILTER_THREAD_BOUNDARIES](#) allows you to define when a work queue should be split into multiple "blocks" of work for filtering purposes. You can define up to 4

threshold values for the number of work items in a queue. As each threshold is passed, an additional block of filtering work is created, which will be handled by the first available queue filtering thread.

- [WIS_FILTER_THREAD_POOL_SIZE](#) allows you to define the number of queue filtering threads in the pool. These threads are used to process all additional filtering blocks generated by the [WIS_FILTER_THREAD_BOUNDARIES](#) thresholds. Increasing the number of threads in this pool allows more blocks of filtering work to be processed in parallel, but at the cost of increasing the CPU usage of the WIS process.

For example, consider the following scenario:

- A work queue contains 180000 work items.
- [WIS_FILTER_THREAD_BOUNDARIES](#) has been set to create additional filtering blocks when a queue contains 100000 and 150000 work items.
- The WIS process receives 5 RPC requests to filter the queue.

Each RPC request on the queue generates 2 additional filtering blocks (each of 60000 work items). The first filtering block is still handled by the RPC processing thread that is handling the RPC request.

The 5 RPC requests, therefore, generate 10 blocks of additional filtering work to be processed by the queue filtering threads. If [WIS_FILTER_THREAD_POOL_SIZE](#) is set to:

- 10 or more, each block is immediately filtered by one of the queue filtering threads.
- less than 10, some blocks will have to be queued until a queue filtering thread is available to process them.

i Note: When altering the [WIS_FILTER_THREAD_BOUNDARIES](#), [WIS_FILTER_THREAD_POOL_SIZE](#) or [RPC_SVR_CONTROL](#) process attributes, you should bear in mind that the more RPC processing threads there are and the larger the number of work items in a queue, the more threads in the queue filtering thread pool will be used by a single RPC request to filter a queue.

Configuring Queue Updates

The queue update thread performs two functions:

- It goes through all the queues handled by the WIS process and checks for expired deadlines, priority escalations, redirection work, new or purged work items and so on.
- It calls the WQS process for a new queue to handle when required (i.e. when the WQS process has processed a MOVESYSINFO event and sent out an SE_WQSQUEUE_ADDED event to the WIS process).

The queue update thread performs updates for `WIS_UPDATE_LENGTH` seconds or until all queues have been processed, at which point it will become idle for `WIS_UPDATE_PERIOD` seconds. If the thread hasn't gone through all the queues within the `WIS_UPDATE_LENGTH` time then it will start from the point it finished at on its previous update.

i Note: The queue update thread performs its work independently of and concurrently with the RPC processing threads. In pre-10.4 versions of iProcess Engine, where the WIS process was single-threaded, the WIS process had to switch between processing RPC requests and updating work queues.

Configuring When WIS Processes Cache Their Queues

The WQS/WIS processes maintain an in-memory cache of the information that each WIS process contains about each work queue that it is handling. Caching this information allows the WIS processes to respond quickly to RPC requests from client applications.

However, the amount of time that a WIS process takes to start up is heavily influenced by the number of queues that it has to cache, the number of work items in the queue, the number of CDQPs defined in the queue, and the general load on the machine.

i Note: You can monitor how long a WIS process is taking to start up using the `plist -wv` command, which is under the `SWDIR\util` directory (see [Monitoring the WIS Processes](#)). The `LastCacheTime` column shows the number of milliseconds that the WIS process took to cache each queue when it was last cached.

You can tailor this behavior to suit your particular requirements by configuring work queues to be cached either:

- when they are first handled by a WIS process. This is when iProcess Engine starts up, or for queues that are added when the system is running, after a MoveSysInfo event request. Or,
- when they are first accessed by a client application.

You control which queues are cached when they are first handled by a WIS process by using a combination of the WISCACHE queue attribute and the [WIS_CACHE_THRESHOLD](#) or [RESTART_WIS_CACHE_THRESHOLD](#) process attributes. When the WIS process first handles a queue, it checks the value of the queue's WISCACHE attribute:

- If WISCACHE is set to YES, the WIS process caches the queue (irrespective of how many work items the queue contains).
- If WISCACHE has not been created, or has not been set, the WIS process only caches the queue if the queue contains several work items that equal or exceed the value of the [WIS_CACHE_THRESHOLD](#) or [RESTART_WIS_CACHE_THRESHOLD](#) process attributes.

i Note: When the WIS process starts up, it reads the number of work items in each work queue from the `total_items` column in the `wqs_index` database table. This table is populated from the contents of the WQS/WIS shared memory, which is written to the database every [WQS_PERSIST_SHMEM](#) seconds.

Any queue that is not cached now is cached when it is first accessed by a client application.

i Note:

- Queues are cached by a pool of threads in the WIS process. You can configure the number of threads in this pool by using the [WIS_CACHE_POOL_SIZE](#)
- When an RPC client application makes an RPC call to a work queue that has not already been cached, the WIS process immediately begins caching it. If the value of the [WIS_CACHE_WAIT_TIME](#) process attribute is reached and the work queue has still not been cached, the WIS process returns an ER_CACHING error to the client application.

If the RPC client application is a TIBCO iProcess Workspace (Windows) session, the user will see the following message in the right-hand pane of the Work Queue Manager, instead of the expected list of work items:

The Work Item Server (WIS) is fetching the work items for this queue. Please wait...

- The WISMBD process also makes RPC calls to WIS processes to pass instructions from the BG processes. If the WISMBD process receives an ER_CACHING error from the WIS process it retries the connection many times. If the attempt still fails, it requeues the message and writes a message (with ID 1984) to the sw_warn file, which is located in the SWDIR\logs directory.

See *TIBCO iProcess Engine System Messages Guide* for more information about this message.

- Configuring more work queues to be cached when they are first accessed improves the startup time for the WIS processes, but the potential cost is that users may have to wait to access their queues while they are being cached.

Setting the WISCACHE Attribute for a Queue

The WISCACHE queue attribute does not exist by default. If you want to use it, you must first create it and then assign a value for it to any queues that you want to use it. To do this:

1. Start the Process Administrator, and then start the User Manager. (See “Using TIBCO iProcess Administrator” in *TIBCO iProcess Workspace (Windows) Manager's Guide* for more information.)
2. Define a new attribute called WISCACHE. This should have a Type of Text, with a Length of 4.

See “Adding a New Attribute” in *TIBCO iProcess Workspace (Windows) Manager's Guide* for more information.

3. Assign a value of YES to WISCACHE for each queue that you want to be cached when the WIS process first handles it (irrespective of how many work items the queue contains).

All other queues (for which WISCACHE is not set) will be cached either when the WIS process first handles it or when they are first accessed by a client application, depending on the value of the [WIS_CACHE_THRESHOLD](#) process attribute.

See “Setting User Values for an Attribute” in *TIBCO iProcess Workspace (Windows) Manager's Guide* for more information.

4. Save your changes, exit from User Manager, and perform a MoveSysInfo to register your changes on iProcess Engine.

See “Moving System Information” in *TIBCO iProcess Workspace (Windows) Manager's Guide* for more information.

Configuring CDQP Updates

CDQPs allow values from case data to be used by client applications to sort, display and filter work items lists, and find specific work items.

When the WIS process starts, it caches all the CDQP definitions that are used by the queues it is handling and uses the cached values when displaying CDQPs in its work queues.

i Note: The WIS process obtains the field values of fields that are defined as CDQPs from the pack_data database table.

You can change existing CDQP definitions or create new ones by using the `swutil QINFO` command. By default, you then have to restart iProcess Engine to allow the WIS process to pick up the changed definitions and update its work queues with them.

However, you can dynamically pick up changes to CDQP definitions without having to restart iProcess Engine, by using the `PUBLISH` parameter with the `QINFO` command. This publishes an event that signals that updated CDQP definitions are available.

When the WIS process detects this event its CDQP update thread wakes up and updates the CDQP definitions for all work items in its queues. Work items are updated in batches,

the size of which is determined by the value of the [WIS_CDQP_DATA_RECACHE_BATCH](#) process attribute.

For more information about CDQPs and the QINFO command, see "Case Data Queue Parameters" in *TIBCO iProcess swutil and swbatch Reference Guide*.

Troubleshooting Work Queues

This section provides troubleshooting information for when users have problems accessing work queues.

When experiencing problems with the WIS processes, there are three common error messages that appear in the Work Queue Manager:

```
Failed to Open Work Item List for Queue
```

or

```
Work Queue Servers Not Responding
```

when moving between queues in Work Queue Manager, and

```
That Facility is Not Available
```

when attempting to start a case.

In these examples, the client is unable to contact the WIS or WQS process to find out what queues or work items exist. The problem is that users are unable to access their work items in the queues because the work queues are grayed out in Work Queue Manager.

To resolve the problem, try one of the following:

- Use `plist -w` to check the status of each WIS process.
- Check to make sure that the WQS and WIS processes are running:
 - On Windows, use the Processes tab of the Task Manager.
 - On UNIX, run the `ps -fe` command.

The processes are named `wisrpd` and `wqsrd`.

- Use the `swsvrmgr` Process Sentinels command-line utility, which is under the `SWDIR\util` directory, to report the status of the processes. See [View Process Status](#).
- Check the `sw_warn` and `sw_error` files, which are located in the `SWDIR\logs` directory, for any error messages to see if any problems have been logged. See [iProcess Engine Log Files](#) for more information.
- If you cannot resolve your work queue problem, contact TIBCO Support.

Administering Case Data Normalization

This section describes case data normalization and how to administer it on iProcess Engine.

Overview

Case data normalization makes case data searching more efficient and therefore faster by populating the column `field_value_N` in the `case_data` table with data from the `field_value` column. Some previous versions of iProcess Engine did not support case data normalization, so when you install/upgrade iProcess Engine, you are prompted to enable this feature.



Warning: If you are using TIBCO iProcess Objects to perform case searches, TIBCO recommends that you enable case data normalization. If you do not, although you will be able to view and start procedures, you cannot see the cases until you normalize the data.

Case data normalization is controlled by the following:

- the global process attribute [NORMALISE_CASE_DATA](#) (which enables case data normalization system-wide).
- the `normalise_data` column on the `proc_index` table (which indicates whether case data normalization is enabled for a specific procedure). This is controlled by the Case Data Normalization flag on the Status tab of the Properties dialog box (see "Setting and Viewing Status Information" in *TIBCO iProcess Modeler Procedure Management*) or by the Case Data Normalization Utility (see [Using the Case Data Normalization Utility](#)).

Enabling Case Data Normalization

To enable/disable case data normalization by either:

- Responding to the prompt during an installation or upgrade:
 - If you enable this feature, the process attribute [NORMALISE_CASE_DATA](#) is set to 1 and all existing case data is normalized. Future cases of all procedures are also normalized.
 - If you disable the feature, the process attribute [NORMALISE_CASE_DATA](#) is set to 0 and the existing and the future case data is not normalized.
- Setting the process attribute [NORMALISE_CASE_DATA](#) using the `swadm` utility, which is under the `$WDIR\util` directory (see [NORMALISE_CASE_DATA](#)).

When you have enabled case data normalization, you can normalize case data by either:

- Using the Case Data Normalization Utility as described in the following section. This utility changes the setting of the `normalise_data` column on the `proc_index` table. Using this utility you can normalize case data either:
 - system-wide, or
 - on a per-procedure basis.
- Selecting the "Normalise Case Data" check box in the Status tab of the Properties dialog box to enable the feature for a specific procedure. This check box is only enabled if [NORMALISE_CASE_DATA](#) is set to 1 and the procedure has no cases. For more information, see "Setting and Viewing Status Information" in *TIBCO iProcess Modeler Procedure Management*.

Using the Case Data Normalization Utility

The Case Data Normalization Utility allows you to normalize existing case data; either system-wide or on a per-procedure basis. For example, you may have disabled case data during an upgrade because of the large amount of case data involved. After the upgrade, you can use the Case Data Normalization Utility to convert the case data during off-peak hours.

i Note: You can also disable or enable case data normalization on a per-procedure basis with the "Normalise Case Data" check box on the Status tab of the Procedure Properties dialog box.

Before using the Case Data Normalization Utility, ensure that the global process attribute [NORMALISE_CASE_DATA](#) is set to 1, using the `swadm` utility if necessary (see [Using](#)

[SWDIR\util\swadm to Administer Process Attributes](#)). This enables case data normalization and allows you to use the Case Data Normalization Utility.

The Case Data Normalization Utility is located in the following directory:

SWDIR\util

The command you enter to use the utility has the following format:

```
swnormcd [/U] [/T nnn] /A | procedure_list | /F control_file
```

where:

- */U* indicates that you want to disable case data normalization. Note that disabling case data normalization does not delete the data held in the `field_value_N` column in the `case_data` table. New cases of procedures will not use case data normalization and if you are using TIBCO iProcess Objects, new cases will not appear in case data searches.
- */T nnn* specifies the number (*nnn*) of concurrent threads for case data normalization. The default is 10. Use this parameter to improve performance when normalizing large amounts of data.
- */A* indicates that existing case data should be normalized for all procedures. The `normalise_data` column on the `proc_index` table is set to 1 and new cases of procedures are normalized.



Warning: Normalizing large amounts of case data can take a significant amount of time.

- *procedure_list* is either the name of a procedure or a list of procedures separated by white space.
- */F control_file* specifies the name of a file that contains procedure names separated by white space.

Examples

This command disables case data normalization for the hiring procedure. Any new cases of this procedure will not use case data normalization and will not appear in searches using TIBCO iProcess Objects.

```
swnormcd /U hiring
```

This command enables case data normalization for all procedures and normalizes existing case data.

```
swnormcd /A
```

This command enables case data normalization for the procedures listed in the file `proclist.txt` and converts any existing case data.

```
swnormcd /F proclist.txt
```

Managing EAI Step Server Plug-ins

This section explains how to use the `sweaiereg` command-line utility, which is under the `SWDIR\util` directory, to manage the EAI step server plug-ins.

Overview

To function correctly, each EAI step type in TIBCO iProcess Modeler requires an associated EAI server plug-in to be installed and registered on every server in the TIBCO iProcess Engine node cluster that runs background processes.

**Note:**

The following plug-ins are automatically installed when you install iProcess Engine:

- TIBCO iProcess COM Server Plug-in (on Windows only; during installation you choose whether or not to register the Plug-in.)
- TIBCO iProcess Script Server Plug-in
- TIBCO iProcess Database Server Plug-in
- TIBCO iProcess EMail Server Plug-in
- TIBCO iProcess Plug-in SDK

For installation of these plug-ins, see iProcess Engine installation guide for your platform/database. For other EAI plug-ins, see the specific EAI server plug-in installation guide for installation information.

See “Using Enterprise Application Integration (EAI) Steps” in *TIBCO iProcess Modeler Integration Techniques* for information about how to use EAI steps in your procedures.

You can, however, design procedures using an EAI client plug-in for which you have not installed the corresponding EAI server plug-in. This is useful if you want to prepare for porting a procedure to a different platform in the future. If you use an EAI client plug-in without having the relevant EAI server plug-in installed, the EAI step that you create is not

processed at run time and an error message is displayed. The error informs you that the step is incompatible with the connected database, and so will not be processed.

Although the installation, upgrading, and registration of most EAI plug-ins are handled automatically by iProcess Engine installation, you can use this utility to:

- Register or re-register an EAI server plug-in - see [Register/Re-register \(upgrade\) an EAI Plug-In](#).
- Unregister an EAI server plug-in - see [Unregister \(Remove\) an EAI Plug-In](#).
- Modify parts of an existing EAI server plug-in's registry entry - see [Modify an Existing EAI Plug-In Entry](#).
- list EAI server plug-in registry entries - see [List Existing EAI Plug-In Registry Entries](#)
- manually request iProcess Engines to reload EAI server plug-ins - see [Reload an EAI Plug-in](#)
- get the release version of an EAI server plug-in - see [Get Release Version Stored in EAI Plug-In](#).

See [Possible Errors When Using sweaireg](#) for information about solving possible errors you might encounter when using sweaireg.

To run sweaireg, you must be logged in to iProcess Engine as an Administrator or (on UNIX) as a background user or root user.

Register/Re-register (upgrade) an EAI Plug-In

The REG command installs or upgrades an EAI server plug-in. This command is automatically used by the EAI server plug-in's installation script. Therefore, you only need to use this command if you need to install a plug-in for a given operating system in a shared location. You would then use the REG command to register the plug-in on all your servers.

This command automatically detects if this is the first registration of the plug-in or an upgrade for a given EAI step type.

This command does not install the plug-in file. Follow the installation procedure described in the specific EAI plug-in documentation.

i Note: Before using this command, you must ensure that the run-time loading requirements are met because the library is loaded when this command is used. For example, if the library uses other system shared libraries, they must be defined in the server's shared library path.

Syntax

```
sweaireg REG eai_type_name [-m machine_name] -l library [-i init_params] [-y]
```

where:

- *eai_type_name* is the short name of the EAI step type handled by the server plug-in. This can be a text string of up to 20 characters.
- *machine_name* is the optional name of the server in the iProcess Engine node cluster on which the plug-in is to be registered. If this value is omitted, the default is the server on which the command is being run. This can be a text string up to 256 characters.
- *library* is the path and file name for the plug-in. This is a text string of up to 256 characters.
- *init_params* is an optional value that can be used for any plug-in-specific initialization parameters. See the documentation for each plug-in to see what values can be used. If this is omitted and you do a re-registration, the existing parameters will be preserved. This can be a text string up to 1024 characters.
- -y can be used to automatically answer yes to all the sweaireg command prompts so the command is run immediately without displaying the prompts.

For a first registration, the values are written to the EAI run-time plug-in registry (the *eai_run_plugins* table). For a re-registration, the following message is displayed:

```
Re-register eai_step_name runtime plug-in version current_release_version with version
install_set_release_version? (y/n)
```

If you enter Y, the EAI plug-in registry is updated. If you enter N, no changes will be made.

**Note:**

After you have registered the plug-in, you must set the [EAI_NEEDS_MSDBC](#) process attribute if the plug-in needs to use the Microsoft Distributed Transaction Coordinator (MSDTC). If you don't do so, EAI steps using the plug-in may not function correctly or in a fully transactional manner.

For more information about process attributes and how to set them, see [Administering Process Attributes](#).

Example

To register the EAI server plug-in for eaidb on the server called Hercules, enter the following:

```
sweaireg REG eaidb -m hercules -l SWDIR\lib\eaidb -y
```

Before exiting, the following status is displayed:

```
EAI Run-Time Plug-in Registration Successful:
EAI Type:          EAIDB
Machine:           Hercules
Version:           1.0
Library:           $SWDIR\lib\eaidb
Init Params:
```

Unregister (Remove) an EAI Plug-In

Use the UNREG command to remove an EAI step type entry from the plug-in registry. This results in the EAI step type being unregistered from the server so the server will not be able to process any EAI steps that use this server plug-in.

Syntax

```
sweaireg UNREG eai_type_name [-m machine_name] [-y]
```

where:

- *eai_type_name* is the short name of the EAI step type handled by the plug-in. This can be a text string of up to 20 characters.

- *machine_name* is the optional name of the server in the TIBCO iProcess Engine node cluster on which the plug-in is registered. If this value is omitted, the default is the server on which the command is being run. This can be a text string up to 256 characters.
- -y can be used to automatically answer yes to all the sweaibeg command prompts so the command is run immediately without displaying the prompts.

After running the command, the following prompt is displayed:

```
Unregister EAI Run-Time Plug-In
EAI Type      EAI Type Name
Machine  machine name      ID:xx
Version  Release Version
Library:      library path and name
Init Params: Initialisation parameters
OK to unregister? (y/n)
```

If you choose Y, the plug-in's registry entry is removed. The following message is displayed:

```
EAI Run-Time Plug-In Registration successfully removed
```

Example

To unregister the eaidb plug-in from the server called Hercules (the computer on which you are running this command), enter the following:

```
sweaibeg UNREG eaidb
```

When prompted, enter Y to proceed with un-registering the server plug-in.

Modify an Existing EAI Plug-In Entry

Use this command to modify the server plug-in path or initialization parameters in the EAI plug-in's registry entry.

Syntax

```
sweaireg MOD eai_type_name [-m machine_name] [-l library] [-i init_params] [-y]
```

where:

- *eai_type_name* is the short name of the EAI step type handled by the plug-in. This can be a text string of up to 20 characters.
- *machine_name* is the optional name of the server in the iProcess Engine node cluster on which the plug-in is registered. If this value is omitted, the default is the server on which the command is being run. This can be a text string up to 256 characters.
- *library* is the path and file name for the server plug-in. This is a text string up to 256 characters.
- *init_params* is an optional value that can be used for any plug-in-specific initialization parameters. See the documentation for your specific plug-in to see what values can be used. If this is omitted and you do a reregistration, the existing parameters will be preserved. This can be a text string up to 1024 characters.
- -y can be used to automatically answer yes to all the sweaireg command prompts so the command is run immediately without displaying the prompts.

Example

If you move the plug-in files to a different directory (from SWDIR\lib to SWDIR\lib\version1), you can update the path to point to the new location by entering:

```
sweaireg MOD eaidb -l SWDIR\libpath\version1\eaidb
```

This makes the change for the computer on which you are running this command. You must do this for any other servers using this server plug-in.

List Existing EAI Plug-In Registry Entries

Use this command to list all of the EAI plug-in registry entries.


Syntax

```
sweaireg LIST [eai_type_name] [-m machine name] [-x]
```

where:

- *eai_type_name* is the short name of the EAI step type handled by the plug-in. This can be a text string of up to 20 characters.
- *machine_name* is the optional name of the server in the iProcess Engine node cluster on which the plug-in is to be registered. This can be a text string up to 256 characters.
- *-x* is used to output the listing in a format suitable for script processing (a ; separated list of parameters on a single line). This is optional, and if omitted, the results are provided in a user-friendly format.

The entries listed are determined by the EAI type name and machine name:

Parameters Used	Result
Neither <i>eai_type_name</i> nor <i>machine_name</i> are specified.	All registry entries are listed.
If both are specified.	The single registry entry for that EAI type on the given computer is listed.
If only <i>eai_type_name</i> is specified.	The registry entry for the given EAI type is listed for each machine on which it is registered.
If only <i>machine_name</i> is specified.	The registry entries for all EAI types registered on the given machine are listed.
<div>  Note </div> The iProcess BusinessWorks Plug-in is not displayed in the list of the EAI plug-in registry entries.	

Example

To list the EAI plug-in registry entries on the server called Hercules, enter the following:

```
sweaireg LIST -m hercules
```

The following is a sample output:

EAI Type:	eaiddb On Machine:	Hercules
Version:	1.0	
Library:	\$SWDIR\lib\eaiddb	
Init Params:		

Reload an EAI Plug-in

When an EAI plug-in entry is re-registered or modified, iProcess Engine automatically reloads the plug-in. However, you might want to manually reload an EAI server plug-in using this command if:

- the EAI server plug-in is failing
- the initialization parameters specify a configuration file and the contents of that file has changed

Syntax

```
sweaireg RELOAD eai_type_name [-m machine_name]
```

where:

- *eai_type_name* is the short name of the EAI step type handled by the plug-in. This can be a text string of up to 20 characters.
- *machine_name* is the optional name of the server in the iProcess node cluster on which the plug-in is to be registered. If this value is omitted, the default is the server on which the command is being run. This can be a text string up to 256 characters.

Example

To reload the eaiddb plug-in on the server called hercules, enter the following:

```
sweaireg RELOAD eaiddb -m hercules
```

If the command is successful, the following message is displayed:

Background reload and re-initialisation requested for eaidb plug-in on machine hercules

Get Release Version Stored in EAI Plug-In

Use the GETRELVERS command to output the release version in the given EAI server plug-in. This is provided so that the plug-in installation script can display the release version of the plug-in before installation. This enables version upgrades to be performed.

i Note: Before using this command, you must ensure that the run-time loading requirements are met because the plug-in library is loaded when this command is used. For example, if the plug-in uses other system shared libraries, they must be defined in the server's shared library path.

Syntax

```
sweaireg GETRELVERS -l library
```

where *library* is the path and file name for the server plug-in. This is a text string up to 256 characters.

Example

To extract the release version from the EAI Database library called eaidb in the SWDIR\esai directory, you would enter the following command:

```
sweaireg GETRELVERS -l \esai\eaidb
```

Possible Errors When Using sweaireg

This section details some of the typical errors you might get when using the sweaireg utility.

FORMAT: `sweaireg REG eai_type_name [-m machine_name] -l library [-i init_params]`

You have entered an invalid command line or there are missing parameters or options. Re-enter the command making sure you include all the required parameters and options.

Invalid Parameter: *parameter_name*

The parameter you have entered is incorrect. Re-enter the command line with a valid parameter.

Error connecting to the iProcess Engine

Your iProcess Engine node environment variables are not set up correctly i.e. check SWDIR and any other environments required for the system are set up correctly and that Oracle is running.

Error accessing the EAI run-time plug-in registry

There is an error accessing or updating the plug-in registry. For example, the database might not be accessible. An error may also be logged to the `sw_warn` file, which is under the `SWDIR\logs` directory. For more information, see [iProcess Engine Log Files](#).

Unexpected Error

An internal system error has occurred. Contact TIBCO Support for help.

Failed to load library: *system defined error message*

Failed to load EAIRun_GetReleaseVers() from library: *library_path*

You must ensure that the given library path is correct and any related run-time libraries have been installed and set up correctly.

Administering Global Variables

This section describes how to use the `swadm` server configuration utility to administer iProcess Engine global variables.

The iProcess Engine server uses global variables to configure settings and behavior of procedures. Global variables and their values are stored in a database table. Global variables can be accessed within any procedure by using the `GlobalVariable` expression that allows the procedure to define how to control and configure application behavior. For example, the procedure can contain connection, host, or port information about a service, file name or location information, or just configuration flags to adapt behavior.

i Note: Global variables store all the values as Text. For example, if you set a date or a number to a global variable, it is only stored and read as a text field.

You can also use a global variable to turn on behavior. For instance, a customer can test a global variable to determine how a procedure must behave and roll out the new version of the procedures into production, weeks before the behavior must come into effect. Later, just by changing the global variable, the procedure then immediately starts adopting the new behavior.

For example:

1. Administrator can create (at the request of procedure developers) one or more Global Variables from iPAC.
 - These Global Variables might be paths to a tool, Database Schema names, or locations. System configurations differ between the development, testing, and production.
2. An iProcess user or Developer can design procedures by using the Global Variables, to perform the following activities :
 - access database or tables for EAIDB steps (for example, DataDev, DataTest, or DataProd)
 - configure mail for EAIMAIL
 - access tools or libraries via a PATH on the system

- perform procedure calls to external system JMS, JavaRemote call, and so on

When you export the procedure and deploy it to test or production server, no changes are required to the procedure. However, it continues to work against test or production instances of the database, JMS, and so on.

3. All procedure configuration (including behavior if required) can be controlled outside the procedure by using the Global Variables.

For more information about Global Variables, see *TIBCO iProcess® Engine Administration Console User Guide* and *TIBCO iProcess® Expressions and Functions Reference Guide*.

Using SWDIR\util\swadm to Administer Global Variables

You can use the swadm utility to view, set, delete, import, and export global variables.

**Note:**

- To use this utility, you must be logged in to iProcess Engine as an Administrator or (on UNIX) as a background user or root user.
- If you are using a node cluster architecture, you can run this utility from any server within the cluster (as long as that server has a connection to the TIBCO iProcess Engine database instance).

The following table summarizes the commands you can use to administer global variables:

Command	Task
swadm show_global_variables	Displays all global variables
swadm set_global_variable	Adds or updates a global variable
swadm delete_global_variable	Deletes a global variable
swadm import_global_variables	Imports all global variables
swadm export_global_variables	Exports all global variables

Display Global Variables

You can display one global variable or a list of all global variables and their values that are currently defined on iProcess Engine.

You can set a filter for variable names so that you can display all global variables or a single global variable of a certain name by using the following command:

```
swadm SHOW_GLOBAL_VARIABLES [<variable_name>]
```

**Note:**

- <variable_name> is the name of the global variable that you want to restrict the search by and it is optional.
- If you do not provide a variable name, all the global variables are displayed.
- If you provide a variable name, only that specific global variable is displayed.

For example:

```
swadm SHOW_GLOBAL_VARIABLES DBNAME
```

Global Variable	Value
DBNAME	Oracle

Add or Update a Global Variable

You can add a new global variable or update an existing entry by using the following command:

```
swadm SET_GLOBAL_VARIABLE <variable_name> <variable_value>
```

where:

- <variable_name> is the name of the global variable to be set.

i Note: Global Variable names can be up to 15 characters long and can contain letters, digits, underscore characters, and must start with an alphabet. Global Variable names are converted to uppercase irrespective of how they are originally entered.

- `<variable_value>` is the value for the specified global variable.

i Note: Global Variable value can be up to 511 characters long.

For example:

```
swadm SET_GLOBAL_VARIABLE DBNAME Oracle
```

Global variable DBNAME is added successfully with a value Oracle.

```
swadm SHOW_GLOBAL_VARIABLES
```

Global Variable	Value
DBNAME	Oracle

Delete a Global Variable

You can delete a global variable from the iProcess Engine. Use the following command to delete a global variable:

```
swadm DELETE_GLOBAL_VARIABLE <variable_name>
```

where:

- `<variable_name>` is the name of the global variable to be deleted.

For example:

```
swadm DELETE_GLOBAL_VARIABLE DBNAME
```

Global Variable DBNAME is deleted successfully.

```
swadm SHOW_GLOBAL_VARIABLES DBNAME
```

Global Variable	Value

Import All Global Variables

You can import a list of all global variables and their values from a CSV file to iProcess Engine.

Use the following command to import the global variables:

```
swadm IMPORT_GLOBAL_VARIABLES [-rh] <CSV filename with path>
```

where:

- `-r` clears all records and inserts new global variables and their values
- `-h` ignores the header line from the CSV file
- `<CSV filename with path>` is the location on your machine from where you want to import the CSV file.

Export All Global Variables

You can export a list of all global variables and their values to a CSV file or onto the screen in iProcess Engine.

You can also export the global variables from one system, edit the CSV file if required, and then import the global variables into another system. Or, you can just use export as a means to back up the global variables.

Use the following command to export the global variables:

```
swadm EXPORT_GLOBAL_VARIABLES [CSV filename with path]
```

where *CSV filename with path* is the location of the CSV file with a list of all global variables that you want to export to.

i Note: *CSV filename with path* is optional. If you do not provide a filename, the output is printed to the screen.

For example, you can export global variables from Machine A (iProcess Engine) to Machine B (iProcess Engine) by using the following steps:

1. On Machine A, run the command to export the global variables

```
swadm EXPORT_GLOBAL_VARIABLES [ExportedGv.csv]
```

A csv file is generated with the following header:

Global Variable	Value
DBNAME	Oracle

2. On Machine B, run the command to import the global variables

```
swadm IMPORT_GLOBAL_VARIABLES [-rh] <ExportedGv.csv>
```

The global variables are exported from Machine A to Machine B successfully.

Enabling ASLR

Address space layout randomization (ASLR) randomly arranges the addresses that a program uses. To prevent a security attack, ASLR randomizes the address space positions of key parts of data areas such as stack, heap, and library positions.

It is recommended to enable ASLR as a good security precaution.

The following table lists the ASLR supported platforms for iProcess Engine.

Platform	Minimum OS Version (ASLR supported)	OS-Level Setting
Linux		<code>cat /proc/sys/kernel/randomize_va_space</code> OR <code>sysctl -a --pattern randomize</code> <code>sudo sysctl -w kernel.randomize_va_space=2</code>
Windows	Windows 10 version 1709 Windows Server 2019	Windows 10 version 1709 and later; Windows Server 2019 WDEG settings: Start > Windows Security > App & Browser Control > Exploit Protection Settings > Mandatory ASLR (Off) > Bottom-up ASLR (ON) > High-entropy ASLR (ON) For old versions: Install EMET

Export and Import iProcess Configuration

swadm

The swadm utility provides two commands:

- EXPORT_IPE_CONFIG to export iProcess Engine and iProcess Technology Plug-ins configuration.
- IMPORT_IPE_CONFIG to import iProcess Engine and iProcess Technology Plug-ins configuration.

You can use the export and import commands to easily replicate iProcess Engine environments. For example, if you need to create a test environment, which is similar to that of production, then you can use these two commands to export and import the configuration.

Prerequisites

- Import or export is possible only when there are same products installed on both the source and target iProcess Engines. (For example, if source has iProcess Technology Plug-in and EAICOM installed, then the target must also have these two products installed on the system.)
- The export-import must be run by pro user in Linux and administrator in Windows.
- The import file does not import USER values and attributes.
- You must complete and close the pending cases before the import because, any change in the node name from the import file can affect these cases during runtime.
- The system must have proper connectivity to the new database before importing the configuration file, specifically when using the -d option.
- Before you import the Windows Cluster, iProcess Engine must be down in both the cluster nodes.

EXPORT_IPE_CONFIG

EXPORT_IPE_CONFIG generates an output file and a manifest file. This output file serves as an input to the IMPORT_IPE_CONFIG command, which contains the configurations that include configuration files, specific configuration data, and registry entries (Windows). Manifest file is an HTML file that gives an overview of the generated output file.



Note:

- The format of the generated export file is `iPEConfig_<yyyymmdd>_<hhmmss>_<MachineID>.dat`
- The format of the generated manifest file is `manifest_<yyyymmdd>_<hhmmss>_<MachineID>.html`

The Export file is a readable text file. It is an output file, which you can use manually or make script modifications to the exported file to fine tune it ready for the target system. For example, changing process attributes to change behavior, changing debug settings for diagnosis, adding or removing processes for performance or resources reasons, changing ports due to firewall settings etc.



Note: The default path of the generated export file is `$SWDIR/util`. You can place the import file at any location. However, you have to provide the absolute path during the import.

The main purpose of the manifest file is to help you read through the configuration file created and give you an overview.



Warning: The manifest file is not meant for the import activity.

You can see the following Macros in the export file. The `swadm` utility replaces these macros during the import based on the inputs.

MACRO	Description
<code>\$SWDIR\$</code>	SWDIR path of iProcess Engine (forward slash)
<code>\$SWDIRN\$</code>	SWDIR path of iProcess Engine (backward slash)

MACRO	Description
\$SWNODENAME\$	Node name of iProcess Engine
\$BGUSERNAME\$	Background User or Schema
\$MACHINENAME\$	Machine name of the import machine
\$DOMAINNAME\$	Domain name of the import machine
\$DOMAINUSER\$	Domain User of the import machine
\$ADMINUSER\$	Admin User of the import machine
\$FGUSERNAME\$	Foreground User or Schema
\$DBALIAS\$	Database alias user intended to import
\$SRVCNODENAME\$	Normalized node name used for creating the iPE services (Windows)
\$SRVCUSER\$	Service User (Windows)
\$IPTP_PASSWORD\$	iPTP Password (SWPRO password is fetched during the import)
\$DBIPADDR\$	Utility evaluates the database's IP address based on the database alias provided during the import.
\$CONNECTION_STRING\$	Connection string is also evaluated based on the database alias provided during the import.
\$DBNAME\$	The ODBC name that the user intends to import
HOSTNAME	The OS_USER_LOCATIONS and IDENTIFY_SPO_MACHINE_BY attributes are replaced with the HOSTNAME as value. You must correct these attributes after the import is completed.

IMPORT_IPE_CONFIG

Usage `IMPORT_IPE_CONFIG \{[-r <Enter the BG and FG passwords in the prompt>] | [-n] | [-p <BGUser Password> -u <FGUser Password>]} [Complete Filename with path] | [-d <Database Alias>]`

The following table describes the various options in the `IMPORT_IPE_CONFIG` command.

Options	Purpose	Machine A – Export	Machine B – Import
<code>-r</code>	Prompts the user to input passwords for <code><swpro></code> and <code><swuser></code> and saves those passwords to a password file.		Imports users and schema. Imports those passwords with <code>-r</code> .
<code>-n</code>	Preserves the target database details. There is no change in the database details, schema, users, or passwords.	NA	Retains users and schema. There is no change in the password.
<code>-d</code>	Switches to a different database.	NA	Uses the database specified with <code>-d</code> .
<code>-p <swpro passwd> -u <swuser passwd></code>	Passes <code><swpro></code> and <code><swuser></code> passwords through command line. Note: Schema and users are imported from the exported file.	Exports users and schema.	Picks passwords during runtime in the import machine.
<code><no option></code>	Imports schema and users from the exported file and there are no changes to the password file (you can use target instance password file).	Exports users and schema.	Imports users and schema. There is no change in the password.

i Note: The assumption is that the `<swpro>` and `<swuser>` users exist in the database with correct passwords.

The following table lists the module that exists when importing the configuration file.

Module	Description
<code>\$SWDIR\$/swdefs</code>	Import includes the RPC Port number, Version, and Language.
NODES	If you choose to modify the node name of iProcess Engine during the import, the NODES table gets updated accordingly. Version entries get imported as the exported file.
<code>\$SWDIR\$/etc/staffpms</code>	Import includes DATE, TIME format, Database connection details, Custom Log Path, UTF-8 flag, Auto start and so on.
<code>\$SWDIR\$/etc/staffcfg</code>	Import includes the entire configuration present in the export configuration file.
<code>\$SWDIR\$/etc/english.lng/sysevents.cfg</code>	Import includes the entire configuration present in the export configuration file.
<code>\$SWDIR\$/etc/english.lng/staff.mes</code>	Import includes the entire configuration present in the export configuration file.
<code>\$SWDIR\$/etc/english.lng/staffw.mes</code>	Import includes the

Module	Description
	entire configuration present in the export configuration file.
<code>\$SWDIR\$/etc/english.lng/stafferr.mes</code>	Import includes the entire configuration present in the export configuration file.
<code>\$SWDIR\$/etc/english.lng/audit.mes</code>	Import includes the entire configuration present in the export configuration file.
<code>\$SWDIR\$/etc/english.lng/staffico</code>	Import includes the entire configuration present in the export configuration file.
GLOBAL_VARIABLE	Import includes the entire configuration present in the export configuration file.
AQ_PORT_RANGE_CONF	Import includes the entire configuration present in the export configuration file.
AQ_PORT_RANGE	Import includes the entire configuration present in the export configuration file.
PORT_RANGE_CONF	Import includes the entire configuration present in the export

Module	Description
	configuration file.
PORT_RANGE_NODES	Import includes the entire configuration present in the export configuration file.
PROCESS_CONFIG	Import includes the entire configuration present in the export configuration file.
MBOX_SET	Import includes the entire configuration present in the export configuration file.
IQL_QUEUES	Import includes the entire configuration present in the export configuration file.
MBOX_SET_GROUP	Import includes the entire configuration present in the export configuration file.
PROCESS_ATTRIBUTES	Import includes the entire configuration present in the file. Few attributes like SWLIB_PATH, IDENTIFY_SPO_MACHINE_BY are handled separately.
SYSTEM_EVENT_CONF	Import includes the entire configuration

Module	Description
	present in the export configuration file.
<code>\$SWDIR\$/seo/data/swentobjsv.cfg</code>	Import includes the entire configuration present in the export configuration file.
<code>\$SWDIR\$/config/notification.properties</code>	Import includes the entire configuration present in the export configuration file.
<code>\$SWDIR\$/config/ipac.properties</code>	Import includes the entire configuration present in the export configuration file. IP_ADDR is defaulted to 127.0.0.1.
<code>\$SWDIR\$/config/log4j.properties</code>	Import includes the entire configuration present in the export configuration file.
<code>\$SWDIR\$/tomcat/webapps/ipac/config/ipac.properties.json</code>	Import includes the entire configuration present in the export configuration file. ApiUrl is defaulted to https://127.0.0.1:8443/
<code>\$SWDIR\$/tomcat/conf/server.xml</code>	Import includes the entire configuration present in the export configuration file.

Module	Description
<code>\$SWDIR\$/libs/eai_mail.cfg</code>	Import includes the entire configuration present in the export configuration file.
<code>\$SWDIR\$/etc/swjmx.properties</code>	Import includes the entire configuration present in the export configuration file. SWJMXConfig.address is defaulted to 127.0.0.
<code>\$SWDIR\$/etc/swjmx_log4j.properties</code>	Import includes the entire configuration present in the export configuration file.
<code>\$SWDIR\$/etc/swjmx_config.xml</code>	Import includes the entire configuration present in the export configuration file.
<code>\$SWDIR\$/etc/swjmx_classpath.properties</code>	Import includes the entire configuration present in the export configuration file.
<code>\$SWDIR\$/BWInstallerRegistry.properties</code>	Import includes the entire configuration present in the export configuration file.
<code>\$SWDIR\$/XMLTransformInstallerRegistry.properties</code>	Import includes the entire configuration present in the export configuration file.

Module	Description
<code>\$SWDIR\$/eaijava/log4j.properties</code>	Import includes the entire configuration present in the export configuration file.
<code>\$SWDIR\$/eaijava/pojo.properties</code>	Import includes the entire configuration present in the export configuration file.
<code>\$SWDIR\$/eaijava/encoding.properties</code>	Import includes the entire configuration present in the export configuration file.
<code>\$SWDIR\$/eaijava/eaijavaplugin.properties</code>	Import includes the entire configuration present in the export configuration file. Password and Database Connection String to connect to the database is evaluated at runtime during the import.
<code>\$SWDIR\$/eaijava/jmxconfig.properties</code>	Import includes the entire configuration present in the export configuration file. eaijava.db_connection, eaijava.db_user, eaijava.db_password, eaijava.db_schemaowner, eaijava.db_heartBeatSQL are

Module	Description
	handled separately.
<code>\$SWDIR\$/eajava/classloader.properties</code>	Import includes the entire configuration present in the export configuration file.
<code>\$SWDIR\$/eajava/xmlparser.properties</code>	Import includes the entire configuration present in the export configuration file.
<code>\$SWDIR\$/eajava/properties/eajavapooling.properties</code>	Import includes the entire configuration present in the export configuration file.
<code>\$SWDIR\$/eajava/properties/eaiframework/datetime.properties</code>	Import includes the entire configuration present in the export configuration file.
<code>\$SWDIR\$/eajava/properties/eaiframework/eaiframework.properties</code>	Import includes the entire configuration present in the export configuration file.
<code>\$SWDIR\$/eajava/properties/bw/cache.properties</code>	Import includes the entire configuration present in the export configuration file.
<code>\$SWDIR\$/eajava/properties/bw/jms.properties</code>	Import includes the entire configuration present in the export configuration file.

Module	Description
<code>\$\$SWDIR\$/eaijava/properties/bw/bwjmscache.properties</code>	Import includes the entire configuration present in the export configuration file.
<code>\$\$SWDIR\$/eaijava/properties/eaitransform/eaitransform.properties</code>	Import includes the entire configuration present in the export configuration file.
<code>\$\$SWDIR\$/eaijava/jmx/config.xml</code>	Import includes the entire configuration present in the export configuration file. Password and Database Connection String to connect to the database is evaluated at runtime during the import.
<code>\$\$SWDIR\$/eaiframework/frameworkconfig.xml</code>	Import includes the entire configuration present in the export configuration file.
<code>\$\$SWDIR\$/jmsadmin/javajlibs.properties</code>	Import includes the entire configuration present in the export configuration file.
<code>\$\$SWDIR\$/jmsadmin/jmsdb.properties</code>	Import includes the entire configuration present in the export configuration file. jmx_host is defaulted to 127.0.0.1.

Module	Description
<code>\$SWDIR\$/jmslib/mnemonic.properties</code>	Import includes the entire configuration present in the export configuration file.
<code>\$SWDIR\$/etc/iapjms_classpath.properties</code>	Import includes the entire configuration present in the export configuration file.
<code>\$SWDIR\$/etc/iapjms.properties</code>	Import includes the entire configuration present in the export configuration file.
<code>\$SWDIR\$/etc/iapjms_log4j.properties</code>	Import includes the entire configuration present in the export configuration file.
<code>\$SWDIR\$/sdks/deploy sdk/deploytst.cfg</code>	Import includes the entire configuration present in the export configuration file.
<code>mscluster.cfg</code>	import includes the entire configuration present in the export configuration file. <code>odbc_dsn_name</code> , <code>odbc_ipe_db_name</code> , <code>odbc_sqlsvr_name</code> , and machine name are evaluated at runtime during the import.
<code>Ipac.bat</code>	import includes the

Module	Description
	entire configuration present in the export configuration file. Service Name is evaluated at runtime during the import.

i Note: iProcess Engine supports export or import of the configuration file when there are different databases and ODBC names present in Windows and MSSQL, using the \$DBNAME\$ macro.

What is not Included in IMPORT_IPE_CONFIG?

The following are not included in the import configuration file:

- Importing Users - the target system is potentially for a different purpose and the users are not configuration
- No users implies no CDQP definitions
- Procedures - these are users or application but not configuration
- IAPJMS MED configuration - this is dependent on procedures and therefore, application
- UVAPI setup (the binary file)
- Filter settings that are set for the user (Graph filtering, EAIDB procedure level filtering)

Updating during an Import

When importing the configuration file, you can modify the following details:

- Node name of iProcess Engine

After you start importing, you are prompted with a question if you are interested in modifying the node name. If you choose to modify the node name, the import utility

updates the files such as swdefs, the NODES table, registry entries and so on. See the [macros](#) that you can use.

- Foreground and background users

You can modify the foreground and background users in the export file which are tagged as follows:

```
::BGUSERNAME=<swprouser>
```

```
::FGUSERNAME=<swuser>
```

i Note: The assumption is that the Database Administrator (DBA) has already created these users and are existing in the database with prior permissions before the import activity.

- Passwords of both foreground and background users

Using the options under `IMPORT_IPE_CONFIG`, you can update the schema user passwords. If you want to modify the password, DBA has to update the password in the database first and then, attempt in the iProcess Engine using this import utility. Passwords are prompted to you during the import configuration activity.

Switching Database during an Import

You can switch from iProcess engine and configure to connect to a different database during an import.

`-d` is the option to switch to a different database.

For more information on options, see [the IMPORT_IPE_CONFIG options](#).

Post Import Recommendations

- Restart the iProcess Engine installed machine after the import is completed.
- If UVAPI is disabled in the machine where export is run; the exported configuration file does not have UVAPI details given in the `staffpms` file.
- Enter the client ports such as iProcess Workspace Windows RPC number, JMX port, and so on manually after the import.
- LDAP configuration if present is also imported to the machine from the export file used. You must handle the rest of LDAP synchornization with iProcess Engine, if needed.

- As part of import, you cannot import the watcher or worker ports present in **/etc/services**. You must perform this as a post import activity after the configuration is imported.

If you do not perform this activity, iProcess Engine picks the default ports.

ORACLE

The database alias must exist in the client `$ORACLE_HOME/network/admin/tnsnames.ora`, for the iProcess Engine to connect for import.

DB2

The database alias must exist with all the catalogs set for the database connectivity.

MSSQL

ODBC (64-bit) entry must exist ensuring proper connectivity to the database.



Note:

- You can replace values in the configuration file.
- It is not recommended to add or delete any entry from the configuration file. You can add an extra entry such as adding a process attribute for the import. (This is completely your risk and any change to the import configuration is not recommended.)

Node Cluster (Linux/Windows) Import

The Machine ID and master flag options present in the import file support import of configuration on a node-node cluster environment. You are not prompted to enter a Machine ID and node name.

Windows Cluster Import

The export file generated must be imported on the primary node. You must not import the configuration file in the secondary node. In the secondary node, run `$SWDIR\mscluster\WCSecNodeImport.bat` to delete and import the new registry entries and services.

To import Windows Cluster on both the machines, perform the following steps:

1. Import the file by using the `swadm IMPORT_IPE_CONFIG` command on the primary cluster machine.
2. Verify the post-installation steps mentioned for the Windows Cluster setup in the Admin guide.
3. Set the server name in the nodes entry by using the `swadm MOVESERVER` utility.
4. Run the `WCSecNodeImport.bat` file on the secondary node. Running this file takes care of the corrections in the registry, ODBC entries `ipac.bat`, and other configurations.

Backing Up the Configuration File

iProcess Engine supports configuration backup so that you can export the entire configuration of a system and then import it later date after making some changes to restore it to its original settings.

To take a backup of the configuration file during the import, rename the backup file as - `iPEConfig_<yyyymmdd>_<hhmmss>_<MachineID>_bkp.dat` and `manifest_<yyyymmdd>_<hhmmss>_<MachineID>_bkp.html` (where `bkp` represents that the file is a backup file).

i Note:

- The backup file is created without any macros from the import file and has all absolute paths in it.
- When you import a backup file, you can directly upload the backup file without using any options such as `-r`, `-p`, or `-u`.
- During the import of backup file, the node name is fetched directly from the import file but, you must enter the password manually.
- Backup would fail without a proper database connection prior to the import.

Administering Security in iProcess Engine

Encryption for the RPC layer between the various processes is improved.

For security reasons, TIBCO recommends you to regularly update the security keys by using the following command:

```
swadm UPDATE_KEYS
```

iProcess Engine Log Files

The iProcess Engine node automatically produces the following log files in the **SWDIR\logs** directory.

iProcess Engine Log Files

Log File	Description
<code>sw_error.log</code>	<p>This file is created if a serious error occurs that needs to be investigated immediately, and the error occurs at a different date than the date the last error is logged. In the meantime, the previous log file will be archived as <code>sw_errortimestamp.log</code>, where the <i>timestamp</i> variable is the date when that log is generated.</p> <p>See <i>TIBCO iProcess Engine System Messages Guide</i> for detailed information about the system errors and warning messages that can be returned by iProcess Engine.</p>
<code>sw_errortimestamp.log</code>	<p>This file is the archived <code>sw_error.log</code>, where the <i>timestamp</i> variable is the date when the log is generated.</p>
<code>sw_warn.log</code>	<p>This file is created if an error occurs that needs to be dealt with, but is not serious enough to prevent iProcess from being used, and the error occurs at a different date than the date the last error is logged. In the meantime, the previous log file will be archived as <code>sw_warntimestamp.log</code>, where the <i>timestamp</i> variable is the date when that log is generated.</p> <p>See <i>TIBCO iProcess Engine System Messages Guide</i> for detailed information about the system error and warning messages that can be returned by iProcess Engine.</p>
<code>sw_warntimestamp.log</code>	<p>This file is the archived <code>sw_warn.log</code>, where the <i>timestamp</i> variable is the date when the log is generated.</p>
<code>iapjms_java.log</code>	<p>This file is created by the IAPJMS process (if enabled). By default, any</p>

Log File	Description
	warning or error messages produced by the IAPJMS process are written to this file.
userinfo.log	An entry is added to this file whenever user information is updated on the system. For example: staffusr updated by swadmin - Tue Dec 7 17:27:15 2001
roleinfo.log	An entry is added to this file whenever role information is updated on the system. For example: staffrol updated by swadmin - Tue Dec 7 17:27:36 2001
swjmx_java.log	This file is created by the JMX engine (which is part of the RPC_TCP_LI process). By default, any warning or error message produced by the JMX engine is written to this file.
wiswarn.log	An entry is added to this file whenever the server shuts down. For example: 2001/12/ 7 17:58 wisrpc : normal shutdown
wqswarn.log	An entry is added to this file whenever the server shuts down. For example: 2001/12/ 7 17:54 wqsrpc: normal shutdown
rpcport.log	This text file is only used when the port and/or RPC number ranging is enabled (see Administering Firewall Port Ranges). The file contains entries that show the resource allocation for the ports and RPC numbers used. It records the following events: <ul style="list-style-type: none"> • Startup of the port/RPC resource allocation service • Shutdown of the port/RPC resource allocation service • Allocation of a port/RPC number • Release of a port/RPC number • Failure to re-bind a released port • Successful re-binding of a previously failed port • Errors in the allocation/release of a port/RPC number

System Backup Guidelines

This appendix provides guidelines for the safe backup and recovery of iProcess workflow data.

A system backup consists of:

- backing up your SQL/Oracle database. The iProcess database instance contains all the iProcess case data.
- backing up configuration files on iProcess Engine and client. This will prevent you from having to record what configuration changes you have made.

Backup and Recovery of iProcess Case Data

Because all iProcess case data is stored in the SQL/Oracle database, you need to make sure that your database administrator makes regular backups. If the database becomes corrupt or the system goes down, the database administrator can use the database recovery tools to recover the iProcess case data.

Backup and Recovery of iProcess Engine Configuration Files

TIBCO recommends that you also take a backup of the following:

- any configuration files that you change, for example, `staffcfg` that is under the `SWDIR\etc` directory.
- any “use” files in `SWDIR\nodename.n\use`.

iProcess Engine Directory Structure

This appendix describes the physical location of iProcess Engine's programs and data on the computer hosting the server.

The directories are described relative to the iProcess System directory SWDIR. If there are multiple iProcess Engine installations on the computer, each must have a unique SWDIR. Each computer in a node cluster will have iProcess Engine directories and files.

iProcess Engine Directory

Directory	Description
SWDIR \bin	Contains system executable files and the <code>swutil</code> utility program.
SWDIR \cms	Contains failed mail items for remote nodes. Note: This directory is not currently used by iProcess Engine.
SWDIR \cms.rx	CMS receive folder. Note: This directory is not currently used by iProcess Engine.
SWDIR \cms.tx	CMS transmit folder. Note: This directory is not currently used by iProcess Engine.
\$ SWDIR /eaidist	(UNIX only) Contains TIBCO iProcess Engine Server Plug-ins.
SWDIR \etc	Contains iProcess executables, message files, and configuration files. It also contains the <code>language.lng</code> sub-directory, which contains a language-dependent message, and configuration files, where <i>language</i> is the language for this installation. There is one directory per installed language.

Directory	Description
SWDIR \examples	Contains the EAI step procedure examples. This directory only exists if you have installed the examples for the TIBCO iProcess Engine Server Plug-ins.
SWDIR \jar	Contains JAR files required by the IAPJMS process.
SWDIR \java	Contains the Java JRE distributed with iProcess Engine.
SWDIR \lib	(Windows only) Contains shared libraries such as fil.so and TIBCO iProcess Engine Server Plug-in software.
\$SWDIR /libs	(UNIX only) Contains shared libraries such as fil.so and TIBCO iProcess Engine Server Plug-in software.
SWDIR \logs	Contains system log files.
SWDIR \mscluster	(Windows only) Contains the mscluster tool used to add iProcess Engine components to secondary machines in a Windows cluster environment.
SWDIR \pro\sww.uid	Contains one file per user currently logged in.
SWDIR \queues	Contains a <i>username</i> directory for each user-defined on this installation. <i>username</i> is the iProcess work queues directory for the user (or group) <i>username</i> .
SWDIR \rpc	(Windows only) Contains RPC executables.
SWDIR \schema	Contains XML schema definitions.
SWDIR \sdks	Contains the following iProcess Engine Software Development Kit (SDK) sub-directories: deploysdk - for internal use only. eaisdk - the TIBCO iProcess Plug-in SDK. See <i>TIBCO iProcess Plug-in SDK User's Guide</i> for more information about this SDK. salsdk - the TIBCO Application Layer SDK (also known as the Staffware

Directory	Description
	Application Layer SDK). See the <code>sa\dsk\docs</code> directory for more information about this SDK.
	<code>uvapisdk</code> - the TIBCO iProcess User Validation API. See <i>TIBCO iProcess User Validation API User's Guide</i> for more information about this SDK.
<code>\$SWDIR/seo</code>	(UNIX only) Contains iProcess Objects Server configuration files.
<code>SWDIR \nodename.n\use</code>	Contains Use files defined on this node.
<code>SWDIR\sysinfo</code>	Note: This directory is not currently used by iProcess Engine.
<code>SWDIR\tomcat</code>	Contains the Apache Tomcat application server distributed with iProcess Engine.
<code>SWDIR\tsys</code>	Temporary editing area.
<code>SWDIR \uninstll</code>	(Windows only) Uninstall directory.
<code>SWDIR\util</code>	Contains utility programs and XFR procedure files.

Understanding Audit Trails

An audit trail is a predefined iProcess report that provides a detailed log of all transactions for an individual case of a procedure.

There are two types of audit trail messages:

- System-defined. The table describes the system-defined messages.
- User-defined. See [SWDIR\etc\language.lng\auditusr.mes](#) for more information about using this file to define user-defined audit trail messages.

Audit trail messages can be used in two ways:

- You can view a detailed audit trail for any iProcess case to see how a case is progressing or has progressed using the Case Administration tool. See "Administering Cases" in *TIBCO iProcess Workspace (Windows) Manager's Guide* for more information.
- You can configure iProcess Engine to publish audit trail messages to an external application. This enables an external application to monitor important business events during the processing of cases. See "Configuring Activity Monitoring" in *TIBCO iProcess Modeler Integration Techniques* for more information and [Administering Activity Monitoring and Work Queue Delta Publication](#) for more information.

The following table describes the system-defined messages that can be displayed in your audit trails and what they mean.

Audit Trail Messages

Message ID	Message	Description
000	Case started by <i>UserName</i>	The case of a procedure has been started where <i>UserName</i> is the name of the iProcess user who has started the case. See "Starting Cases" in <i>TIBCO iProcess Workspace (Windows) User's Guide</i> for more information.

Message ID	Message	Description
001	<i>StepDescription</i> processed to <i>UserName</i>	The <i>StepDescription</i> work item has been processed to the <i>UserName</i> user. See "Opening and Processing a Work Item" in <i>TIBCO iProcess Workspace (Windows) User's Guide</i> for more information.
002	<i>StepDescription</i> released by <i>UserName</i>	The <i>StepDescription</i> work item has been released by the <i>UserName</i> user. See "Opening and Processing a Work Item" in <i>TIBCO iProcess Workspace (Windows) User's Guide</i> for more information.
003	Deadline for <i>StepDescription</i> expired for <i>UserName</i>	The deadline set for the <i>StepDescription</i> work item has expired for the <i>UserName</i> user. If the deadline has expired, then the deadline actions will be processed. See "Using Deadlines in Procedures" in <i>TIBCO iProcess Modeler Basic Design</i> for more information.
004	<i>StepDescription</i> forwarded to <i>UserName</i>	<p>An iProcess user has forwarded the <i>StepDescription</i> work item from their work queue to another iProcess user's work queue. The <i>UserName</i> is the name of the iProcess user who has received the work item in their work queue.</p> <p>See "Enabling Steps to be Forwarded" in <i>TIBCO iProcess Modeler Basic Design</i> for more information.</p>
006	Error – <i>StepDescription</i> not found	<p>The <i>StepDescription</i> work item cannot be found. You may see this message if, for example, the case has been purged and so the work item no longer exists.</p> <p>Check the <code>sw_warn</code> or <code>sw_error</code> log files to see if any error messages were logged. See <i>TIBCO iProcess Engine System Messages Guide</i> for more information.</p>

Message ID	Message	Description
007	Case terminated abnormally	<p>The case has terminated abnormally. You may see this message if there has been a system error that has caused the case to terminate abnormally.</p> <p>Check the <code>sw_warn</code> or <code>sw_error</code> log files to see if any error messages were logged. See <i>TIBCO iProcess Engine System Messages Guide</i> for more information.</p>
008	Case terminated prematurely by <i>UserName</i>	<p>The case of a procedure has been terminated prematurely by the <i>UserName</i> user. This means that not all the steps in the case have been completed because the case was terminated prematurely.</p> <p>See "Closing Cases" in <i>TIBCO iProcess Workspace (Windows) Manager's Guide</i> for more information.</p>
009	Case terminated normally	The case has completed processing all its steps and, therefore, it has been terminated normally.
011	<i>StepDescription</i> released from queue by <i>UserName</i>	This message is obsolete. If this message appears in an audit trail, contact TIBCO Support for further assistance.
012	There is no message defined for this number.	
013	<i>StepDescription</i> withdrawn from <i>UserName</i>	<p>The <i>StepDescription</i> work item has been withdrawn from the <i>UserName</i> queue because the deadline expired or as the result of a withdrawal action. If the step has been withdrawn because a deadline has expired, the deadline actions will be processed. See "Withdrawing Steps from the Procedure" in <i>TIBCO iProcess Modeler Basic Design</i> for more information.</p>
014	<i>StepDescription</i> resent to <i>UserName</i>	The <i>StepDescription</i> work item has been resent to the <i>UserName</i> user. See "Resending work items" in

Message ID	Message	Description
		<i>TIBCO iProcess swutil and swbatch Reference Guide</i> for more information.
015	<i>StepDescription</i> event issued by <i>UserName</i>	The <i>StepDescription</i> event step has been issued by the <i>UserName</i> user. See "Using Events" in <i>TIBCO iProcess Modeler Integrating Techniques</i> for more information.
016	Sub-Case started from <i>StepDescription</i>	A case of a sub-procedure has been started from the <i>StepDescription</i> step. See "Defining and Using Sub-procedures" in <i>TIBCO iProcess Modeler Advanced Design</i> for more information.
017	Sub-case started from <i>StepDescription</i> completed	A case of a sub-procedure that was started from the <i>StepDescription</i> step has terminated normally. See "Defining and Using Sub-procedures" in <i>TIBCO iProcess Modeler Advanced Design</i> for more information.
018	Sub-case started from <i>StepDescription</i> terminated abnormally	<p>A case of a sub-procedure has terminated abnormally where <i>StepDescription</i> is the description of the step. You may see this message if a system error has caused the sub-case to terminate abnormally.</p> <p>Check the <i>sw_warn</i> or <i>sw_error</i> log files to see if any error messages were logged. See <i>TIBCO iProcess Engine System Messages Guide</i> for information.</p> <p>See "Defining and Using Sub-procedures" in <i>TIBCO iProcess Modeler Advanced Design</i> for more information.</p>
019	Deadline for sub-case started from <i>StepDescription</i> expired	The deadline set for the <i>StepDescription</i> step that is calling the sub-case has expired. This causes the

Message ID	Message	Description
		sub-case started from this step to be closed. This means that the deadline actions will be processed. See "Using Deadlines in Procedures" in <i>TIBCO iProcess Modeler Basic Design</i> for more information.
020	Sub-case started from <i>StepDescription</i> closed	The <i>StepDescription</i> step that called the sub-case has been withdrawn because the deadline has expired. This causes the sub-case started from this step to be closed. This means that the deadline actions will be processed. See "Using Deadlines in Procedures" in <i>TIBCO iProcess Modeler Basic Design</i> for more information.
021	<i>StepDescription</i> redirected to <i>UserName</i>	The <i>StepDescription</i> work item has been redirected to another user's work queue. <i>UserName</i> is the name of the iProcess user who has received the work item in their work queue. See "Redirecting Work Items" in <i>TIBCO iProcess Workspace (Windows) User's Guide</i> for more information.
022	Case Suspended by <i>UserName</i>	The case has been suspended by the <i>UserName</i> user. See "Suspending the Flow of a Case" in <i>TIBCO iProcess Modeler Integration Techniques</i> for more information.
023	Case Resumed by <i>UserName</i>	The case has been resumed by the <i>UserName</i> user. See "Suspending the Flow of a Case" in <i>TIBCO iProcess Modeler Integration Techniques</i> for more information.
024	<i>StepDescription</i> Case Jump by <i>UserName</i>	The <i>UserName</i> user has caused the case to jump to this <i>StepDescription</i> step. See "Using GOTOSTEP to Simplify Procedure Routing" in <i>TIBCO iProcess Modeler Basic Design</i> for more information.

Message ID	Message	Description
025	<i>SubProcedureDescription</i> Sub-Case started (using array element <i>StepName</i>)	A case of a <i>SubProcedureDescription</i> sub-procedure has been started by a <i>StepName</i> array element step. See "Using Array Fields" in <i>TIBCO iProcess Modeler Advanced Design</i> for more information.
026	Task count <i>StepName</i> received for <i>Status:StepName</i>	<p>The external application has informed the iProcess Engine of all the processes that need to be completed before the graft step can complete, where:</p> <p><i>StepName</i> is the name of the graft step</p> <p><i>Status:StepName</i> is the current status of the graft step and the graft step name.</p> <p>See "Graft Step Task Count" in <i>TIBCO iProcess Modeler Integration Techniques</i> for more information.</p>
027	Task count decremented for <i>Status:StepName</i>	<p>One of the processes grafted to this <i>StepName</i> step has completed. <i>Status</i> is the current status of the graft step.</p> <p>See "Graft Step Task Count" in <i>TIBCO iProcess Modeler Integration Techniques</i> for more information.</p>
028	Sub-Case grafted to <i>StepDescription</i>	The sub-case has been grafted to the <i>StepDescription</i> graft step. See "Using Graft Steps" in <i>TIBCO iProcess Modeler Integration Techniques</i> for more information.
029	External process <i>ExternalProcessName</i> grafted to <i>StepDescription</i> .	The external process has been grafted to the <i>StepDescription</i> graft step. <i>ExternalProcessName</i> is the name of the external process. See "Using Graft Steps" in <i>TIBCO iProcess Modeler Integration Techniques</i> for more information.

Message ID	Message	Description
030	<i>StepDescription</i> initiated	The <i>StepDescription</i> graft step has been initiated by the external system. See "Using Graft Steps" in <i>TIBCO iProcess Modeler Integration Techniques</i> for more information.
031	External process <i>ExternalProcessName</i> released	The external process has completed. <i>ExternalProcessName</i> is the name of the external process. See "Using Graft Steps" in <i>TIBCO iProcess Modeler Integration Techniques</i> for more information.
032	<i>StepDescription</i> released, all tasks complete	The <i>StepDescription</i> graft step has been released because all the tasks grafted to the graft step are complete. See "Using Graft Steps" in <i>TIBCO iProcess Modeler Integration Techniques</i> for more information.
033	<i>StepDescription</i> released, all sub-cases complete	<p>The <i>StepDescription</i> dynamic sub-procedure step has been released. This is because all the sub-cases started from the step are complete.</p> <p>See “Defining a Dynamic Call to Multiple Sub-Procedures” in <i>TIBCO iProcess Modeler Advanced Design</i> for more information.</p>
034	Case migrated from Procedure <i>StepName</i> to <i>StepDescription</i> by <i>UserName</i>	<p>The case from the procedure has migrated to a new procedure with a new version number, where:</p> <p><i>StepName</i> is the name of the step.</p> <p><i>StepDescription</i> is the name of the form which is displayed when you open this work item.</p> <p><i>UserName</i> is the name of the iProcess user who has received the work item in their work queue.</p> <p>See "Using Version Control" in <i>TIBCO iProcess Modeler Procedure Management</i> for more</p>

Message ID	Message	Description
		<p>information.</p> <p>See "Release a Procedure Version" in <i>TIBCO iProcess swutil and swbatch Reference Guide</i> for more information about migrating cases to new procedure versions.</p>
035	Sub-cases, grafted to <i>StepDescription</i> , closed	The sub-cases grafted to the <i>StepDescription</i> graft step have been closed. This is because the graft step has been withdrawn because a deadline expired. This means that the deadline actions will be processed. See "Using Deadlines in Procedures" in <i>TIBCO iProcess Modeler Basic Design</i> for more information.
036	Deadline for <i>StepDescription</i> expired	The deadline set for the <i>StepDescription</i> graft step has expired. If the deadline has expired, then the deadline actions will be processed. See "Using Deadlines in Procedures" in <i>TIBCO iProcess Modeler Basic Design</i> for more information.
037	Sub-cases, started from <i>StepDescription</i> , closed	The deadline set on the <i>StepDescription</i> dynamic sub-procedure step has expired so the dynamic sub-procedure step has been withdrawn. This has caused the sub-cases started from the dynamic sub-procedure step to close. This means that the deadline actions will be processed. See "Using Deadlines in Procedures" in <i>TIBCO iProcess Modeler Basic Design</i> for more information.
038	<i>StepDescription</i> withdrawn, outstanding items not deleted	The <i>StepDescription</i> step has been withdrawn because a deadline has expired. However, the outstanding items have not been deleted. If the deadline has expired, then the deadline actions will be processed. See "Using Deadlines in Procedures" in <i>TIBCO iProcess Modeler Basic Design</i> for more

Message ID	Message	Description
		information.
039	No addressees defined for step <i>StepDescription</i> – automatically released	The <i>StepDescription</i> step has no addressees defined for it so it has been automatically released. See "Defining a Step" in <i>TIBCO iProcess Modeler Getting Started</i> for more information.
040	No sub-procedures defined for step <i>StepDescription</i> – automatically released	The <i>StepDescription</i> step has no sub-procedures defined for it so it has been automatically released. See "Defining and Using Sub-procedures" in <i>TIBCO iProcess Modeler Advanced Design</i> for more information.
041	<i>StepDescription</i> forwarded by <i>UserName</i>	A <i>StepDescription</i> work item is forwarded by an iProcess user. The <i>UserName</i> is the name of the iProcess user who forwards the work item.
042–049	There are no messages defined for these numbers.	
050	<i>StepDescription</i> EAI call-out initiated (<i>UserName</i>)	The <i>StepDescription</i> step has initiated an EAI call-out to an external system on behalf of a <i>UserName</i> user. The iProcess Suite cannot continue processing the case until the EAI call-out has completed. See "Using EAI steps" in <i>TIBCO iProcess Modeler Integration Techniques</i> for more information.
051	<i>StepDescription</i> EAI call-out completed (<i>UserName</i>)	The EAI call-out initiated by the <i>StepDescription</i> step has completed. <i>UserName</i> is the name of the iProcess user on whose behalf the call-out was made. See "Using EAI steps" in <i>TIBCO iProcess Modeler Integration Techniques</i> for more information.
052	Deadline for EAI Step <i>StepDescription</i> expired	The deadline for the <i>StepDescription</i> EAI step has expired. The deadline actions will be processed. See "Using Deadlines in Procedures" in <i>TIBCO iProcess</i>

Message ID	Message	Description
		<i>Modeler Basic Design</i> for more information.
053	EAI Step <i>StepDescription</i> withdrawn	The <i>StepDescription</i> EAI step has been withdrawn because the deadline has expired. The deadline actions will be processed. See "Using Deadlines in Procedures" in <i>TIBCO iProcess Modeler Basic Design</i> for more information.
054	Commit Point <i>StepDescription</i> reached	The procedure has reached a <i>StepDescription</i> transaction control step. This step is configured to commit the current data at the current point in the business process. See "Using Transaction Control steps" in <i>TIBCO iProcess Modeler Integration Techniques</i> for more information.
055	New Transaction started from <i>StepDescription</i>	The procedure has started a new transaction from the <i>StepDescription</i> transaction control step. See "Using Transaction Control steps" in <i>TIBCO iProcess Modeler Integration Techniques</i> for more information.
056	New Transaction start retried from <i>StepDescription</i>	The <i>StepDescription</i> step has retried the new transaction. See "Using Transaction Control steps" in <i>TIBCO iProcess Modeler Integration Techniques</i> for more information.
057	Case purged	The case has been purged. For example, the iProcess Administrator may purge cases if they are dead or if a new version of a procedure is produced and cases for the existing version should no longer be processed.
058	Reason Case data modified by <i>UserName</i>	Case data has been modified by user <i>UserName</i> . <i>Reason</i> describes the reason for the change, as specified in the SW_MODIFY_CASEDATA statement. See <i>TIBCO iProcess Engine Database</i>

Message ID	Message	Description
<i>Administrator's Guide</i> for your database for details.		
059	<i>stepdescription</i> opened by <i>username</i>	The <i>StepDescription</i> work item has been opened by the user <i>UserName</i> . See AUDIT_OPENKEEP for more information.
060	<i>stepdescription</i> kept by <i>username</i>	The <i>StepDescription</i> work item has been kept by the user <i>UserName</i> . See AUDIT_OPENKEEP for more information.
061-079	There are no messages defined for these numbers.	
080	<i>StepDescription</i> EAI call-out failed (<i>UserName</i>)	<p>The EAI call-out initiated from the <i>StepDescription</i> EAI step on behalf of the <i>UserName</i>.</p> <p>Check the <i>sw_warn</i> or <i>sw_error</i> log files, which is located in the <i>SWDIR\logs</i> directory, to see if any error messages were logged. See <i>TIBCO iProcess Engine System Messages Guide</i> for more information.</p> <p>See "Using EAI steps" in <i>TIBCO iProcess Modeler Integration Techniques</i> for more information.</p>
081	Workflow may have an infinite loop (at <i>StepDescription</i>) - reached max actions per transaction (<i>UserName</i>)	<p>You can limit the number of steps sent or withdrawn during the processing of a single workflow transaction (i.e. the number of EAI steps that can be processed in one transaction without any other step types in between).</p> <p>You receive this message if this limit is reached. If this limit is reached, the workflow transaction is aborted and an appropriate message is logged to the <i>sw_warn</i> log file, which is located in the <i>SWDIR\logs</i> directory.</p> <p>See <i>TIBCO iProcess Engine System Messages</i></p>

Message ID	Message	Description
		<i>Guide</i> for more information.
082	Error, workflow transaction aborted because of a system failure - check sw_warn/sw_error logs	<p>The workflow transaction has been aborted because of an internal system failure. Appropriate messages should be logged to the sw_warn or sw_error log files.</p> <p>See <i>TIBCO iProcess Engine System Messages Guide</i> for more information.</p>
083	The run-time plug-in for EAI Type <i>UserName</i> (used by step <i>StepDescription</i> is not registered on all servers or failed to load/initialize correctly.	<p>Some EAI plug-ins need to be registered before you can use them. You may receive this message if your EAI plug-in has not been registered or if it has not been installed correctly, where:</p> <p><i>UserName</i> is the name of the iProcess user on whose behalf the EAI step is running.</p> <p><i>StepDescription</i> is the description of the EAI step.</p> <p>See "Using EAI steps" in <i>TIBCO iProcess Modeler Integration Techniques</i> for more information.</p>
084	Invalid sub-procedure <i>UserName</i> specified for <i>StepDescription</i> - check sw_warn/sw_error logs	<p>The <i>UserName</i> specified for the <i>StepDescription</i> sub-procedure step (on whose behalf the sub-procedure is being called) is invalid. You need to fix the step so that it uses the correct name.</p> <p>Check the sw_warn or sw_error log files to see if any error messages were logged. See <i>TIBCO iProcess Engine System Messages Guide</i> for more information.</p> <p>See "Defining and Using Sub-procedures" in <i>TIBCO iProcess Modeler Advanced Design</i> for more information.</p>
085	<i>StepDescription</i> and sub-	The <i>StepDescription</i> step is trying to call a sub-

Message ID	Message	Description
	procedure <i>UserName</i> are not based on the same parameter template - check sw_warn/sw_error logs	<p>procedure whose parameter template is not the same as the main procedure. <i>UserName</i> is the name of the iProcess user on whose behalf the sub-procedure is being called.</p> <p>Check the sw_warn or sw_error log files to see if any error messages were logged. See <i>TIBCO iProcess Engine System Messages Guide</i> for more information.</p> <p>See "Defining and Using Sub-procedures" in <i>TIBCO iProcess Modeler Advanced Design</i> for more information.</p>
086	<i>StepDescription</i> and sub-procedure <i>UserName</i> are not based on the same version of parameter template - check sw_warn/sw_errlogs	<p>The <i>StepDescription</i> step is trying to call a sub-procedure whose parameter template is not the same version as the main procedure. <i>UserName</i> is the name of the iProcess user on whose behalf the sub-procedure is being called.</p> <p>Check the sw_warn or sw_error log files, which is located in the SWDIR\logs directory, to see if any error messages were logged. See <i>TIBCO iProcess Engine System Error Messages Guide</i> for more information.</p> <p>See "Defining and Using Sub-procedures" in <i>TIBCO iProcess Modeler Advanced Design</i> for more information.</p>
087	Transaction Aborted at <i>StepDescription</i>	<p>The procedure has found an error and has reached a <i>StepDescription</i> transaction control step that has caused the transaction to abort.</p> <p>Check the sw_warn or sw_error log files to see if any error messages were logged. See <i>TIBCO iProcess Engine System Messages Guide</i> for more information.</p>

Message ID	Message	Description
		See "Using Transaction Control Steps" in <i>TIBCO iProcess Modeler Integration Techniques</i> for more information.
088	<i>StepDescription</i> EAI delayed-release failed (<i>error code (failure_count, BG_action) : error message</i>)	The transaction of delayed-release <i>StepDescription</i> EAI step failed. The <i>error code</i> and <i>error message</i> variables specify the error. The <i>failure_count</i> variable specifies the number of times the delayed-release EAI step has failed. The <i>BG_action</i> variable specifies what the BG process does when an error occurred.
089–127	There are no messages defined for these numbers.	
128	<i>stepdescription</i> delivered to Exchange recipient <i>username</i>	This message is obsolete.
129	<i>stepdescription</i> release received from Exchange recipient <i>username</i>	This message is obsolete.
130	<i>stepdescription</i> withdrawn from Exchange recipient <i>username</i>	This message is obsolete.
131	BusinessWorks Activity Audit <i>description</i> processed by <i>username</i>	The action <i>description</i> has been carried out by the user <i>UserName</i> within BusinessWorks. This message is generated and the <i>description</i> text is provided by the BusinessWorks iProcess Audit activity. It is used to audit BusinessWorks activities in iProcess Engine. See the <i>TIBCO iProcess Connector for ActiveMatrix BusinessWorks User's Guide</i> for more information

Message ID	Message	Description
		about the iProcess Audit activity.
132	There are no messages defined for this number.	
133	Case data changed by <i>username</i>	<p>The changes <i>UserName</i> makes to the case data by using iProcess Insight, iProcess Workspace (Browser), or the setCaseData TIBCO iProcess Server Objects interface, rather than by normal step processing.</p> <p>For more information about changing case data in iProcess Insight, see <i>TIBCO iProcess Insight User's Guide</i>. For more information about changing case data in iProcess Workspace (Browser), see <i>TIBCO iProcess Workspace (Browser) User's Guide</i>.</p>
134–255	There are no messages defined for these numbers.	

Using the plist Utility to Obtain Information About TIBCO iProcess Engine Facilities

This appendix describes how to use the `SWDIR/util/plist` utility to obtain information about a range of TIBCO iProcess Engine facilities.

Overview of the plist Utility

The `SWDIR/util/plist` utility provides the ability to list information about a range of TIBCO iProcess Engine facilities. This section introduces the list of options that can be used with the `SWDIR/util/plist` utility.

General Usage of the SWDIR/util/plist Utility

To find the list of options, which can be used together with the `SWDIR/util/plist` utility, use the following command:

- On Microsoft Windows:
`SWDIR/util/plist /?`
- On UNIX:
`SWDIR/util/plist -?`

Functions for the SWDIR/util/plist Command Options

The `SWDIR/util/plist` utility is used with an option command. The options and the functions of each option command are listed in the following table.

plist Command Options

Option	Function	Command Line
-a	list audit trail	<code>plist -a [nodename] <procedure></code>

Option	Function	Command Line
		<code>ALL <casenum></code>
-A	list attribute value	<code>plist -A [nodename] <group> <user></code>
-c	list cases for procedure	<code>plist -c [nodename] <procname></code>
-C	list sub-cases status for procedure	<code>plist -C [nodename] <procname></code>
-d	list steps in procedure	<code>plist -d [nodename] <procname></code>
-D	list step status	<code>plist -D [nodename] <procname></code>
- e	list system events	<code>plist -e <typeid[,typeid...] ALL> [username[,username...] ALL [startdate [enddate]]]</code>
-f	list fields in procedure	<code>plist -f [nodename] <procname></code>
-G	list group memberships	<code>plist -G [nodename] <group> <user></code>
-l	list long term locked items	<code>plist -l [username]</code>
-m	list mail items for queue	<code>plist -m <queue> ALLQUEUES</code>
-mW	List mail items for queue including Work Queue Parameters and CDQPs	<code>plist -mW <queue> ALLQUEUES</code>
-M	list Mbox information	<code>plist -M <MBSetName[,MBSetName [,MBSetName]...][interval]></code>
-n	list nodes	<code>plist -n</code>
-o	list outstanding mail	<code>plist -o <procedure> ALL <casenum> ALL <queue> ALL <node></code>

Option	Function	Command Line
-p	list procedures	<code>plist -p [nodename]</code>
-P	display procedure version information	<code>plist -P [ALL [version ALLVERS]]<procname> [version ALLVERS]]</code>
-Q	list queue participation information	<code>plist -Q</code>
-r	list roles	<code>plist -r [nodename]</code>
-R	list queue redirection information	<code>plist -R</code>
-s	list installed tables	<code>plist -s [nodename]</code>
-t	list uninstalled tables	<code>plist -t [nodename]</code>
-T	get performance data from pool servers	<code>plist -T[g] <pool svr id ALL> [interval [count]]</code>
-u	list users	<code>plist -u [nodename]</code>
-U	list the OS or UVAPI users	<code>plist -U</code>
-w	list WIS queue information	<code>plist -w [WIS Number]</code>

The following options are used in combination with the options, which are shown in the previous table:

- -v Verbose (list extra information), for example: `plist -nv` (verbose nodes)
- -x Format output for scripts
- -x TIBCO iProcess Engine 2000 compatibility mode

i Note: The options are case-sensitive.

Node Information

Command

The following commands output the node and any slave node information:

- To return the information about any node or slave nodes:
`plist -n`
- To return additional information about the node, like Flags and Step Name:
`plist -nv`

Returns

The `plist -n` and `plist -nv` commands return the following information.

Column	Description
Flags	<p>Bit field is used to represent single-bit flags. The meaning for each of the single bits is as follows:</p> <ul style="list-style-type: none"> • 1 is the record used. • 2 acknowledge the connection. • 4 specifies a slave node. • 8 specifies the node is awaiting removal by the background process.

Example

The following examples show the output node information of the commands.

- Input the `SWDIR/util/plist -n` command. The output is shown as follows.

Name	Type	Cert Mail	SW Ver	RPC Ver	Mail Address
ipc_nod1	?		11.3	3.0	

- Input the `SWDIR/util/plist -nv` command. The output is shown as follows.

Name	Flags	Type	Step Name	Cert Mail	Mail Address
ipc_nod1	3	?	ipc_nod1.n		

Procedure Information

Command

The following commands output the procedure information:

- To return the procedure information:
`plist -p [nodename]`
- To return additional information about the total number of cases for each procedure:
`plist -pX`
- To return additional procedure information about Version, StartStep, and Directory:
`plist -pv`
- To return additional procedure information about NumCase, CurCases, and DedCases:
`plist -pvX`

Returns

The `plist -p`, `plist -pX`, `plist -pvX` and `plist -pv` commands return the following information.

Column	Description
Owner	The owner of the procedure.
Number	The information in this column is displayed in the <i>reference_number:time_number</i> format, where: <ul style="list-style-type: none"> • <i>reference_number</i> is the unique reference number.

Column	Description
	<ul style="list-style-type: none"> • <i>time_number</i> is the number of times the record has been used.
Flags	<p>The meaning for each flag is:</p> <ul style="list-style-type: none"> • N networks. • a admin functions. • s start cases. • I this procedure is a Sub-procedure. • H this procedure has a Sub-procedure. • m management reports. • M Management reports exist. • P Auto purge ON. • w Working days. • h hidden case description. • o optional case description. • Ø field addressee NA. • T this procedure is a template. • :WTH this procedure is withdrawn. • :REL this procedure is released. • :UNR this procedure is unreleased. • :INC this procedure is incomplete. • :MOD this procedure is a model. • :WIC WITHDRAWN_INC. • :DEL this procedure is deleted.
Name	The name of the procedure.

Column	Description
Description	The description of the procedure.
NumCase	Displayed if the <code>plist -pX</code> command is used. The latest started case number.
Version	Displayed if the <code>plist -pv</code> or <code>plist -pvX</code> command is used. This column displays the procedure version number in <code>X:Y</code> format, where: <ul style="list-style-type: none"> <code>X</code> is the major version number. <code>Y</code> is the minor version number.
StartStep	Displayed if the <code>plist -pv</code> or <code>plist -pvX</code> command is used. The name of the start step for the procedure.
CurCases	Displayed if the <code>plist -pvX</code> command is used. The total number of cases in a procedure.
DedCases	Displayed if the <code>plist -pvX</code> command is used. The total number of dead cases in a procedure.

Example

The following examples show the output procedure information of the commands.

- Input the `SWDIR/util/plist -p` command. The output is shown as follows.

Owner	Number	Flags	Name	Description
Administ	1:1	-----P-:REL	\$EMAIL	Electronic Mail
Administ	3:1	-H-----W:REL	TESTFUL	Automated Test
Framework				
Administ	4:1	--I-----W:REL	TESTPRC1	Automated Test Proc

- Input the `SWDIR/util/plist -pX` command. The output is shown as follows.

Owner	Number	Flags	Name	Description	NumCases

```

Administ 1:1 -----P-:REL $EMAIL Electronic Mail      0
Administ 2:1 -----P-:REL $SYSTEM System Info          0
Administ 3:1 -----W:INC  TP1                               0
Administ 4:1 -----W:INC  TEST                              0

```

- Input the `SWDIR/util/plist -pv` command. The output is shown as follows.

Name	Flags	Version	StartStep	Directory
\$EMAIL	-----P-:REL	0:0	MESSAGE1	\$email.p
\$SYSTEM	-----P-:REL	0:0	SYSINFO	\$system.p
TESTFUL	-H-----W:REL	0:0	FULSCR01	testful.p
TESTPRC1	--I-----W:REL	0:1	START	testprc1.p

- Input the `SWDIR/util/plist -pvX` command. The output is shown as follows.

Name	Flags	Version	StartStep	Directory	NumCase	CurCases	DedCases
\$EMAIL	-----P-:REL	0:0	MESSAGE1	\$email.p	0	0	0
\$SYSTEM	-----P-:REL	0:0	SYSINFO	\$system.p	0	0	0
TP1	-----W:INC	0:0		tp1.p	0	0	0
TEST	-----W:INC	0:0		test.p	0	0	0

Installed and Uninstalled Table Information

This section lists the plist commands that return the installed or uninstalled tables information.

Installed Table Information

Command

The following commands output the installed table information:

- To return the information about installed table items:
`plist -s [nodename]`
- To return additional information about Subfield, Type, Length, and Decimal:
`plist -sv`

Example

The following examples show the output node information of the commands.

- Input the `SWDIR/util/plist -s` command. The output is shown as follows.

```
Name
----
HARDWARE
SOFTWARE
CUSTOMERS
PROSPECTS
```

- Input the `SWDIR/util/plist -sv` command. The output is shown as follows.

Name	Subfield	Type	Length	Decimal

PROSPECTS				
	CONAME	A	20	0
	STREET	A	20	0
	TOWN	A	20	0
	COUNTY	A	20	0
	POST	A	20	0
	COUNTRY	A	20	0

Uninstalled Table Information

Command

The following commands output the uninstalled table information:

- To return the information about uninstalled table items:
`plist -t [nodename]`
- To return additional information about uninstalled table items:
`plist -tv`

Returns

The output contains the same column names as the output of the `SWDIR/util/plist -s` command. For more information, see Example in [Installed Table Information](#).

Role Information

Command

The following command returns the information about the user's roles:

```
plist -r [nodename]
```

Returns

The `plist -r` command returns the following information.

Column	Description
Name	Name of the role.
User	Name of the (user or group) queue that the role is assigned to.

Example

Input the `SWDIR/util/plist -r` command. The output is shown as follows.

```
Name                User
-----
LOAN MANAGER        Dev1@ipc_nod1
```

Long Term Locked Item Information

Command

The following commands output the long term locked item information:

- To return the information about long term locked items:

```
plist -l [username]
```

- To return Locker, UserName, and RQID information:

```
plist -lv
```

Returns

The `plist -l`, and `plist -lv` commands return the following information.

Column	Description
Locker	User who has the work item locked (for example, when in group mailbox).
Procnum	The procedure number. The number of times the record is used.
RQID	The unique reference assigned internally.

Example

The following examples show the output node information of the commands.

- Input the `SWDIR/util/plist -l` command. The output is shown as follows.

```
Q      Node Procname Case# Stepname Flags      Case Description
-----
```

- Input the `SWDIR/util/plist -lv` command. The output is shown as follows.

```
Q Node Flags Locker UserName Host Procnum Procname Casenum Dirname
RQID Deadline-time
-----
```

Mail Item Information

Command

The following commands output the mail item information:

- To return the information about mail items:
`plist -m <queueName> | ALLQUEUES`
- To return work queue parameters:
`plist -mW <queueName>|ALLQUEUES`
- To return Locker, Username, Host, Procnum, Stepname, RQID, and Deadline-time:
`plist -mv <queueName> | ALLQUEUES`
- To return Case-Description, Case-Starter, Step-Description, Procedure-Description, Step-Flags, Proc-Flags, Arrival-time, and PVer:
`plist -mvv <queueName> | ALLQUEUES`

Returns

The `plist -m`, `plist -mv`, `plist -mvv`, and `plist -mW` commands return the following information.

Column	Description
QName	The name of the queue.
RQID	The unique reference assigned internally.
Case#	The case number. It can be the CID or CCR. The CID is the case ID, a unique reference used internally by TIBCO iProcess Engine. The CCR is the case-control record number.
Flags	The meaning for each flag is: <ul style="list-style-type: none"> • s mail suspended. • m item has no memos (for WIS only). • r item awaiting forwarding (for WIS only).

Column	Description
	<ul style="list-style-type: none"> • T test mail. • G item is locked for long-term. • f not available for opening or forwarding. • U invalid addressee. • S start step. • X the deadline. • D this mail has a deadline. • P this mail has been purged. • L item is open and locked by the user. • N new piece of mail. • F free record.
Locker	<p>Displayed if the <code>plist -mv</code> or <code>plist -mvv</code> command is used.</p> <p>The user who has the work item locked (for example, when in group mailbox).</p>
UserName	<p>Displayed if the <code>plist -mv</code> or <code>plist -mvv</code> command is used.</p> <p>The user who owns this queue, or the group who owns this work item.</p>
Host	<p>Displayed if the <code>plist -mv</code> or <code>plist -mvv</code> command is used.</p> <p>The node ID, which is associated with the work item.</p>
Procnum	<p>Displayed if the <code>plist -mv</code> or <code>plist -mvv</code> command is used.</p> <p>The procedure number. The number of times the record is used.</p>
Procname	<p>Displayed if the <code>plist -mv</code> or <code>plist -mvv</code> command is used.</p> <p>The name of the procedure.</p>
Casenum	<p>Displayed if the <code>plist -mv</code> or <code>plist -mvv</code> command is used.</p> <p>The Case number.</p>

Column	Description
Stepname	The name of the step.
Pno	Displayed if the <code>plist -mv</code> or <code>plist -mvv</code> command is used. The place number. It is a unique number allocated to each step.
Deadline-time	Displayed if the <code>plist -mv</code> or <code>plist -mvv</code> command is used. The date and time when the deadline (if defined) expires on the work item.
Case-Description	Displayed if the <code>plist -mvv</code> command is used. The description of the case, which the work item belongs to.
Case-Starter	Displayed if the <code>plist -mvv</code> command is used. The user who started the case, which the work item belongs to.
Step-Description	Displayed if the <code>plist -mvv</code> command is used. The description of the step.
Procedure-Description	Displayed if the <code>plist -mvv</code> command is used. The description of the procedure, which generated the work item.
Step-Flags	Displayed if the <code>plist -mvv</code> command is used. The meaning for each flag is: <ul style="list-style-type: none"> • W means withdraw. • V means view. • R means rebuild. • O means outonly. • F means forward. • E means edit. • S means status.

Column	Description
	<ul style="list-style-type: none"> • d means deadline. • a means action. • D means document. • A means address.
Proc-Flags	<p data-bbox="420 558 1016 585">Displayed if the <code>plist -mvv</code> command is used.</p> <p data-bbox="420 617 789 644">The meaning for each flag is:</p> <ul style="list-style-type: none"> • N networks. • a admin functions. • s start cases. • I this procedure is a Sub-procedure. • H this procedure has a Sub-procedure. • m management reports. • M Management reports exist. • P Auto purge ON. • w Working days. • h hidden case description. • o optional case description. • Ø field addressee NA. • T this procedure is a template. • :WTH this procedure is withdrawn. • :REL this procedure is released. • :UNR this procedure is unreleased. • :INC this procedure is incomplete. • :MOD this procedure is a model.

Column	Description
	<ul style="list-style-type: none"> • :WIC WITHDRAWN_INC. • :DEL this procedure is deleted.
Arrival-time	<p>Displayed if the <code>plist -mvv</code> command is used.</p> <p>The timestamp when the work item is delivered to the queue.</p>
PVer	<p>Displayed if the <code>plist -mvv</code> command is used.</p> <p>The version number of the procedure, which generated the work item.</p>

Example

The following examples show the output node information of the commands.

- Input the `SWDIR/util/plist -m queue` command where `queue` is the name of the queue. The output is shown as follows.

QName	ReqID	PName	Case#	Stepname	Flags	Case
Description						
queue	301	MORT01	201	TAKEAPP	----S-----	Rain
queue	951	MORT01	601	REVAPP	-----N-	test
queue	952	MORT01	551	REVAPP	-----N-	test
queue	1051	MORT01	701	TAKEAPP	----S-----	t
queue	1201	MORT01	801	REVAPP	-----N-	qq
queue	1251	MORT01	651	REVAPP	-----N-	xxx

- Input the `SWDIR/util/plist -mW queue` command where `queue` is the name of the queue. The output is shown as follows.

QName	ReqID	PName	Case#	Stepname	Flags	Case
Description						
queue	301	MORT01	201	TAKEAPP	----S-----	Rain
	WQParam1 =					
	WQParam2 =					
	WQParam3 =					
	WQParam4 =					
queue	951	MORT01	601	REVAPP	-----N-	test
	WQParam1 =					

```
WQParam2 =
WQParam3 =
WQParam4 =
```

- Input the `SWDIR/util/plist -mv queue` command where `queue` is the name of the queue. The output is shown as follows.

```
QName  Flags Locker  UserName Host  Procnum Procname Casenum
Stepname Pno RQID      Deadline-time
-----
queue  ----S----- swadmin@ipe113 ipe113 3:1  MORT01  201:201
TAKEAPP 3   301      3000/365 23:15
queue  -----N-      ipe113 3:1  MORT01  601:601
REVAPP 4   951      3000/365 23:15
queue  -----N-      ipe113 3:1  MORT01  551:551
REVAPP 4   952      3000/365 23:15
queue  ----S----- swadmin@ipe113 ipe113 3:1  MORT01  701:701
TAKEAPP 3  1051      3000/365 23:15
queue  -----N-      ipe113 3:1  MORT01  801:801
REVAPP 4  1201      3000/365 23:15
queue  -----N-      ipe113 3:1  MORT01  651:651
REVAPP 4  1251      3000/365 23:15
```

- Input the `SWDIR/util/plist -mvv ALLQUEUES` command. The output is shown as follows.

```
Flags Locker UserName Host Procnum Procname Casenum Stepname Pno
RQID Deadline-time Case-Description Case-Starter Step-
Description Procedure-Description Step-Flags Proc-Flags Arrival-
time PVer
-----
-----S----- administrator@sql_11_3_0 sql_11_3_0 3:1 SS1 51:51
STEP1 3   51      3000/12/31 23:15 dd1
      administrator@sql_11_3_0 -
-R---S-aDA -----W:UNR 2012/06/26 10:14 0.0
-----S----- administrator@sql_11_3_0 sql_11_3_0 3:1 SS1 101:101
STEP1 3  101      3000/12/31 23:15 tt2
administrator@sql_11_3_0 --R---
S-aDA -----W:UNR 2012/06/26 15:40 0.0
```

User Information

Command

The following commands output the user information:

- To return the information about users:
`plist -u [nodename]`
- To return additional information about the directory:
`plist -uvx`

Example

The following examples show the output node information of the commands.

- Input the `SWDIR/util/plist -u` command. The output is shown as follows.

```
Name
-----
Administrator
Agent
COMUsers
Dev1
Dev2
Dev3
Dev4
```

- Input the `SWDIR/util/plist -uvx` command. The output is shown as follows.

```
Administrator:C:\swserver\ipc_nod1\queues
Agent:C:\swserver\ipc_nod1\queues
COMUsers:C:\swserver\ipc_nod1\queues
Dev1:C:\swserver\ipc_nod1\queues
Dev2:C:\swserver\ipc_nod1\queues
Dev3:C:\swserver\ipc_nod1\queues
Dev4:C:\swserver\ipc_nod1\queues
FranMgr:C:\swserver\ipc_nod1\queues
```

WIS Queue Information

Command

The following command returns the information about WIS queue:

```
plist -w [WIS Number]
```

where WIS number is an option to only display the details for a specific Work Item Server.

Returns

The `plist -w` command returns the following information.

Column	Description
WIS	The number of the WIS (starting from 0). For example, if you have 5 WISes, the number of each WIS should be 0, 1, 2, 3, and 4.
QueueName	The name of the queue allocated to WIS.
Flags	<p>The meaning for each flag is as follows:</p> <ul style="list-style-type: none">• D specifies the queue is disabled (this would normally be when the system has just been started and the queues have not yet been allocated to a WIS).• U specifies there are urgent items in this queue.• G specifies this is a group queue.• T specifies this is a test queue.• D specifies there are items in this queue with deadlines set.• N specifies there is new mail in this queue.• M specifies there is mail in this queue (i.e. it is not empty).
#Items	The number of items in the queue.

Column	Description
#NewP	The number of new items in the queue.
#Dead	The number of items in the queue with deadlines.
#Urgent	The number of urgent items in the queue.

Example

Input the `SWDIR/util/plist -w` command. The output is shown as follows.

WIS	QueueName	Flags	#Items	#Newp	#Dead	#Urgent
1	Administrator	-----NM	6	6	0	0
2	Agent	--G--NM	8	8	0	0
1	COMUsers	--G----	0	0	0	0
2	Dev1	-----M	1	0	0	0

Shared memory slots in use: 1.3%

Note

For more information about how to use this command, see [Monitoring the WIS Processes](#).

Case Information

Command

The following commands output the case information:

- To return the information about cases:

```
plist -c [nodename] <procname>
```

or

```
plist -cv [nodename] <procname>
```

- To return Mail:

```
plist -cX [nodename] <procname>
```

or

```
plist -cvX [nodename] <procname>
```

- To return PVer and PPrc:

```
plist -cvv [nodename] <procname>
```

Returns

The `plist -c`, `plist -cv`, `plist -cX`, `plist -cvv`, and `plist -cvX` commands return the following information.

Column	Description
CNum	The unique case number.
CID	The case ID, which is a unique reference used internally by TIBCO iProcess Engine. It is sometimes referred to as a case-control record number or CCR.
Sts	The case status, LIVE or DEAD.
yyyy/ddd hh:mm	If the case status is Dead, the column displays the date and time when starting the case, otherwise, it displays nothing.
Case Description	Information about the case.
Starter	User who started the case.
Mail	Displayed if the <code>-X</code> option is used. The number of the outstanding addressees.
PVer	Displayed if the <code>-plist -cvv</code> command is used. The version number of the procedure.
PPrc	Displayed if the <code>-plist -cvv</code> command is used. The procedure precedence. Three characters are displayed in the output, the order of the characters

Column	Description
	represents the procedure precedence.
	The meaning for each character is:
	<ul style="list-style-type: none"> • u specifies the Unreleased procedure. • m specifies the Model procedure. • r specifies the Released procedure.

Example

The following examples show the output node information of the commands.

- Input the `SWDIR/util/plist -c maintem` command where `maintem` is the procedure name. The output is shown as follows.

CNum hh:mm	CID	Sts	Case Description	Starter	yyyy/dd

1452 12:30	1452	DEAD	ex1	Dev1@ipc_nod1	2012/097
1453 14:31	1453	LIVE	con1	Dev1@ipc_nod1	2012/097
1454 14:33	1454	DEAD	con2	Dev1@ipc_nod1	2012/097
1455 14:34	1455	DEAD	con3	Dev1@ipc_nod1	2012/097
1456 15:25	1456	LIVE	lab3.2.7	Dev1@ipc_nod1	2012/097
1502 12:18	1502	DEAD	ex2	Dev1@ipc_nod1	2012/097
1503 18:21	1503	DEAD	3.2.4	Dev1@ipc_nod1	2012/097
1504 15:48	1504	LIVE	3.2.1.2	Dev1@ipc_nod1	2012/097
1505 16:53	1505	DEAD	3.2.a	Dev1@ipc_nod1	2012/097
1552 12:29	1552	DEAD	ex3	Dev1@ipc_nod1	2012/097

- Input the `SWDIR/util/plist -cX ss1` command where `ss1` is the procedure name. The output is shown as follows.

CNum	CID	Sts	Case	Description	Starter	Mail	yyyy/ddd hh:mm
1	1	DEAD	aa1		administrator@sql	0	2012/178 10:12
51	51	LIVE	dd1		administrator@sql	1	3000/365 23:15
101	101	LIVE	tt2		administrator@sql	1	3000/365 23:15

- Input the `SWDIR/util/plist -cvv ss1` command where `ss1` is the procedure name. The output is shown as follows.

CNum	CID	Sts	Case	Description	Starter	yyyy/ddd hh:mm
1	1	DEAD	aa1		administrator@sql_11_3_0	2012/178 10:1
2	0.0	umr				
51	51	LIVE	dd1		administrator@sql_11_3_0	
0.0	umr					
101	101	LIVE	tt2		administrator@sql_11_3_0	
0.0	umr					

Subcase Information

Command

The following command returns the information about sub-cases:

```
plist -C [nodename] <procname>
```

Returns

The `plist -C` command returns the following information.

Column	Description
CNum	Case number.
CID	The case ID, which is a unique reference used internally by TIBCO iProcess Engine. It is sometimes referred to as a case-control record number or CCR.
yyyy/ddd hh:mm	If the case status is Dead, the column displays the date and time when starting the case, otherwise, it displays nothing.
Case Description	Information about the case.
Starter	User who started the case.

Example

Input the `SWDIR/util/plist -C maintem` command where `maintem` is the procedure name. The output is shown as follows.

CNum	CID	Sts	Case Description	Starter	yyyy/ddd	hh:mm
1	1	(null)	-D-	case1	swadmin@swnod012	2012/097 12:30
101	101	(null)	-D-	test2	swadmin@swnod012	2012/097 14:31
201	201	(null)	---	test3	swadmin@swnod012	2012/097 14:33

Step Information

Command

The following command returns the information about steps:

```
plist -d [nodename] <procname>
```

Returns

The `plist -d` command returns the following information.

Column	Description
Flags	<p>The meaning for each flag is as follows:</p> <ul style="list-style-type: none"> • W auto-withdraw on deadline expires. • V view. • R dynamic rebuilding. • O output only. • F forwarding. • E edit. • S status. • d deadlines. • a actions. • D document. • A addressee.
Types	<p>The meaning for each type is as follows:</p> <ul style="list-style-type: none"> • 0 step. • 1 management report. • 2 script. • 3 event. • 4 EIS. • 5 SUBPROC. • 6 NULLSTPE. • 7 EAI STEP. • 8 INTERNAL. • 9 MULTISUBPROC. • 10 GRAFTSTEP. • 11 TCS.

Column	Description
Place	The unique number that is allocated to each step.
ExFlags	<p>The meaning for each flag is as follows:</p> <ul style="list-style-type: none"> • I specifies the step ignores the Case Suspend Function. • S specifies TIBCO iProcess Engine form. • P specifies the step ignores the Case Suspend Function.

Example

Input the `SWDIR/util/plist -d maintem` command where `maintem` is the procedure name. The output is shown as follows.

Flags	Type	Name	Description	Place	ExFlags	Lines
-----S-aDA	0	\$PANIC1	Exception notification	1	0	4096
-----S-aDA	0	\$PANIC2	Exception resolution	2	0	4096
--R---SdaDA	0	TAKEAPP	Take Application	3	0	45
--R---SdaDA	0	REVAPP	Review Application	4	0	5
--R---S-aDA	0	NOTIFY	Manager Notification	5	0	4
--R---SdaDA	0	APPRAISE	Property Appraisal	6	0	10
--R---SdaDA	0	ACCTREV	Account Review	8	0	13
--R---S-aDA	0	DECLINED	Application Declined	9	0	9

Field Information

Command

The following command returns the information about fields:

```
plist -f [nodename] <procname>
```

Returns

The `plist -f` command returns the following information.

Column	Description
Offset	The position in the pack file that the case data is kept.
Name	The field name.
Typ	The meaning for each type is as follows: <ul style="list-style-type: none"> • A ASC II • R real. • D date. • M management report field. • F memo. • C composite. • T time. • X attachment.
MID	The memo ID.
Marks	Not in use.
Flags	Not in use.

Example

Input the `SWDIR/util/plist -f maintem` command where `maintem` is the procedure name. The output is shown as follows.

Offset	Name	Typ	Len	DP/MID	Marks	Flags	Dbase
0	\$PANICDIR	A	8	0	0	0000h	
10	\$PANICFLD	A	15	0	0	0000h	
27	\$PANICRSP	A	1	0	0	0000h	

Step Status Information

Command

The following command returns the information about step status:

```
plist -D [nodename] <procname>
```

Returns

The `plist -D` command returns the following information.

Column	Description
Options	<p>The meaning for each option is as follows:</p> <ul style="list-style-type: none"> • W withdraw. • O outstanding. • R released. • . not processed.

Example

Input the `SWDIR/util/plist -D maintem` command where `maintem` is the procedure name. The output is shown as follows.

```
Step Status Listing for procedure: TEM2051
Case  : $$TRNAADAR RARRARUE
      : PPAEOPCECE EWEECEPD
      : AAKVTPCCCM TACMCSDI
      : NNEAIRTLEI RIEIRUAT
      : IIAPFARIPN YTINELT
      : CCPYIENTD  VDVTE
      : 12P  SVEEE  E  S
      :      E  DDR
=====
1452  : ..RRR.....
1453  : ..RRWRR.R. ....
1454  : ..RRWR.R.. ....
```

```

1455 : ..RRWRRR.. .....
1456 : ..RRWRR.R. ....
1502 : ..RRW..... .....
1503 : ..RRWRR.RR .....
1504 : ..RRWRR.R. ....
1505 : ..RRWR.R.. R.....
1552 : ..RRW..... .....

```

Audit Trail Information

Command

The following command returns the information about audit trail:

```
plist -a [nodename] <procedure> ALL|<casenum>
```

Returns

The `plist -a` command returns the following information.

Column	Description
Step Description	The description of the steps.
Event	The description of the event.
User	The name of the user who performed this audit event.
yyyy/ddd hh:mm	The date and time when the audit event occurred.

Example

Input the `SWDIR/util/plist -a maintem all` command where `maintem` is the procedure name. The output is shown as follows.

Step	Description	Event	User	yyyy/mm/dd	hh:mm
		Start	Dev1@ipc_nod1	2012/04/06	12:10
Take Application		Processed To	Dev1@ipc_nod1	2012/04/06	12:10
Take Application		Released By	Dev1@ipc_nod1	2012/04/06	12:11
Review Application		Processed To	Agent@ipc_nod1	2012/04/06	12:11
Review Application		Expired	Agent@ipc_nod1	2012/04/06	12:11
Manager Notification		Processed To	Dev1@ipc_nod1	2012/04/06	12:11
Review Application		Released By	Dev1@ipc_nod1	2012/04/06	12:12
Manager Notification		Released By	Dev1@ipc_nod1	2012/04/06	12:30
		Terminated		2012/04/06	12:30

Group Membership Information

Command

The following command returns the information about group membership:

```
plist -G [nodename] <group>|<user>
```

Returns

The output varies according to whether a username or a group name is specified in the command.

Example

Input the `SWDIR/util/plist -G super1` command where `super1` is a group name. The output is shown as follows.

```
Groups for user: super1
-----
OFFICER
Members of Group: officer
-----
Administrator
Super2
Super3
Super4
```

Super99
Super1

Attribute Value Information

Command

The following command returns the information about attribute values:

```
plist -A [nodename] <group>|<user>
```

Returns

The `plist -A` command returns the following information.

Column	Description
Attribute	An item of information about a user.
Value	The specific information of the attribute for the user.

Example

Input the `SWDIR/util/plist -A swadmin` command where `awadmin` is a user name. The output is shown as follows.

Attribute	Value
-----	-----
DESCRIPTION	Dev1
LANGUAGE	English
MENUNAME	PRODEF
QSUPERVISORS	Super1
SORTMAIL	PROCEDURE
USERFLAGS	

Outstanding Mail Information

Command

The following command returns the information about outstanding mail:

```
plist -o <procedure> ALL|<casenum> ALL|<queue> ALL|<node>
```

Returns

The `plist -o` command returns the following information.

Column	Description
Casenum	Unique case number for this case.
Case Description	Cases description supplied when the case starts.
Stepname	The name of the outstanding step.
Addressee	The name of the queue that the outstanding step has been sent to.
CaseID	The unique ID of the work item.

Example

Input the `SWDIR/util/plist -o maintem 1254 all all` command where `maintem` is the procedure, `1254` is the case number. The output is shown as follows.

Casenum	Case Description	Stepname	Addressee	CaseID
1254	mkw requesting vehicle	AUTH_OCS	user27@mkw2000	3629

Procedure Version Information

Command

The following command returns the information about procedure version:

```
plist -P [ALL [version|ALLVERS]]<procname> [version|ALLVERS]]
```

Returns

The `plist -P` command returns the following information.

Column	Description
Procedure	The name of the procedure.
Version	This column displays the procedure version number in <i>X.Y</i> format where: <ul style="list-style-type: none">• <i>X</i> is the major version number.• <i>Y</i> is the minor version number.
User	The user who created the procedure in this version.
Status	This column displays the status of the procedure: <ul style="list-style-type: none">• Released• Incomplete• Unreleased• Model• Withdrawn
Comment	The unique ID of the work item.

Example

Input the `SWDIR/util/plist -P` command. The output is shown as follows.

Procedure:\$EMAIL		Status	Comment
Version	User		
0.0	swadmin	RELEASED	New Procedure Imported

Procedure:\$SYSTEM		Status	Comment
Version	User		
0.0	swadmin	RELEASED	New Procedure Imported

Queue Participation Information

Command

The following command returns the information about queue participation:

```
plist -Q
```

Returns

The `plist -Q` command returns the following information.

Column	Description
Queue Name	The name of the queue that this participation record allows users to participate in.
Days	The days of the week that users can participate in the specified Queue Name column. For example, -TWT-SS indicates every day except Monday or Friday.
Date Range	Date and time when participation starts and ends.
User	The user who is allowed to participate.

Example

Input the `SWDIR/util/plist -Q` command. The output is shown as follows.

Queue Name	Days	Date Range	User
*swadmin	MTWTFSS		martynw
martynw	MTWTF--	2000/03/09 09:00 2000/03/10 18:00	swuser1

Queue Redirection Information

Command

The following command returns the information about queue redirection:

```
plist -R
```

Returns

The `plist -R` command returns the following information.

Column	Description
Queue Name	The name of the queue from which work items are redirected.
Destination	The name of the queue to which work items are redirected.
Start	The date and time when the queue redirection starts.
End	The date and time when the queue redirection ends.

Example

Input the `SWDIR/util/plist -R` command. The output is shown as follows.

Queue Name	Destination	Start	End

martynw	swadmin	2000/03/09 18:00	2000/03/10 09:00
		2000/03/10 09:00	2000/03/10 09:00

Pool Server Performance Information

Command

The following command returns the information about pool server performance:

```
plist -T[g] <pool svr id|ALL> [interval [count]]
```

Returns

The `plist -T` command returns the following information.

Column	Description
Pool Svr ID	The RPC Pool Server ID.
Svr Up Time	(Not in use.) Cases description supplied when the case starts.
Svr Work Time	(Not in use.) The RPC Pool Server work time.
Num Users	The total numbers of users who connected to the RPC Pool Server.
Date/Time	The date and time when the command was run.

Example

Input the `SWDIR/util/plist -T ALL 60 60` command. The command example provides performance data for all RPC pool servers every 60 seconds for the next hour. The output is shown as follows.

Pool Svr ID	Svr Up Time	Svr Work Time	Num Users	Date / Time
10	0	0	10	2012/04/25 11:53

Mbox Information

Command

The following command returns the number of messages and the corresponding queue names that belong to the specified Mbox set:

```
plist -M <MboxSetName[,MboxSetName[,MboxSetName]...][interval]>
```

where:

- `MboxSetName` is the descriptive name of the Mbox set.
- `interval` is the time interval (in seconds) that the command returns an output.



Note: The command keeps returning an output until you stop it. To stop running the command, press Ctrl+C.

Returns

The `plist -M` command displays the following information.

Column	Description
Timestamp	The time when returning an output.
<i>queue_name</i> (the first column after the Timestamp row)	<p>The descriptive name of the queue that belongs to the Mbox set you specified in the input.</p> <p>See Administering Message Queues and Mbox Sets for more information about Mbox sets, message queues, and messages.</p>

Column	Description
<i>number_of_messages</i>	The total number of messages in the queue.
(the second column after the Timestamp row)	

Example

Input the `SWDIR/util/plist -M BGMBSET, WMDMBSET 5` command where BGMBSET and WMDMBSET are the name of the Mbox set, and 5 is the time interval. The output is shown as follows.

```
Timestamp          2012-04-13_14:06:53
BGMBBOX1           0
BGMBBOX2           0
WISMBBOX1          0
WISMBBOX2          0
Timestamp          2012-04-13_14:06:58
BGMBBOX1           0
BGMBBOX2           0
WISMBBOX1          0
WISMBBOX2          0
```

Information about OS or UVAPI Users

Command

The following command returns the information about OS or TIBCO iProcess User Validation API users:

```
plist -U
```

The command output depends on your setting in the `SWDIR\etc\staffpms` file. If you specified the pathname of the user validation package on line 15 in the `staffpms` file, then the output displays the validation system user accounts. Otherwise, it displays the operating system user accounts.

For more information about TIBCO iProcess User Validation API, see *TIBCO iProcess User Validation API User's Guide*. For more information about configuring the staffpms file, see [Specifying an External User Validation Package](#).

Returns

The `plist -U` command returns the following information.

Column	Description
Name	The name of the user.
Description	User description.

Example

Input the `SWDIR/util/plist -U` command. The output is shown as follows.

```
name                                description
-----
Administrator\Administrator
ClientName\Dev1                    Dev1
ClientName\Dev2                    Dev2
ClientName\Dev3                    Dev3
ClientName\Dev4                    Dev4
```

System Event Information

Command

The following command returns information about system events:

```
plist -e <typeid[,typeid...]|ALL> [username[,username...]|ALL [startdate  
[enddate]]]
```

where:

- `typeid` is the ID of a system event.

To review system events and their corresponding ID, see the `sysevents.cfg` file in the `SWDIR/etc/english.lng` directory.

- `username` is the iProcess user who performed the system event.
- `startdate` is the date from which the information about system events is returned. The format of this parameter is `DD/MM/YYYY`.
- `enddate` is the date after which the information about system events is not returned. The format of this parameter is `DD/MM/YYYY`.

Returns

The `plist -e` command returns the following information:

Column	Description
Event	The ID of a system event.
User	The name of the iProcess user who performed this event.
yyyy/mm/dd	The date when this event occurred.
hh:mm:ss	The time when this event occurred.
Details	The description of this event.

Example

Input the `SWDIR/util/plist -e ALL ALL` command. The output is shown as follows.

```

Event User      yyyy/mm/dd hh:mm:ss      Details
-----
---
48 pro 2014/06/13 12:48:46 Shutdown process (Machine ID = 1, Process Name =
BG, Process Instance = 4)
48 pro 2014/06/13 12:48:46 Shutdown process (Machine ID = 1, Process Name =
BG, Process Instance = 3)
40 pro 2014/06/13 14:51:56 Shutdown Sentinel (Machine ID = 1, Machine Name
= DESPINA)

```

TIBCO Documentation and Support Services

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

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Product-Specific Documentation

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

To directly access documentation for this product, double-click the following file:

`TIBCO_HOME/release_notes/TIB_ipe_11.9.0_docinfo.html` where `TIBCO_HOME` is the top-level directory in which TIBCO products are installed. On Windows, the default `TIBCO_HOME` is `C:\tibco`. On UNIX systems, the default `TIBCO_HOME` is `/opt/tibco`.

The following documents for this product can be found in the TIBCO Documentation site:

- *TIBCO iProcess® Engine Architecture Guide*
- *TIBCO iProcess® Engine Configuration Guide for Cloud*
- TIBCO iProcess® Engine Administrator's Guides:
 - *TIBCO iProcess® Engine Administrator's Guide*
 - *TIBCO iProcess® Objects Director Administrator's Guide*
 - *TIBCO iProcess® Objects Server Administrator's Guide*
 - *TIBCO iProcess® Engine Administration Console User Guide*
- TIBCO iProcess® Engine Database Administrator's Guides:
 - *TIBCO iProcess® Engine (DB2) Administrator's Guide*

TIBCO iProcess® Engine (Oracle) Administrator's Guide

TIBCO iProcess® Engine (SQL) Administrator's Guide

TIBCO iProcess® swutil and swbatch Reference Guide

- *TIBCO iProcess® Engine System Messages Guide*
- *TIBCO iProcess® User Validation API User Guide*
- *LDAPCONF Utility User Guide*

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