



TIBCO iProcess® Engine for Windows

Installation

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Introduction

This section explains installation modes, requirements, and other options you need to be aware of before starting the installation.

Installation Overview

This section provides an overview of the TIBCO iProcess Engine installer.

- [Installation Modes](#)
- [Installation Types](#)
- [Organization Roles](#)
- [Installer Accounts](#)
- [iProcess Engine Architecture](#)

Installation Modes

The installer can run in the following modes on Microsoft Windows platforms.

- [GUI Mode](#)
- [Silent Mode](#)

GUI Mode

In GUI mode, the installer presents panels that allow you to make choices about product selection, product location, and so on.

To invoke the installer in GUI mode, double-click the executable.

For detailed information, see [Installing TIBCO iProcess Engine in GUI Mode](#).

Silent Mode

In Silent mode, the installer uses a response file that was saved during an earlier installation. Silent mode installs without prompting you for information.

For detailed information, see [Installing TIBCO iProcess Engine in Silent Mode](#).

Installation Types

Two installation types are available, Basic and Custom.

- **Basic**

Choosing the Basic installation type is recommended for new users.

The Basic installation type installs a new iProcess Engine using default components and configuration options whenever possible.

- **Custom**

The Custom installation type is recommended for advanced users.

The Custom installation type allows you to install iProcess Engine under the following circumstances:

- If you want to install a new iProcess Engine, making your own choices for all available configuration options.

- If you want to install a new slave server in a node-cluster iProcess Engine.

A slave server *must* use the same node name as the master server, but you cannot choose the node name when you perform a Basic installation. The Basic installation assigns it automatically.

- If you want to upgrade an existing iProcess Engine installation.

Organization Roles

To install TIBCO iProcess Engine, you will need to perform a number of pre-installation tasks, then run the installer, and finally complete a number of post-installation tasks.

Each of these stages requires the involvement of one or both of the organizational roles described in [Organization Roles During Installation](#).

Organization Roles During Installation

Role	Knowledge Required	Permissions Required
iProcess Files-install Owner	iProcess Engine configuration (including all optional iProcess Engine components) Database configuration	To install and configure iProcess Engine files and directories
iProcess Schema-install Owner	Database configuration	To create and configure the iProcess Engine database schema
DBA	Database configuration	To create table spaces and users for iProcess Engine

Depending on your operational and security environment, these roles can be performed either by the same person or by different departments or individuals.

**Warning****For Oracle users:**

When you run the installer, you must have access to an Oracle DBA account that has the necessary permissions to create tables and users, for example, either with the DBA role assigned or with access to the Oracle Data Dictionary. See [Configuration Options in the Database Details Dialog box - Oracle](#) for details.

If you do not have DBA-level access, the installer will not be able to create the iProcess Engine schema and users in the Oracle database.

**Warning****For SQL Server users:**

TIBCO recommends that you have the name and password of a SQL Server DB Administrator (DBA) account available when you run the installer. This allows the installer to perform all necessary installation tasks.

If you run the installer without DBA-level access, additional manual pre-installation or post-installation tasks will be required in order to perform the installation. See [Pre-installation Tasks](#) and [Post-installation Tasks](#) for details.

Installer Accounts

The following installer accounts will be used during the TIBCO iProcess Engine installation:

- [IPEINSTALL](#)
- [IPEADMIN](#)
- [IPESERVICE](#)

IPEINSTALL

IPEINSTALL is a Windows user account used to install TIBCO iProcess Engine.

- The IPEINSTALL user account *must* be a member of the Administrators group on the computer where you are installing iProcess Engine. If you use an account that does not meet this requirement, the installer will immediately exit with an error. See [The Installer Exits Because You Are Not a Local Administrator](#) for details.
- The IPEINSTALL user account also determines which Windows accounts you will be able to use as the IPEADMIN and IPESERVICE users:
 - If you perform a [Basic](#) installation, the IPEINSTALL user account will also be used as the IPEADMIN and IPESERVICE users. You cannot choose a different account for these users.
 - If you perform a [Custom](#) installation, the location of the IPEINSTALL user account will determine the accounts that are available for you to choose as the IPEADMIN and IPESERVICE users. You can only choose accounts for these users from the same location (local machine, domain or trusted domain) as the IPEINSTALL user.
- The location of the IPEINSTALL user account also determines the default value of the OS_USER_LOCATIONS process attribute, which defines where iProcess Engine obtains the list of users when it populates the O/S User List in the TIBCO iProcess Administrator User Manager tool. See *TIBCO iProcess Engine Administrator's Guide* for more information about this attribute.

IPEADMIN

IPEADMIN is a Windows user account used to administer TIBCO iProcess Engine.

IPEADMIN permissions are required to perform tasks such as:

- starting, stopping, and configuring iProcess Engine.

- running utilities, such as `SWDIR\bin\swutil` or `SWDIR\util\LDAPCONF`.

IPESERVICE

IPESERVICE is a Windows user account used to run TIBCO iProcess Engine, specifically:

- the iProcess *nodeName* Process Sentinels service, which runs all iProcess Engine processes.
- the iProcess Events64 COM+ application, which provides the publish or subscribe event mechanism used for inter-process communication by iProcess Engine processes.



Note

By default, the Windows user account that is used as the IPEADMIN user will also be used as the IPESERVICE user.

However, depending on your site's operational policies, this may not be acceptable. For example, if a user types an incorrect password of the IPEADMIN user account, the account may be locked out. If this also locks out the IPESERVICE account, you will not be able to start the iProcess *nodeName* Process Sentinels service and the iProcess Events64 COM+ application. In this situation, separate accounts would probably be more suitable.

When you run the installer, you can choose to use separate Windows accounts for the IPEADMIN and IPESERVICE users, but to do so, you must perform a [Custom](#) installation, rather than a [Basic](#) one.

iProcess Engine Architecture

iProcess Engine can be installed using either of the following architectures:

- **Single Server**—The iProcess Engine node is installed and run on a single server.
- **Node Cluster**—The iProcess Engine node is distributed across multiple servers, each of which runs iProcess Engine processes. One server acts as the master server, while all other servers in the cluster are slave servers.



Warning

If you decide to use a node cluster architecture:

- the computers hosting the iProcess Engine master and slave servers *must*
-

all be members of the same domain.

- the IPEADMIN and IPESERVICE users *must* be domain accounts.
-

The master server and all slave servers use the *same* iProcess Engine database schema. The schema can be hosted on an Oracle instance or on a SQL Server database that is either local (to one of the servers in the iProcess node cluster) or remote.

**Note**

The iProcess Engine architecture is scalable. You can convert from a single server to a node cluster at any time simply by adding another server to the installation. See *TIBCO iProcess Engine Architecture Guide* for more information about the iProcess Engine architecture.

Installing the iProcess Engine on a Node Cluster

If you want to install a new iProcess Engine using a node cluster architecture, you must:

1. Install iProcess Engine on the master server (to create the iProcess Engine database schema).
2. Install iProcess Engine on each slave server (to add the server to the node cluster, using the same database schema).

**Note**

Each slave server must use the same installation parameters as the master server (for example, node name, database name, RPC numbers, and Windows account names).

Any specific differences in the installation process for a slave server are noted at the appropriate points in the rest of this documentation.

Upgrading iProcess Engine on a Node Cluster

If you want to upgrade an existing iProcess Engine, either from or to a node cluster architecture, follow the appropriate instructions shown in [Upgrading iProcess Engine on a Node Cluster](#).

Upgrading iProcess Engine on a Node Cluster

To Upgrade...		Do this...
From	To	
single server	single server	Upgrade the iProcess Engine on the single (master) server, using the instructions in this documentation.
node cluster	node cluster	<p>Upgrade the iProcess Engine on the master server, using the instructions in this documentation.</p> <p>Upgrade the iProcess Engine on each slave server, using the instructions in this documentation.</p>
single server	node cluster	<p>Upgrade the iProcess Engine on the single (master) server, using the instructions in this documentation.</p> <p>Install the iProcess Engine on each slave server that you want to add to the node, using the instructions in this documentation.</p>
node cluster	single server	<p>Remove the iProcess Engine on each slave server, using the instructions in the Installation guide for that version.</p> <p>Upgrade the iProcess Engine on the master server, using the instructions in this documentation.</p>

Installation Requirements

This section describes the installation requirements for this product.

- [Supported Platforms](#)
- [Basic System Requirements](#)
- [Additional System Requirements](#)
- [Supported Databases](#)

Supported Platforms

The following Microsoft Windows (x64) platforms are supported:

- Microsoft Windows 10 (64-bit)
- Microsoft Windows Server 2016 (64-bit)
- Microsoft Windows Server 2016 on AWS
- Microsoft Windows Server 2016 (64 Bit) on Azure
- Microsoft Windows Server 2019 (64-bit)

Basic System Requirements

Before installing TIBCO iProcess Engine, make sure your system meets the system requirements listed in [System Requirements](#).

System Requirements

Component	Requirement
Processor	Minimum: single x64-based, 800Mhz Recommended: x64-based, Dual or Quad 2.5 GHz
Memory	Minimum: 512 MB Recommended: 2 GB This value does not include database server memory requirements if the database is installed on the same computer as iProcess Engine.
Disk space	10 MB for the iProcess Engine distribution set during installation 250 MB for the contents of the <i>SWDIR</i> directory structure after installation Oracle The amount of Oracle tablespace needed for iProcess Engine data. See Configuring the Oracle Schema for more information about how to calculate this figure.

Component	Requirement	
	SQL Server	The amount of SQL Server disk space needed for iProcess Engine data.
File system	NTFS	
	FAT partitions are not supported by iProcess Engine.	

Additional System Requirements

Additional system requirements are described:

- [POSIX Threads \(pthreads\)](#)
- [Windows Clustering](#)
- [TIBCO iProcess Objects](#)
- [Activity Publishing and Work Queue Delta Publication](#)
- [Java Runtime Environment \(JRE\)](#)
- [LDAP Directory Service](#)

POSIX Threads (pthreads)

When you install or upgrade to TIBCO iProcess Suite Version 11.9.0 on a Windows system, you must have the following files:

- pthread.dll version 2.7.0 (32-bit)
- pthread.dll version 2.9.1 (64-bit)
- msvcr100.dll

**Note:**

TIBCO has validated Version 2.7.0 with iProcess Engine. If you want to use a later version of the library, contact TIBCO Support to confirm whether or not that version is supported by your iProcess Engine version.

When you install or upgrade TIBCO iProcess Engine to Version 11.9.0, you must use the latest versions of the pthreads library. See [Installing or Upgrading TIBCO iProcess Engine to Version 11.9.0](#).

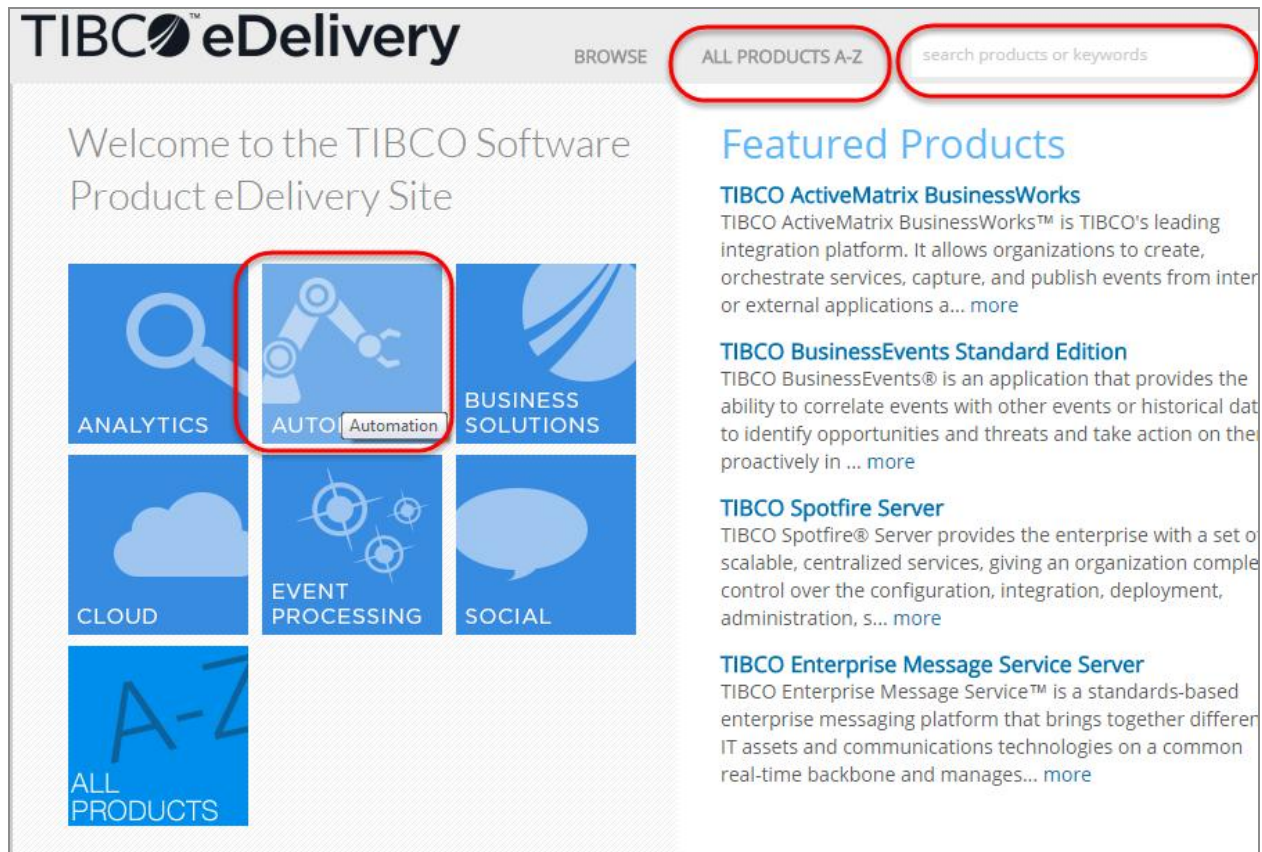
Downloading the pthreads Library

If you do not already have a POSIX Threads (pthreads) library, you can obtain the POSIX Threads (pthreads) for Windows distribution set from TIBCO Software Inc. by downloading it as follows:

1. Go to the TIBCO Software Product Download Site (<https://edelivery.tibco.com>) website.

Entry to this site requires a username and password. If you do not have a username, you can request one.

2. To navigate to the product, you can find the product in one of the following ways:
 - Search the product name in the search field.
 - Click **ALL PRODUCTS A-Z**.
 - Click **AUTOMATION**



3. If you navigate to the product by clicking **AUTOMATION**, click **Business Process Management (BPM)** in the following page.

Browse Products

Automation

- Application Development(25)
- Application Integration(160)
- Business Process Management (BPM)(20)**
- In-Memory Computing(4)
- Master Data Management(139)
- Messaging(33)
- Monitoring and Management(29)

Automation

- TIBCO ActiveMatrix Adapter for Amdocs CRM
↓ Download
- TIBCO ActiveMatrix Adapter for Database
↓ Download
- TIBCO ActiveMatrix Adapter for Files for Unix/Win
↓ Download
- TIBCO ActiveMatrix Adapter for Files for z/Linux
↓ Download
- TIBCO ActiveMatrix Adapter for JD Edwards EnterpriseOne
↓ Download
- TIBCO ActiveMatrix Adapter for Kenan/BP

- Click **Download** under TIBCO iProcess Workspace (Windows) and then click the product version that you want to download.
- Download the zip file (iprocess_win_pthread_2.9.1_installer.zip). It contains the pthread_installer.bat script and the two pthread.dll files.
- Extract and run the script to copy the dll files into %windir% folder. This script will copy the files as follows:
 - x86\pthread.dll to "%windir%\SysWOW64"
 - x64\pthread.dll to "%windir%\system32"
 - x64\msvcr100.dll to "%windir%\system32".



Warning:

If a supported version of the pthread.dll library is not available on the system PATH when you run the installer, the installer immediately exits with an error message. See [Installation Encounters an Error Trying to Locate pthread.dll](#) for details.

**Note****Additional pthread Requirements for the SAL SDK**

If you intend to build any applications using the iProcess Engine's SAL SDK (installed in *SWDIR\sdk\swsal\sdk*), those applications *must* include the following files from the POSIX Threads (pthreads) for this distribution set:

- `include\pthread.h`
- `include\sched.h`
- `include\semaphore.h`
- `lib\pthreadVC2.lib`

Errors occur if you build applications without including these files.

Windows Clustering

If you want to install the iProcess Engine on a Microsoft Windows cluster, make sure that the necessary cluster management software (listed in [Windows Cluster Management Software](#)) is installed on each machine in the cluster.

Windows Cluster Management Software

Operating System	Requirement
Windows Server 2016 (64-bit)	Supplied as part of the basic operating system.
Windows Server 2016 on AWS	
Windows Server 2016 (64 Bit) on Azure	
Windows Server 2019 (64-bit)	
Windows 10 (64-bit)	

TIBCO iProcess Objects

The iProcess Objects Server receives requests for services or data from TIBCO iProcess Objects (COM, JAVA, or C++) or TIBCO iProcess Server Objects (JAVA or .NET). The iProcess Objects Server processes the request, then makes the appropriate call to an iProcess Engine to initiate the desired service or obtain the desired information.

The iProcess Objects Director is a stand-alone program that maintains a list of iProcess Objects Servers that are configured in a node cluster. When a client needs access to an iProcess Objects Server, it first establishes a connection to the iProcess Objects Director. The iProcess Objects Director then decides, based on a pick method, which iProcess Objects Server the client should connect to.

If you want to enable the iProcess Objects Server or iProcess Objects Director, you need to take account of additional runtime disk space requirements listed in [Additional Runtime Disk Space Requirements for TIBCO iProcess Objects](#). For detailed information about how to enable iProcess Objects Server or iProcess Objects Director, see [Select Components To Configure](#).

Additional Runtime Disk Space Requirements for TIBCO iProcess Objects

Component	Runtime Disk Space Requirement
iProcess Objects Server	<p>5 MB + Log file</p> <p>By default, the maximum size of the iProcess Objects Server log file is 15 MB. This can be configured after installation. See <i>TIBCO iProcess Objects Server Administrator's Guide</i> for more information. The log file is not created during installation. It is created the first time the iProcess Objects Server is used.</p>
iProcess Objects Director	<p>500 KB + Log file</p> <p>By default, the maximum size of the iProcess Objects Director log file is 15 MB. This can be configured after installation using the LOG_FILE_MAX_SIZE process attribute. (See <i>TIBCO iProcess Objects Director Administrator's Guide</i> for more information.) The log file is not created during installation. It is created the first time the iProcess Objects Director is used.</p>

Activity Publishing and Work Queue Delta Publication

If activity publishing is enabled, activity information about auditable objects (for example, procedures and steps) can be published to an external application. (The BG process publishes monitored activities to the IAPJMS process.) This enables real-time monitoring of auditable objects so that mission critical or important business events can be easily monitored.

Enabling activity publishing also enables Work Queue Delta publication via JMS. This allows an external application to monitor a work queue and to retrieve only those work

items in a given work queue that have changed. In this case the WIS process publishes messages about the monitored queue to the IAPJMS process, and IAPJMS in turn publishes messages to a JMS topic which can be monitored by the external application. See *iProcess Engine Administrator's Guide* for configuring activity publishing and work queue delta publication once they are enabled.

If you plan to enable activity publishing, you must ensure that the computer hosting iProcess Engine has access to the Java Message Service (JMS) provider that you want to use. This must be one of the following JMS providers listed in [JMS Providers](#).

JMS Providers

JMS Provider	Supported Versions	Additional Requirements
TIBCO Enterprise Message Service (EMS)	8.4.1 8.5.0	If you are upgrading iProcess Engine and you are using EMS, you must ensure that your version of EMS is updated. For more information, see How Do I Upgrade TIBCO EMS .
IBM WebSphere Application Server	8.5.5	The IBM Client for JMS on J2SE with WebSphere Application Server must be installed on the machine hosting the iProcess Engine. For more information, see Installing the IBM Client for JMS on J2SE with IBM WebSphere Application Server .

JMS Provider	Supported Versions	Additional Requirements
Oracle WebLogic Server	12.1.3 12.2.1	<p>If the WebLogic Server is hosted remotely, one of the following WebLogic client types must be installed on the machine hosting iProcess Engine:</p> <p>WebLogic T3 client (weblogic.jar), or</p> <p>WebLogic JMS Thin Client (wljmsclient.jar and wlclient.jar)</p> <p>These JAR files are located in the <i>WL_HOME</i>\server\lib subdirectory of the WebLogic Server installation directory, where <i>WL_HOME</i> is the top-level installation directory for the entire WebLogic Platform (for example, c:\bea\weblogic90\server\lib).</p> <p>For more information, see Default Java Message Service.</p>
HornetQ	6.4.0 7.0.0	None
Other	<p>The JMS provider can be hosted either on the local machine or on a remote machine. If the JMS provider is hosted remotely, appropriate client application JAR files must be installed on the machine hosting the iProcess Engine. See your JMS provider documentation for more information about required client JAR files. You specify the location of these JAR files when you run the installer. For more information, see Default Java Message Service.</p> <p>The JMS provider must support Java Virtual Machine (JVM) 11. JVM 11.0.14 is distributed with this version of iProcess Engine, and installed into the <i>SWDIR</i>\java directory.</p>	

For more information about how to enable activity publishing, see [Select Components To Configure](#).

Java Runtime Environment (JRE)

The following information is listed in [IRE Information](#):

- the iProcess Engine components and other dependent iProcess products that use Java, and therefore need access to a Java Virtual Machine (JVM) or other JRE libraries on the computer hosting the iProcess Engine.
- the default JRE that each component or product uses to locate the libraries that it needs.
- the configuration tool provided to allow you to configure the location of the JRE used by each component or product (if applicable).

IRE Information

Component or Product	Default JRE Location	Configuration Tool
IAPJMS process	<i>SWDIR\java</i>	SWLIB_PATH process attribute value See “Administering Process Attributes” in <i>TIBCO iProcess Engine Administrator’s Guide</i> for more information.
JMX engine	<i>SWDIR\java</i>	None
TIBCO EMS	<i>SWDIR\java</i>	None
TIBCO Hawk	<i>SWDIR\java</i>	None
TIBCO iProcess Server Plug-in for ActiveMatrix BusinessWorks	Selectable when you install the plug-in	TIBCO iProcess Technology Plug-ins installer See <i>TIBCO iProcess Technology Plug-ins Installation</i> for more information.
TIBCO iProcess Java Server Plug-in	Selectable when you install the plug-in	TIBCO iProcess Technology Plug-ins installer See <i>TIBCO iProcess Technology Plug-ins Installation</i> for more information.
TIBCO iProcess Engine	Selectable	TIBCO iProcess Engine Web Services Plug-in

Component or Product	Default JRE Location	Configuration Tool
Web Service Server Plug-in	when you install the plug-in	installer See <i>TIBCO iProcess Engine Web Services Plug-in Installation</i> for more information.

**Note:**

TIBCO strongly recommends that you use the following JRE to provide the necessary Java functionality when using the components and products listed in [IRE Information](#).

JRE 11.0.14, which is distributed with this version of the iProcess Engine and installed into the *SWDIR\java* directory.

You can identify this JRE by running the *SWDIR\java\bin\java -version* command, which displays output similar to the following:

```
java version "11.0.14" 2022-01-18 LTS
Java(TM) SE Runtime Environment 18.9 (build 11.0.14+8-LTS-263)
Java HotSpot(TM) 64-Bit Server VM 18.9 (build 11.0.14+8-LTS-263,
mixed mode)
```



Warning: If you need to use a different version of the JRE for any reason, TIBCO strongly recommends that you contact TIBCO Support before doing so, to determine if the JRE you want to use is fully compatible with this version of iProcess Engine.

LDAP Directory Service

You can manage iProcess user, group, role, and attribute data via any LDAP compliant directory service.

Supported Databases

The following database types are supported for TIBCO iProcess Engine on Windows platforms:

- [Oracle Database](#)
- [SQL Server Database](#)

Oracle Database

TIBCO iProcess Engine requires one of the following Oracle database versions:

- Oracle 12c R2 (server) with 19c (client)
- Oracle 18c (server) with 19c (client)
- Oracle 19c (server) with 19c (client)

**Note**

You must install TIBCO iProcess Engine with 32-bit and 64-bit Oracle 19c client before beginning the iPE installation.

Set ORACLE_HOME to 32-bit Oracle installed path in the environment variable.

The exact Oracle version requirements depend on which of the following two types of database connections you intend to use:

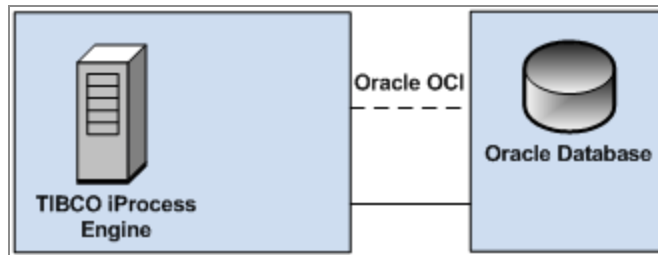
- a *direct connection* to the default database hosted on the computer where you will install or upgrade TIBCO iProcess Engine. For detailed information, see [Direct Connection Requirements for Oracle](#).
- a *Transparent Network Substrate (TNS) connection*, connected to either:
 - the default database hosted on the computer where you will install or upgrade TIBCO iProcess Engine, or to
 - a remote database, meaning a database that is either hosted on a remote computer, or a non-default database on the computer where you will install or upgrade iProcess Engine.

For detailed information, see [TNS Connection Requirements for Oracle](#).

Direct Connection Requirements for Oracle

[Direct Connection](#) illustrates an example of a direct connection from TIBCO iProcess Engine to the default Oracle database:

Figure 1: Direct Connection



[Required Database Versions When Using a Direct Connection](#) shows the required Oracle database versions when using a direct connection to the default database.

Required Database Versions When Using a Direct Connection

Database Release	Additional Requirements
18c	Oracle Services for Microsoft Transaction Server (ORAMTS)
19c	To see if ORAMTS is installed on your system, run the Oracle Universal Installer and click the Installed Products button. If you need to install this component, perform a Custom installation and select the appropriate product from the list.

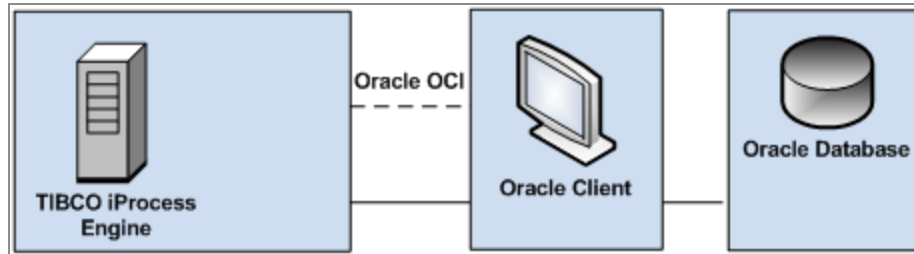
TNS Connection Requirements for Oracle

When using a TNS connection, you *must*:

- ensure that the remote Oracle database uses one of the Oracle Database releases specified in [Required Oracle Database and Client Versions](#).
- ensure that the correct Oracle Client release is installed on the computer where you will install or upgrade the iProcess Engine, as described in [Required Oracle Database and Client Versions](#).

[TNS Connection](#) illustrates an example of a TNS connection from TIBCO iProcess Engine to the default database:

Figure 2: TNS Connection



- have the indicated Oracle Client release (and any specified additional patches or components) installed on:
 - the computer where you will install or upgrade the iProcess Engine, *and*
 - if you are using a Windows cluster, on each machine in the cluster.
 Each Oracle Client must be pointing to the same Oracle Database.
- use the TNS name to connect the iProcess Engine to the Oracle Database. See [Database Details](#) for details.

[Required Oracle Database and Client Versions](#) shows the required Oracle database and client versions when you use a TNS connection connecting to the default database or to a remote database.

Required Oracle Database and Client Versions

Certified Database Release	Compatible Database Release	Additional Requirements		Client Release	Additional Requirements
18c	18.1.0 or higher	Oracle Services for Microsoft Transaction Server (ORAMTS)	<i>with</i>	19c	Oracle Services for Microsoft Transaction Server (ORAMTS)
19c	19.1.0 or higher	Oracle Services for Microsoft Transaction Server (ORAMTS)	<i>with</i>	19c	Oracle Services for Microsoft Transaction Server (ORAMTS)

**Note**

To see if ORAMTS is installed on your system, run the Oracle Universal Installer and select Installed Products. If you need to install this component, perform a [Custom](#) installation and select the product from the list.

If you are using an Oracle version (Database or Client) that is:

- earlier than the releases explicitly mentioned in the table above, you must upgrade to one of the specified releases.
- later than the releases explicitly mentioned in the table above, contact TIBCO Support to confirm whether or not that release is supported by your iProcess Engine version.

**Note**

You will need access to an Oracle Metalink account to be able to access the required patches and patch sets.

TIBCO iProcess Engine uses Oracle Call Interface (OCI) to access data in the Oracle database. For reasons of stability, TIBCO iProcess Engine is statically linked with the Oracle client libraries that provide the required OCI routines. Oracle only supports products that run against the same set of libraries they were built with. This means you *must* use particular Oracle Client versions, depending on the method you use to connect to the database.

If you are using Oracle Real Application Clusters (RAC), TIBCO recommends that you install the iProcess Engine on a machine that is *not* part of the RAC, and use a TNS connection to connect to the remote database.

SQL Server Database

TIBCO iProcess Engine requires one of the following SQL Server database versions:

- SQL Server 2016
- SQL Server 2017
- SQL Server 2019

If you are using a SQL Server version that is:

- earlier than the releases explicitly mentioned above, you must upgrade to one of the specified releases.

- later than the releases explicitly mentioned above, contact TIBCO Support to confirm whether or not that release is supported by your iProcess Engine version.

The SQL Server must be installed either:

- on the computer where you intend to install the iProcess Engine, or
- on a computer which is in the same domain or workgroup as the computer where you intend to install the iProcess Engine.

**Note**

When you install iProcess Engine with SQL Server, but without the DBA role, the following error message appears:

The User does not have permissions to add the linked server.

You can ignore this message and continue to install iProcess Engine. To make sure that SSOLITE works correctly, you need to use the DBA role to run the following script after the installation:

```
$SWDIR/util/sql_check_linkedserver.sql
```

Authentication Requirements

**Note**

TIBCO strongly recommends that you install iProcess Engine against a SQL Server instance that uses Mixed Mode authentication (where database connections can be authenticated using either SQL Server login IDs or passwords, or Windows accounts). The installer normally creates or uses SQL Server logins to enable the iProcess Engine to connect to the SQL Server instance.

Although iProcess Engine can use Windows-authenticated accounts to access the SQL Server database, there are currently some restrictions associated with this mode of operation that require changes to the installation procedures described in this documentation.

If you want to install the iProcess Engine against a SQL Server instance that uses Windows Only authentication, see “Installing iProcess Engine Against a SQL Server Instance That Uses Windows Only Authentication” in *TIBCO iProcess Engine (SQL Server) Release Notes* for more information before proceeding further.

ODBC Driver Requirements

This version of iProcess Engine requires an ODBC driver to allow iProcess Engine to connect to the SQL Server database. The driver required depends on the type of database you are using, as shown in [ODBC Driver Requirements](#).

ODBC Driver Requirements

Database	Required ODBC Driver
SQL Server 2016	SQL Native Client
SQL Server 2017	SQL Native Client
SQL Server 2019	SQL Native Client

**Note**

The SQL Native Client driver is not automatically provided on the Windows operating systems supported by this version of the iProcess Engine. It is installed as part of SQL Server.

If you do not have SQL Server installed on the computer where you intend to install iProcess Engine, and you intend to use a SQL Server that is installed on a remote computer, you have to download the SQL Native Client version 11 or above from the Microsoft Download Center. For example, you can download the SQL Native Client driver for SQL Server from <https://www.microsoft.com/en-us/download/details.aspx?id=50402>.

Additional Requirements

To enable the TIBCO iProcess COM Server Plug-in, you must enable network DTC access. If it is not enabled, database transactions are limited to the local server.

For more information about how to enable network DTC access, see article “Enable Network DTC Access” on the Microsoft website.

Upgrade Requirements

**Note**

If you are using TIBCO iProcess Engine version 11.0 or higher, you can upgrade to Version 11.9.0 directly. If you are using TIBCO Process Engine 9.0, you have to upgrade to version 11.4.1 first, and then upgrade to Version 11.9.0.

If you are upgrading iProcess Engine, you must ensure that EMS is also updated. See [How Do I Upgrade TIBCO EMS](#).

TIBCO iProcess Engine Version 11.9.0 requires specific operating system and database versions. See [Installation Requirements](#) for more information.

If your current iProcess Engine/Process Engine is running against an operating system or a database version that does not meet these requirements, you will need to upgrade your operating system or database to a supported version before you can upgrade iProcess Engine.

Log Files

This section describes the different log files that the installer may write to the *SWDIR\logs* directory during the course of an installation or upgrade.

- [sw_error.log](#) and [sw_warn.log](#)
- [init2Kora_tok.sql_UserName_TimeStamp.log](#)
- [init2Ksql.sql_UserName_TimeStamp.log](#)
- [ScriptName.sql_UserName_TimeStamp.log](#)
- [upgrFromtoTo.log](#)
- [PostChecks_UserName_TimeStamp.log](#)

sw_error.log and sw_warn.log

sw_error and sw_warn are system log files used to record information, as well as error and warning messages. The sw_error.log and sw_warn.log files only record information received on the current date. When the date changes, if new information needs to be

recorded to the log files, the previously generated `sw_error.log` and `sw_warn.log` files will be archived with the new file names, `sw_errortimestamp.log` and `sw_warntimestamp.log`.

For example, if the original `sw_error.log` file is generated on July 1, 2012, the new error messages need to be written in the new error log file on July 5, 2012, then the original log file will be archived with the new file name `sw_error20120701.log`.

Errors or warnings can be written to these files during installation or upgrade.

For a full description of the `sw_error.log` and `sw_warn.log` files and their contents, see *TIBCO iProcess Engine System Messages Guide*.

`init2Kora_tok.sql_UserName_TimeStamp.log`

This file logs the progress of the `init2Kora.sql` SQL script used to create the iProcess Engine database schema in Oracle.

The log file is always created when the script is run, whether the script runs successfully or not.

`init2Ksql.sql_UserName_TimeStamp.log`

This file logs the progress of the `init2Ksql.sql` SQL script used to create the iProcess Engine database schema in SQL Server.

The log file is always created when the script is run, whether the script runs successfully or not.

`ScriptName.sql_UserName_TimeStamp.log`

This file logs the progress of the `ScriptName.sql` SQL script used to upgrade the iProcess Engine database schema from one version to another. Multiple upgrade scripts can be run during an upgrade, depending on the version being upgraded from.

A log file is always created for each upgrade script that is run, whether the script runs successfully or not.

upgrFromTo.log

This file logs errors that occurred during an upgrade stage, where *From* indicates the version being upgraded from, and *To* indicates the version being upgraded to.

An upgrFromTo.log file is only created if an error occurs (whether fatal or not). Multiple upgrFromTo.log files may be created.

PostChecks_UserName_TimeStamp.log

This file logs the progress of post-installation checks that the installer runs to validate that the installation or upgrade has succeeded.

This file is always created when you run the installer, and always contains some initial debug information, like the following example.

```
070130153435.774993:A001: fil_pattr_register_callback : Added callback
(0/1) MBOXSET_MSG to attribute(19) MBSET_WRITE_BG
070130153435.820335:i001: iqlDbQueueRead : idl_select_uni
failed..Returned 100
070130153435.820497:i001: iqlQueueInit(): failed to get information
about DEADQUEUE: 0
070130153435.823555:i001: iqlDbQueueRead : idl_select_uni
failed..Returned 100

070130153435.823658:i001: iqlQueueInit(): failed to get information about DEADQUEUE:
0
```

This debug information does *not* indicate that a validation error has occurred, and can be ignored.

If the installer displays one of the following error messages when it performs its post-validation checks, this file also contains additional information about the error.

Failed to access the database and validate the nodename. *ErrorDescription*



Note

If you encounter COM+ error popup, check swadm_evloopback_test.log and msconfig.log logs for additional information.

Installing TIBCO iProcess Engine

This section describes how to install TIBCO iProcess Engine on Windows.

Pre-installation

The most time-consuming part of a TIBCO iProcess Engine installation is the collection of environment information and parameters. This section helps you complete this process.

[Pre-Installation Tasks Checklist](#) provides a checklist of the tasks that you must or may need to perform before installing the iProcess Engine. The table shows:

- whether the iProcess Files-install Owner, iProcess Schema-install Owner, or DBA user needs to perform the task. See [Organization Roles](#) for more information about iProcess Files-install Owner, iProcess Schema-install Owner, and DBA.
- the status of a task, depending on whether you are installing a new iProcess Engine or upgrading an existing one. There are four possible task statuses:
 - **Required** — You *must* perform this task before installing iProcess Engine.
 - **Check** — You *may need* to perform this task before installing iProcess Engine, depending on your installation scenario.
 - **Optional** — You *may want* to perform this task before installing iProcess Engine, but it is not essential.
 - **N/A** — You can install iProcess Engine. without performing this task.

For detailed information about each task, see [Pre-installation Tasks](#).

**Tip**

You may want to print this table as a useful quick reference when performing the pre-installation tasks. The Done? column in the table provides a place for you to tick off tasks that have been done.

Pre-Installation Tasks Checklist

Task	Database Type	To be done by	Install Status	Upgrade Status	Done?
Checking for Any Late-breaking Information	Oracle SQL Server	iProcess Files-install Owner iProcess Schema-install Owner DBA	Required	Required	<input type="checkbox"/>
Backing Up the TIBCO iProcess Engine File System	Oracle SQL Server	iProcess Files-install Owner	N/A	Required	<input type="checkbox"/>
Backing Up the TIBCO iProcess Engine Database Schema	Oracle SQL Server	iProcess Schema-install Owner	N/A	Required	<input type="checkbox"/>
Checking for the Database Codepage Setting	Oracle SQL Server	iProcess Schema-install Owner DBA	Required	Check	<input type="checkbox"/>
Upgrading the Operating System	Oracle SQL Server	iProcess Files-install Owner iProcess Schema-install Owner	Check	Check	<input type="checkbox"/>
Upgrading the Database	Oracle SQL Server	iProcess Schema-install Owner DBA	Check	Check	<input type="checkbox"/>

Task	Database Type	To be done by	Install Status	Upgrade Status	Done?
Stopping Any Other iProcess Engines on the Same Machine	Oracle SQL Server	iProcess Files-install Owner iProcess Schema-install Owner	Check	Check	<input type="checkbox"/>
Setting Up DCOM Permissions for the iProcess Objects Server	Oracle SQL Server	iProcess Files-install Owner iProcess Schema-install Owner	Check	N/A	<input type="checkbox"/>
Setting Up DCOM Permissions for a Node Cluster	Oracle SQL Server	iProcess Files-install Owner iProcess Schema-install Owner	Check	N/A	<input type="checkbox"/>
Configuring the Oracle Schema	Oracle	iProcess Schema-install Owner	Optional	N/A	
Setting Up ORACLE_HOME to 32 bit path	Oracle	Windows Administrator	Required	Required	<input type="checkbox"/>
Setting Up Oracle Transparent Application Failover (TAF)	Oracle	iProcess Schema-install Owner DBA	Check	Check	<input type="checkbox"/>
Configuring Oracle OPEN_CURSORS	Oracle	iProcess Schema-install Owner	Required	Check	<input type="checkbox"/>

Task	Database Type	To be done by	Install Status	Upgrade Status	Done?
		DBA			
Disabling Oracle Authentication Services	Oracle	iProcess Schema-install Owner DBA	Check	Check	<input type="checkbox"/>
Disabling Oracle Authentication Services	Oracle	iProcess Schema-install Owner DBA	Check	Check	<input type="checkbox"/>
Configuring Oracle Character Set Support	Oracle	iProcess Schema-install Owner DBA	Check	Check	<input type="checkbox"/>
Disabling Oracle Flashback Query	Oracle	iProcess Schema-install Owner DBA	N/A	Check	<input type="checkbox"/>
Creating an Oracle UNDO Tablespace	Oracle	iProcess Schema-install Owner DBA	Required	Required	<input type="checkbox"/>
Creating the SQL Server Database and Logins	SQL Server	iProcess Schema-install Owner DBA	Check	N/A	<input type="checkbox"/>
Creating the	SQL Server	iProcess	Check	N/A	<input type="checkbox"/>

Task	Database Type	To be done by	Install Status	Upgrade Status	Done?
ODBC Data Source		Schema-install Owner DBA			
Removing All User-defined Constraints (or Triggers), Indexes, and Statistics From the iProcess Engine Schema Tables	Oracle SQL Server	iProcess Schema-install Owner DBA	N/A	Check	<input type="checkbox"/>
Configuring the Microsoft Windows Cluster	Oracle SQL Server	iProcess Schema-install Owner iProcess Schema-install Owner	Optional	Check	<input type="checkbox"/>

Installing TIBCO iProcess Engine in GUI Mode

Before running the installer, make sure that iProcess Files-install Owner and iProcess Schema-install Owner have known the following information:

- node name
- *SWDIR*
- the account of background user. iProcess Schema-install Owner needs to use this account if iProcess Schema-install Owner can not use the root account during installation.

To install TIBCO iProcess Engine in GUI mode, complete the following steps:

1. Use the [IPEINSTALL](#) user account to log in to Windows.

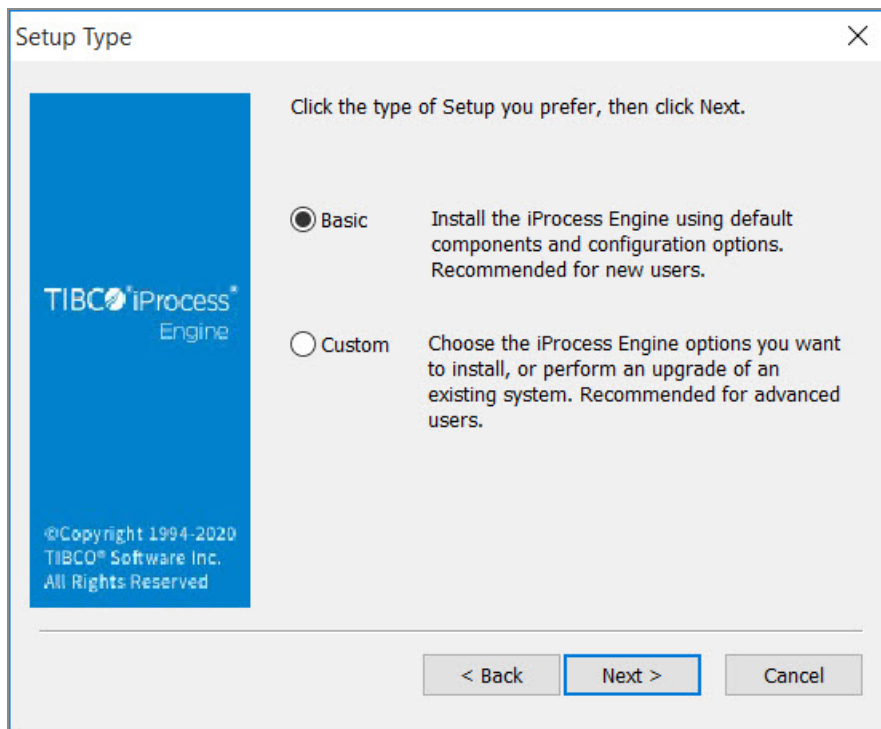
2. Open the physical media or download the TIBCO iProcess Engine installation package from a network server.
3. Extract the product's file to a temporary directory and navigate to the temporary directory.

**Note**

Check if you have already copy the `pthread.dll` file to the appropriate directory. For detailed information, see [POSIX Threads \(pthreads\)](#).

4. Run `setup.exe`. The Welcome dialog box appears.
5. Review the information in the Welcome dialog box and click the **Next** button. The Software License Agreement dialog box appears.
6. Review the entire TIBCO Software Inc. End-User License Agreement.
 - Click **I accept** the terms of the license agreement to proceed with the installation process.
7. Click **Next**. The Setup Type dialog box appears, as shown in [Setup Type Dialog Box](#).

Figure 3: Setup Type Dialog Box



8. Select the [Basic](#) or [Custom](#) installation type in the Setup Type dialog box.

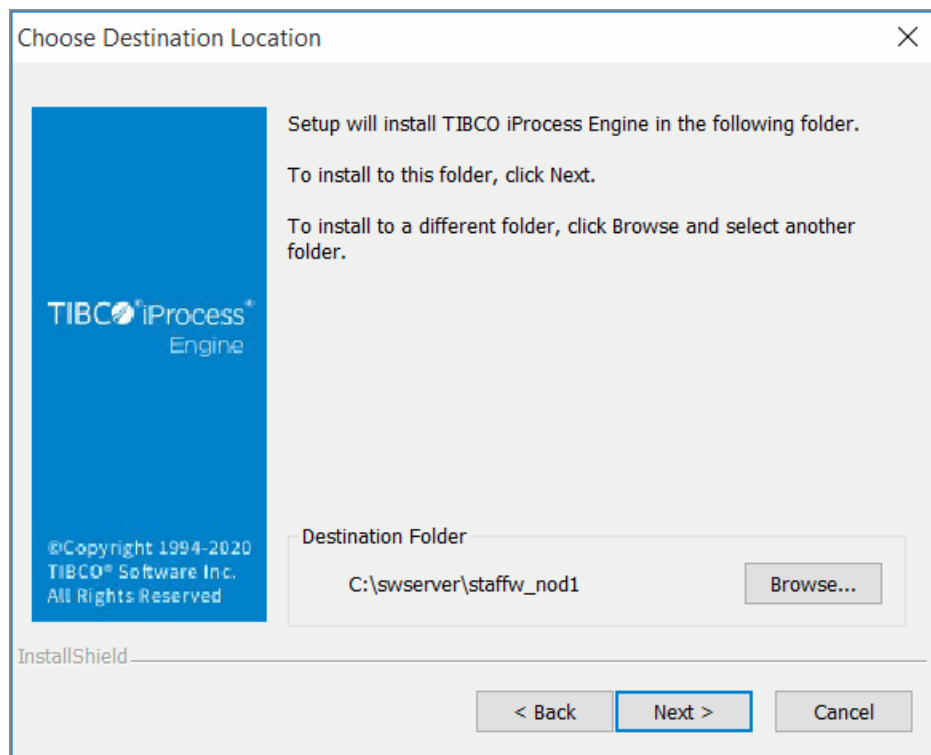
- Select the **Basic** radio button to continue with the [Basic Installation](#).
- Select the **Custom** radio button to continue with the [Custom Installation - New Installation](#) or [Custom Installation - Upgrade Existing Installation](#).

Basic Installation

For TIBCO iProcess Engine Basic Installation, complete the following steps:

1. Select the **Basic** radio button in the Setup Type dialog box, then click the **Next** button. The Choose Destination Location dialog box appears, as shown in [Choose Destination Location Dialog box](#).

Figure 4: Choose Destination Location Dialog box



2. Click the **Browse...** button to specify a Destination Folder where you want to install iProcess Engine.



Note

The Destination Folder is referred to as *SWDIR*.

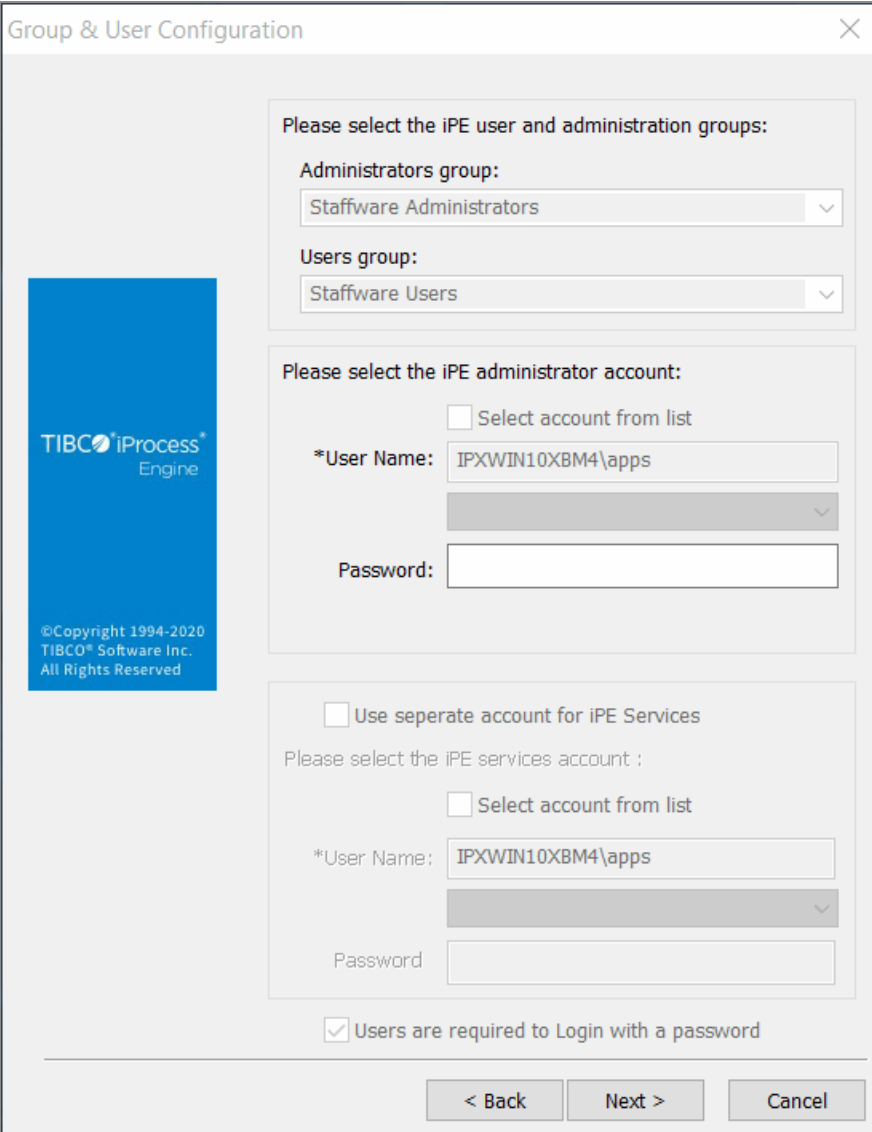
The length of the *SWDIR* full pathname must not exceed 64 characters.

If you are installing iProcess Engine on a computer that is part of a Windows cluster, *SWDIR* must be located on a cluster storage device that is accessible to all nodes in the cluster.

Here, *SWDIR* is the iProcess system directory where the TIBCO iProcess Engine is installed.

3. Click the **Next** button. The Group & User Configuration dialog box appears, as shown in [Group & User Configuration Dialog box](#).

Figure 5: Group & User Configuration Dialog box



The dialog box is titled "Group & User Configuration" and features a blue sidebar on the left with the TIBCO iProcess Engine logo and copyright information: "©Copyright 1994-2020 TIBCO® Software Inc. All Rights Reserved".

The main content area contains the following sections:

- Please select the iPE user and administration groups:**
 - Administrators group:** A dropdown menu showing "Staffware Administrators".
 - Users group:** A dropdown menu showing "Staffware Users".
- Please select the iPE administrator account:**
 - ☐ Select account from list
 - *User Name:** A text field containing "IPXWIN10XBM4\apps" and a dropdown arrow.
 - Password:** A text field.
- ☐ Use separate account for iPE Services
 - Please select the iPE services account :**
 - ☐ Select account from list
 - *User Name:** A text field containing "IPXWIN10XBM4\apps" and a dropdown arrow.
 - Password:** A text field.
- ☒ Users are required to Login with a password

At the bottom, there are three buttons: "< Back", "Next >", and "Cancel".

- Review the information in the Group & User Configuration dialog box and enter the password for your iProcess Engine administrator account. For detailed information about configuration options in this dialog box, see [Group & User Configuration](#).
- Click the **Next** button.

If you are using an Oracle database with iProcess Engine, skip this step.

If you are using a SQL Server database with iProcess Engine, the SQL/ODBC Details dialog box appears, as shown in [SQL/ODBC Details Dialog Box](#). For detailed information about configuration options in this dialog box, see [SQL/ODBC Details](#).

Figure 6: SQL/ODBC Details Dialog Box

- a. Select the **Choose An Existing ODBC Data Source** or **Enter A New ODBC Data Source** radio button in the dialog box.



The supported ODBC Data Source is 64-bit. If you select **Choose An Existing ODBC Data Source**, the system will display only 64-bit ODBC datasources.

- b. Check or uncheck the **You Have DBA Privileges (To Create A Database And Users)** checkbox.
- c. Click the **Next** button.

If you entered a new ODBC Data Source name, the ODBC Source Not Found dialog box appears and the following prompt is displayed in it:

ODBC Source does not exist. Do you want to create it?

Click the **Yes** button to open the Database Details dialog box. Click the **No** button to return to the SQL/ODBC Details dialog box, and choose a different ODBC Data Source name.

6. Configure the database that iProcess Engine will connect to in the Database Details dialog box. For detailed information about configuration options in this dialog box, see [Database Details](#).

If you are using an Oracle database with iProcess Engine, the configuration options are listed in [Configuration Options in the Database Details Dialog box - Oracle](#). The Database Details dialog box is shown in [The Database Dialog Box for Configuring an Oracle Database](#).

Figure 7: The Database Dialog Box for Configuring an Oracle Database

Database Details

At the end of the installation program, the iProcess Engine will be configured to run against the specified database.

Enter the Oracle database service (TNS) name:

ORCL11GR2

Database Admin User (e.g. system)

Username: system Password:

☐ Support unicode encoding

Database Users

Current Staffware database users:

ipe DB Owner: ipepro Change

ipe DB User: ipeuser

Tablespace: IPEDATA

< Back Next > Cancel

- Enter the Oracle database service (TNS) name.
- Enter the Database Admin Username and password.
- Check or uncheck the **Support Unicode Encoding** checkbox.
- Click the Change button to change the database users, if needed.

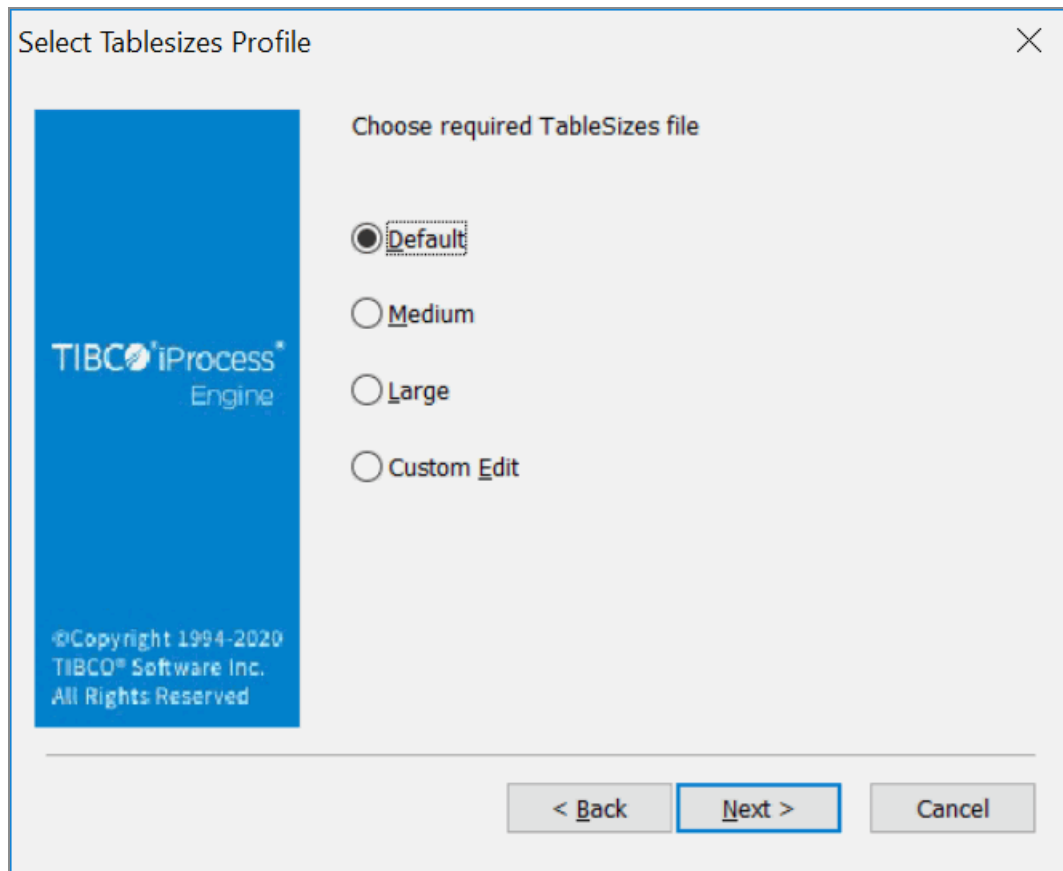


Note

On clicking Change, you will be redirected to dialog box window of DBUsers dialog box.

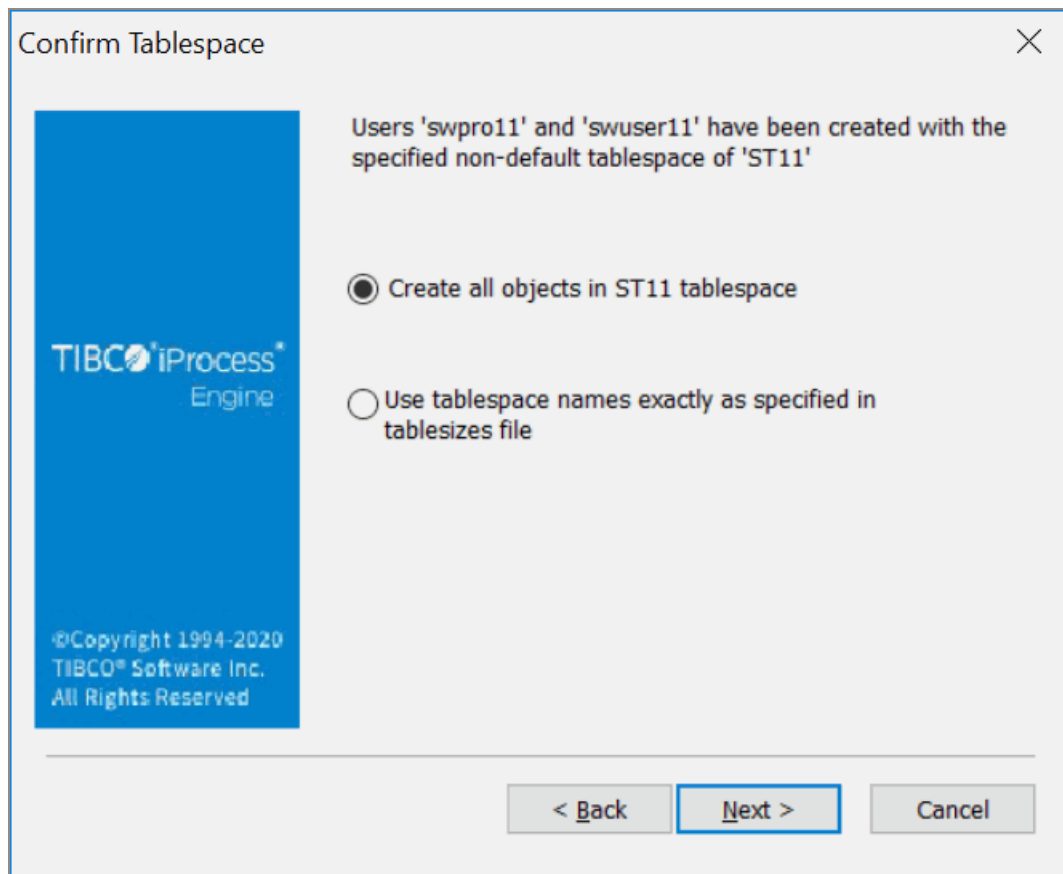
- Click the **Next** button. The installer now tries to connect to the Oracle database using your specified settings and performs a number of checks against your Oracle configuration. See [Configuration Options in the Database Details Dialog box - Oracle](#) for detailed information. The Select Tablesizes Profile dialog box appears, as shown in [Select Tablesizes profile Dialog box](#).

Figure 8: Select Tablesizes profile Dialog box



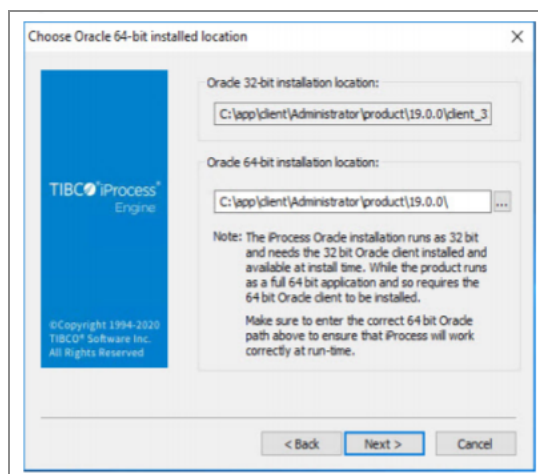
- Click the **Next** button. The Confirm Tablespace dialog box appears. Select whether you want to create all objects in *IPEDATA* tablespace or use tablespace names exactly as specified in tablesizes file in the dialog box.

Figure 9: Confirm Tablespace Dialog box



- Click the **Next** button. The "Choose Oracle 64-bit installed location" dialog box appears.

Figure 10: Choose Oracle 64-bit installed location



- Click the **Next** button. The Select Components to Configure dialog box appears.

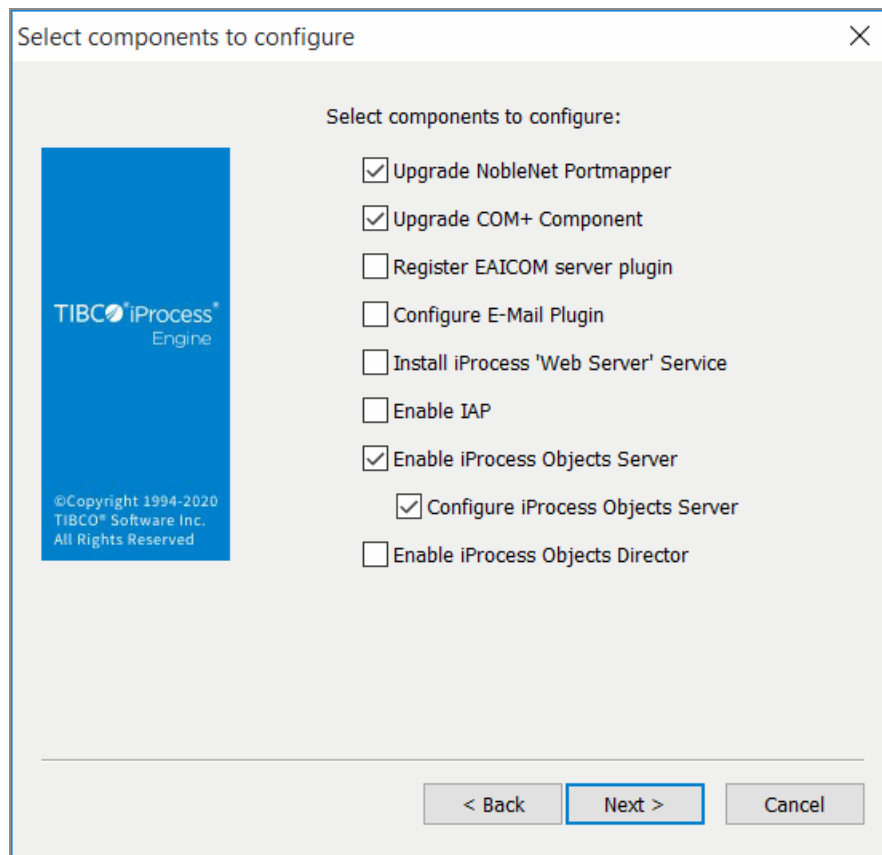
If you are using a SQL Server database with iProcess Engine, the configuration options are listed in [Configuration Options in the Database Details Dialog Box- SQL Server](#). The Database Details dialog box is shown in [The Database Dialog Box for Configuring a SQL Server Database](#).

Figure 11: The Database Dialog Box for Configuring a SQL Server Database

The screenshot shows the 'Database Details' dialog box. On the left is a blue sidebar with the TIBCO iProcess Engine logo and copyright information: '©Copyright 1994-2020 TIBCO® Software Inc. All Rights Reserved'. The main area has a title bar 'Database Details' with a close button. Below the title bar is a message: 'At the end of the installation program, the iProcess Engine will be configured to run against the specified database.' Below this is the 'ODBC Source' field with the value 'staffw_nod1'. A section titled 'Database Details' contains the following fields: 'Database name' (staffw_nod1), 'iPE DB Owner login' (swpro1), 'iPE DB Owner password' (masked with dots), 'iPE DB User login' (swuser1), and 'iPE DB User password' (masked with dots). There is a checkbox labeled 'Support unicode encoding' which is currently unchecked. At the bottom are three buttons: '< Back', 'Next >' (highlighted with a blue border), and 'Cancel'.

- Enter the iPE DB Owner login name and password.
 - Enter the iPE DB User login name and password.
 - Check or uncheck the **Support Unicode Encoding** checkbox.
 - Click the **Next** button. If the database users that you entered in the dialog box do not exist, the installer can create them for you. The Select Components To Configure dialog box appears, as shown in [Select Components to Configure Dialog](#).
7. Select components that you want to configure during the installation in the Select Components To Configure dialog box, as shown in [Select Components to Configure Dialog](#). For detailed information about configuration options in this dialog box, see [Select Components To Configure](#).

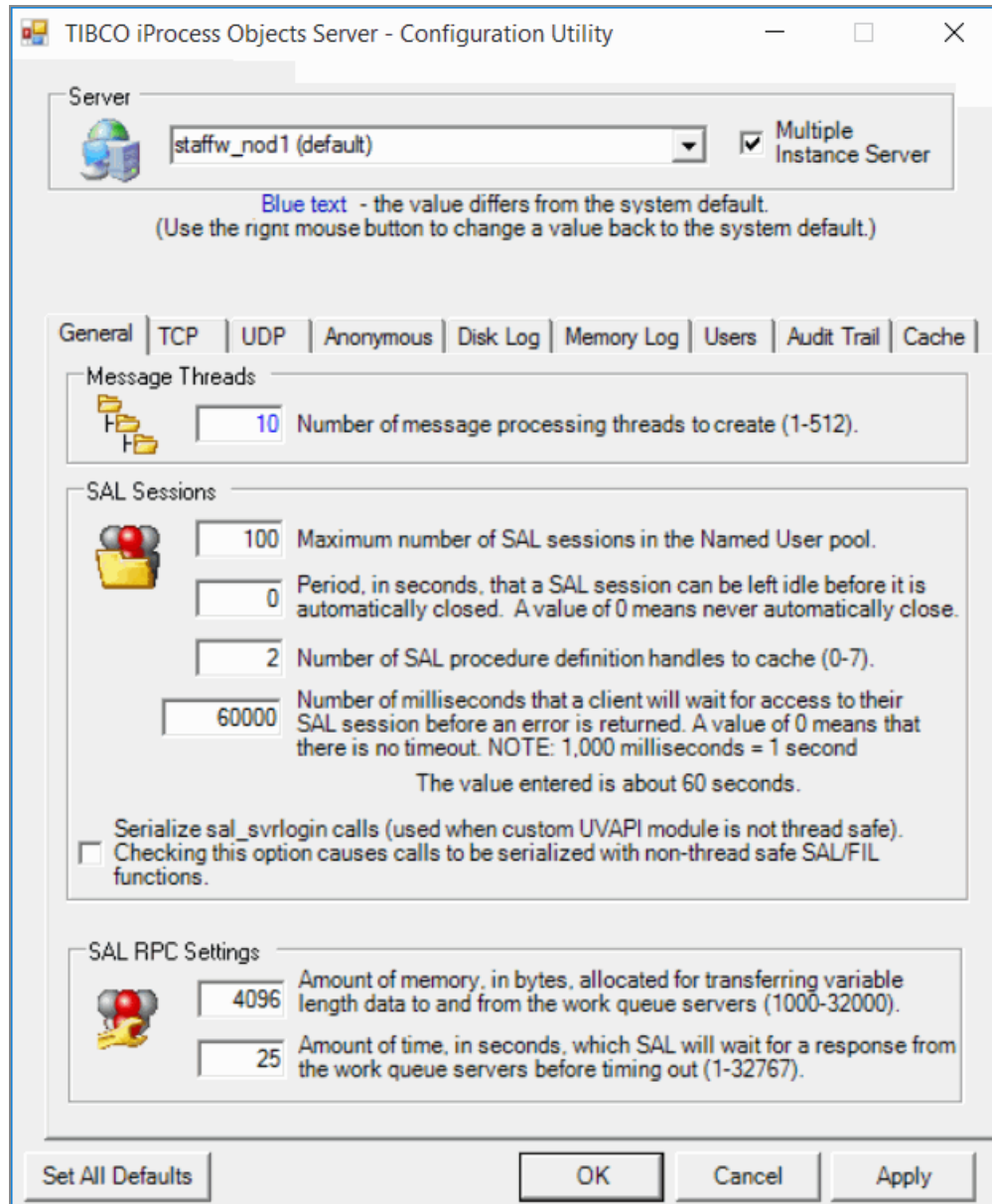
Figure 12: Select Components to Configure Dialog



8. Click the **Next** button. In step 7, if you check
 - the Configure Email Plug-in checkbox, the SMTP Server Parameters dialog box appears. Configure the parameters that the iProcess Email Server Plug-in will use to connect to an SMTP server. For detailed information about configuration options in this dialog box, see [SMTP Server Parameters](#).
 - the Install iProcess 'Web Server' Service checkbox, the TIBCO iProcess Web Server Configuration dialog box appears. Specify the location of TIBCO Hawk and TIBCO Rendezvous that are used by the iProcess Web Server service. For detailed information about configuration options in this dialog box, see [Select Components To Configure](#).
 - the Enable IAP checkbox, the Default Java Message Service dialog box appears. Configure the necessary Java Message Service (JMS) parameters to enable Activity Monitoring and Work Queue Delta publication on TIBCO iProcess Engine. For detailed information about configuration options in this dialog box, see [TIBCO iProcess Web Server Configuration](#).

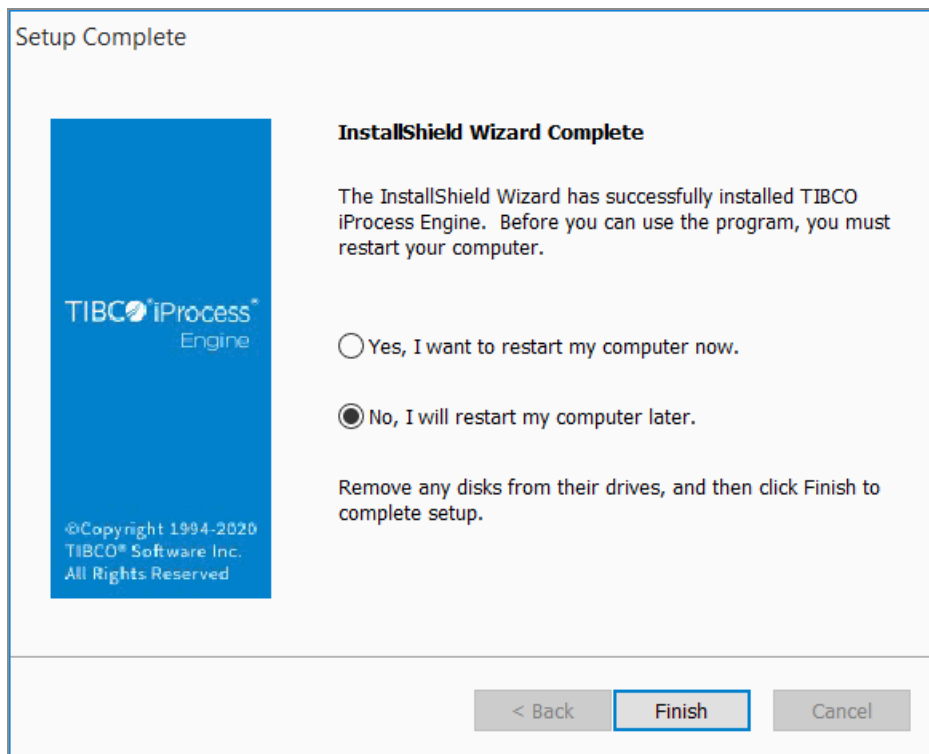
- any other checkbox, the Start Copying Files dialog box appears. Review the current settings in this dialog box.
9. Click the **Next** button to proceed with the installation. If you checked the Configure iProcess Objects Server checkbox in [Select Components to Configure Dialog](#), The TIBCO iProcess Objects - Server Configuration Utility dialog box appears, as shown in [TIBCO iProcess Objects - Server Configuration Utility Dialog Box](#).

Figure 13: TIBCO iProcess Objects - Server Configuration Utility Dialog Box



- Set your desired configuration parameters for iProcess Objects Server. See *TIBCO iProcess Objects Programmer's Guide* or *TIBCO iProcess Objects Server Administrator's Guide* for more information about the available parameters.
 - If you are installing to a Microsoft Windows Cluster, you must specify that iProcess Objects Server uses a *static port* (using the TCP tab).
10. Complete the installation. After completing the installation, the Setup Complete dialog box appears, as shown in [Setup Complete Dialog](#). You can choose to restart your computer right now or later.

Figure 14: Setup Complete Dialog



11. Click the **Finish** button to exit the installation program.

Custom Installation - New Installation

For TIBCO iProcess Engine Custom Installation, complete the following steps:

1. Select the **Custom** radio button in the Setup Type dialog box, and then click the **Next** button. The Upgrade or New Install dialog box appears, as shown in [Upgrade or New Install Dialog Box - New Installation](#).

Figure 15: Upgrade or New Install Dialog Box - New Installation

2. Select the **New Installation** radio button and specify the iProcess node name you want to use for the new installation in the Upgrade Or New Install dialog box, and check both the **Install Files** and **Install Schema** check boxes to install iProcess Engine files and schema tables simultaneously.

- iProcess Files-install Owner can install files.

- iProcess Schema-install Owner can install schema tables.

For detailed information about configuration options in this dialog box, see [Upgrade or New Install](#).

i Note:

You must install iProcess Engine files and schema tables for a new installation, but you can choose to install them separately. In this situation, you must choose to install iProcess Engine schema tables first.

To install iProcess Engine schema tables separately, perform the 3, 6, 7, and 12 steps.

To install iProcess Engine files separately, perform the 3, 4, 5, 8, 9, 10, 11 and 12 steps.

3. Click the **Next** Button. The Choose Destination Location dialog box appears, as shown in [Choose Destination Location Dialog Box - New Installation](#). Click the **Browse...** button to specify a Destination Folder where you want to install iProcess Engine.

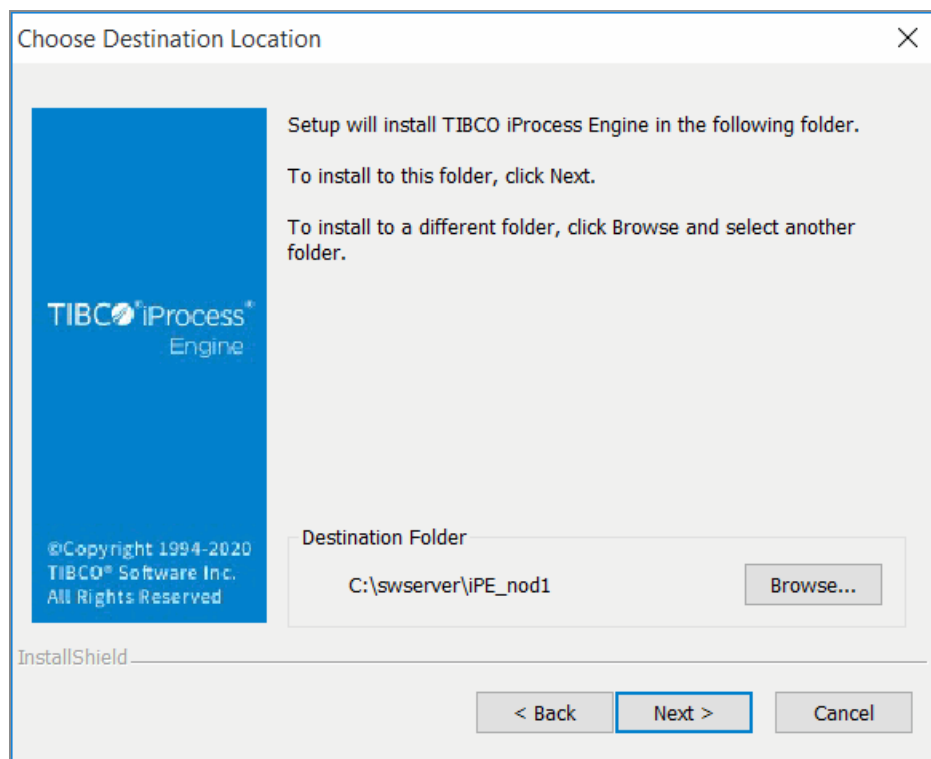
i Note:

The Destination Folder is referred to as *SWDIR*.

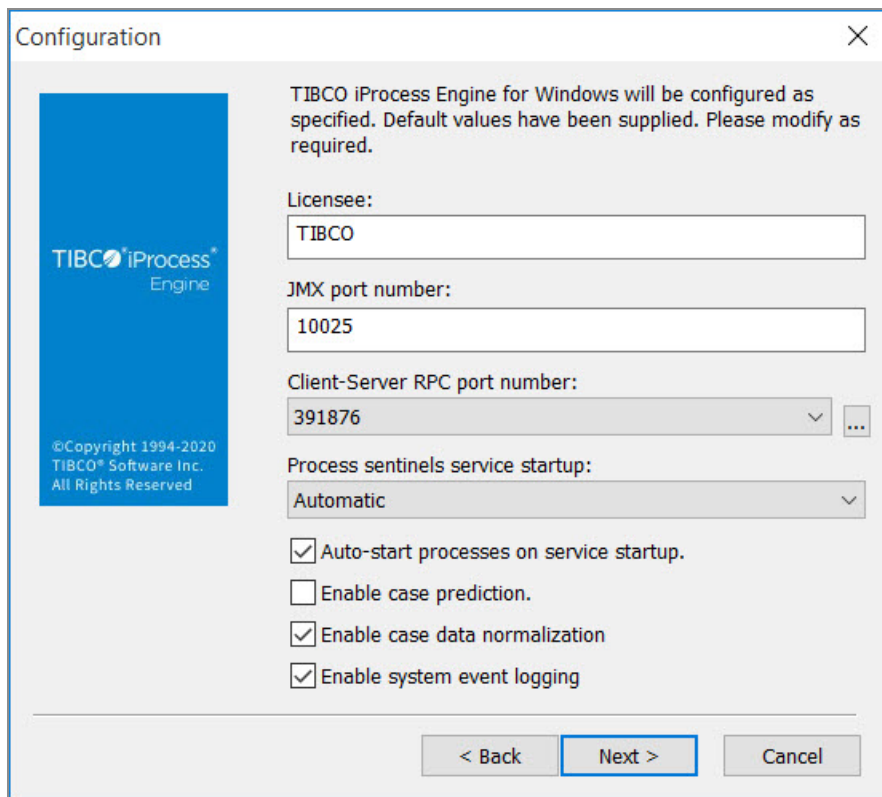
The length of the *SWDIR* full pathname must not exceed 64 characters.

If you are installing iProcess Engine on a computer that is part of a Windows cluster, *SWDIR* must be located on a cluster storage device that is accessible to all nodes in the cluster.

Here, *SWDIR* is the iProcess system directory where the TIBCO iProcess Engine is installed.

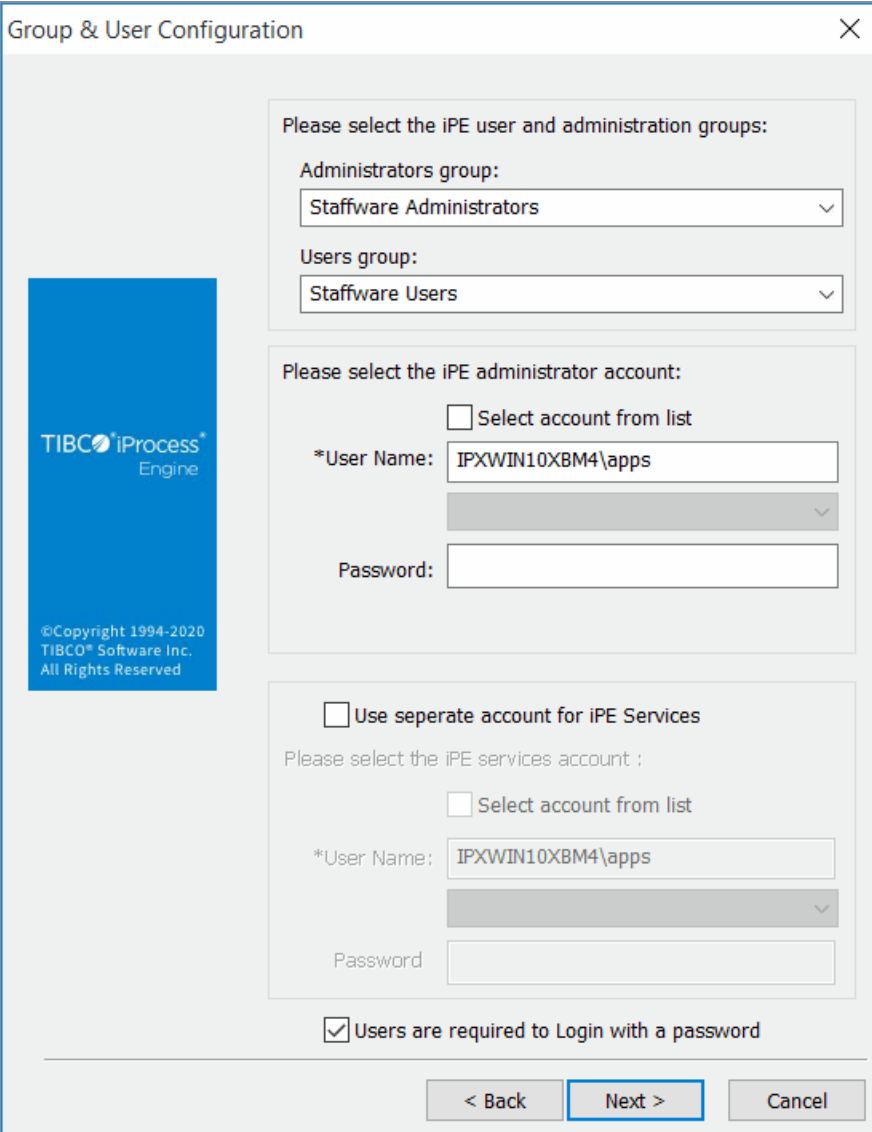
Figure 16: Choose Destination Location Dialog Box - New Installation

4. (For Install Files Only) Click the **Next** button. The Configuration dialog box appears, as shown in [Configuration Dialog Box](#). For detailed information about configuration options in this dialog box, see [Configuration](#).

Figure 17: Configuration Dialog Box

5. (For Install Files Only) Click the **Next** button. The Group & User Configuration dialog box appears, as shown in [Group & User Configuration Dialog Box - Custom Installation](#). Configure information in the Group & User Configuration dialog box. For detailed information about configuration options in this dialog box, see [Group & User Configuration](#).

Figure 18: Group & User Configuration Dialog Box - Custom Installation



The dialog box is titled "Group & User Configuration" and features a blue sidebar on the left with the TIBCO iProcess Engine logo and copyright information: "©Copyright 1994-2020 TIBCO® Software Inc. All Rights Reserved".

The main content area contains the following sections:

- Please select the iPE user and administration groups:**
 - Administrators group:** A dropdown menu showing "Staffware Administrators".
 - Users group:** A dropdown menu showing "Staffware Users".
- Please select the iPE administrator account:**
 - ☐ Select account from list
 - *User Name:** A text field containing "IPXWIN10XBM4\apps" and a dropdown arrow.
 - Password:** A text field.
- ☐ Use separate account for iPE Services
 - Please select the iPE services account :**
 - ☐ Select account from list
 - *User Name:** A text field containing "IPXWIN10XBM4\apps" and a dropdown arrow.
 - Password:** A text field.
- ☒ Users are required to Login with a password

At the bottom, there are three buttons: "< Back", "Next >" (highlighted with a blue border), and "Cancel".

6. (For Install Schema Only) Click the **Next** button.

If you are using an Oracle database with iProcess Engine, skip this step.

If you are using a SQL Server database with iProcess Engine, the SQL/ODBC Details dialog box appears, as shown in [SQL/ODBC Details Dialog Box](#). For detailed information about configuration options in this dialog box, see [SQL/ODBC Details](#).

Figure 19: SQL/ODBC Details Dialog Box

- a. Select the **Choose An Existing ODBC Data Source** or **Enter A New ODBC Data Source** radio button in the dialog box.

**Note:**

The supported ODBC Data Source is 64-bit. If you select **Choose An Existing ODBC Data Source**, the system will display only 64-bit ODBC datasource.

- b. Check or uncheck the **You Have DBA Privileges (To Create A Database And Users)** checkbox.
- c. Click the **Next** button.

If you entered a new ODBC Data Source name, the ODBC Source Not Found dialog box appears and the following prompt is displayed in it:

ODBC Source does not exist. Do you want to create it?

Click the **Yes** button to open the Database Details dialog box. Click the **No** button to return to the SQL/ODBC Details dialog box, and choose a different ODBC Data Source name.

7. (For Install Schema Only) Configure the database that iProcess Engine will connect to in the Database Details dialog box. For detailed information about configuration options in this dialog box, see [Database Details](#).

If you are using an Oracle database with iProcess Engine, the configuration options are listed in [Configuration Options in the Database Details Dialog box - Oracle](#). The Database Details dialog box is shown in [The Database Dialog Box for Configuring an Oracle Database](#).

Figure 20: The Database Dialog Box for Configuring an Oracle Database

Database Details

At the end of the installation program, the iProcess Engine will be configured to run against the specified database.

Enter the Oracle database service (TNS) name:

ORCL11GR2

Database Admin User (e.g. system)

Username: system Password:

☐ Support unicode encoding

Database Users

Current Staffware database users:

ipe DB Owner: ipepro
ipe DB User: ipeuser
Tablespace: IPEDATA

Change

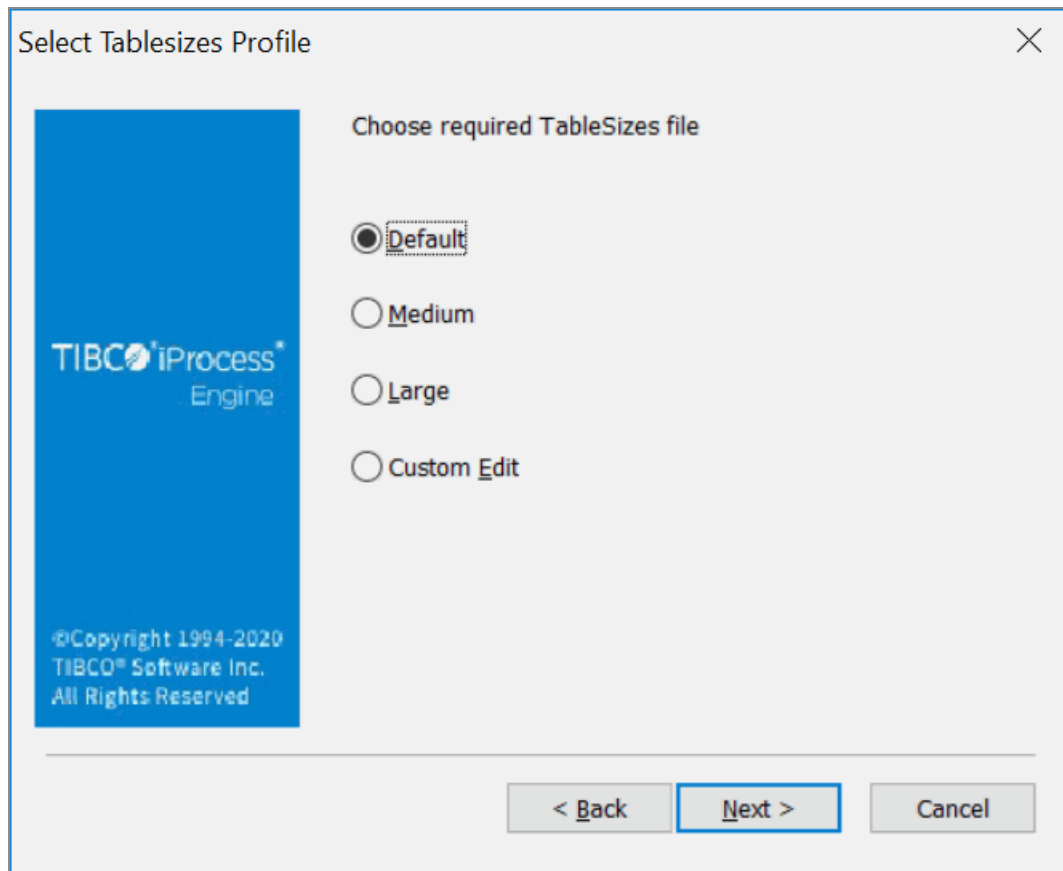
< Back Next > Cancel

- Enter the Oracle database service (TNS) name.
- Enter the Database Admin Username and password.
- Check or uncheck the **Support Unicode Encoding** checkbox.
- Click the Change button to change the database users, if needed.

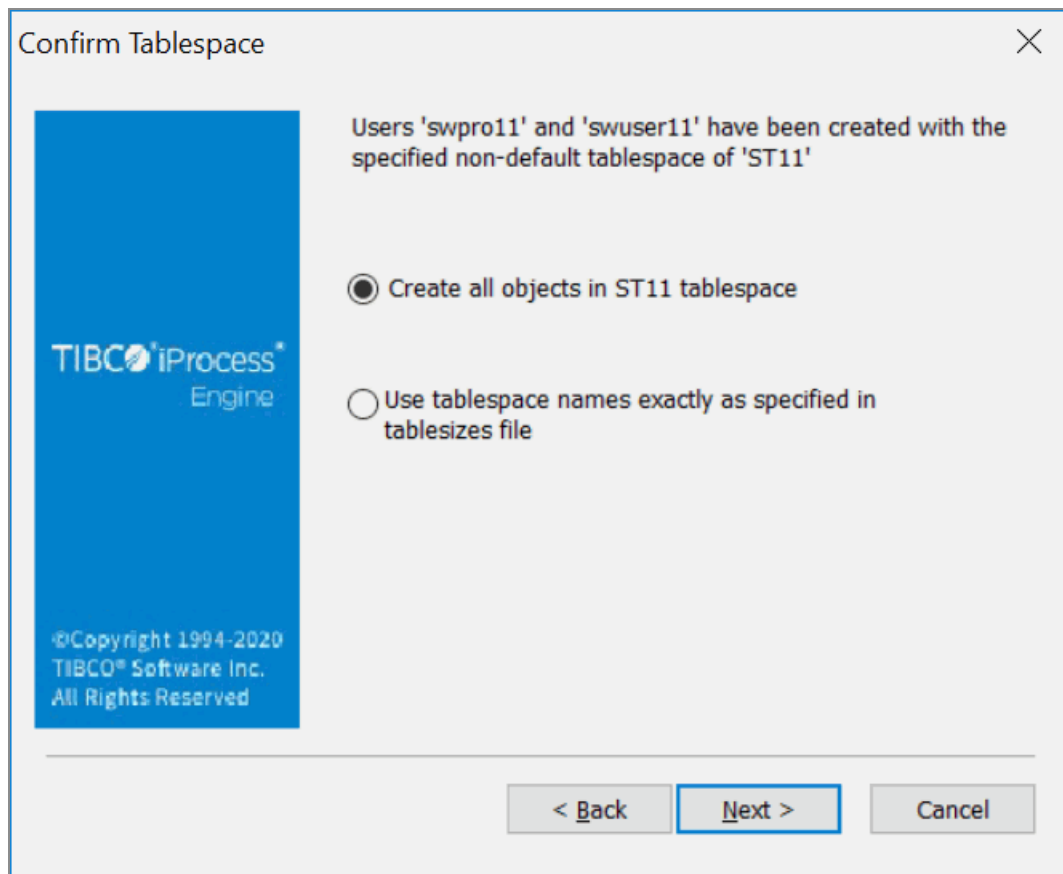
i Note: If you are using Oracle 12c, you must specify the owner name and user name of iProcess Engine database with the prefix, c##. For example, c##ipepro and c##ipeuser.

- Click the **Next** button. The installer now tries to connect to the Oracle database using your specified settings and performs a number of checks against your Oracle configuration. See [Configuration Options in the Database Details Dialog box - Oracle](#) for detailed information. The Select Tablesizes Profile dialog box appears, as shown in [Select Tablesizes profile Dialog Box](#).

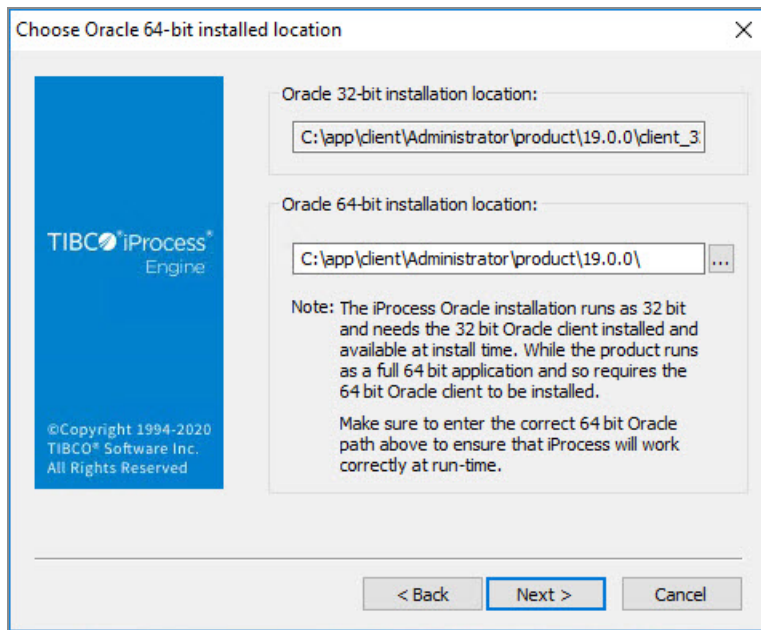
Figure 21: Select Tablesizes profile Dialog Box



- Click the **Next** button. The Confirm Tablespace dialog box appears. Select whether you want to create all objects in IPEDATA tablespace or use tablespace names exactly as specified in tablesizes file in the dialog box.

Figure 22: Confirm Tablespace Dialog Box

- Click the **Next** button. The "Choose Oracle 64-bit installed location" dialog Box appears.



- Click the **Next** button. The Select Components to Configure dialog box appears, as shown in [Select Components to Configure Dialog Box](#).

If you are using a SQL Server database with iProcess Engine, the configuration options are listed in [Configuration Options in the Database Details Dialog Box- SQL Server](#). The Database Details dialog box is shown in [The Database Dialog Box for Configuring a SQL Server Database](#).

Figure 23: The Database Dialog Box for Configuring a SQL Server Database

Database Details

At the end of the installation program, the iProcess Engine will be configured to run against the specified database.

ODBC Source:

Database Details

Database name:

iPE DB Owner login: iPE DB Owner password:

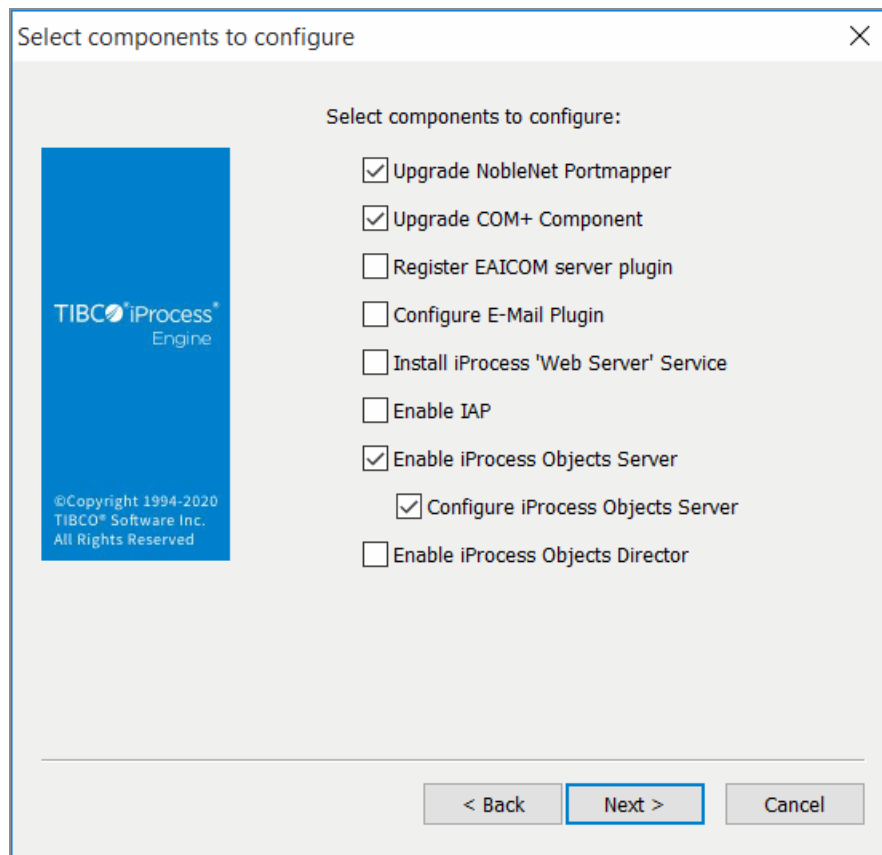
iPE DB User login: iPE DB User password:

☐ Support unicode encoding

< Back Next > Cancel

- Enter the iPE DB Owner login name and password.
 - Enter the iPE DB User login name and password.
 - Check or uncheck the **Support Unicode Encoding** checkbox.
 - Click the **Next** button. If the database users that you entered you entered in the dialog box do not exist, the installer can create them for you. The Select Components To Configure dialog appears.
8. (For Install Files Only) Select components that you want to configure during the installation in the Select Components To Configure dialog box, as shown in [Select Components to Configure Dialog Box](#). For detailed information about configuration options in this dialog box, see [Select Components To Configure](#).

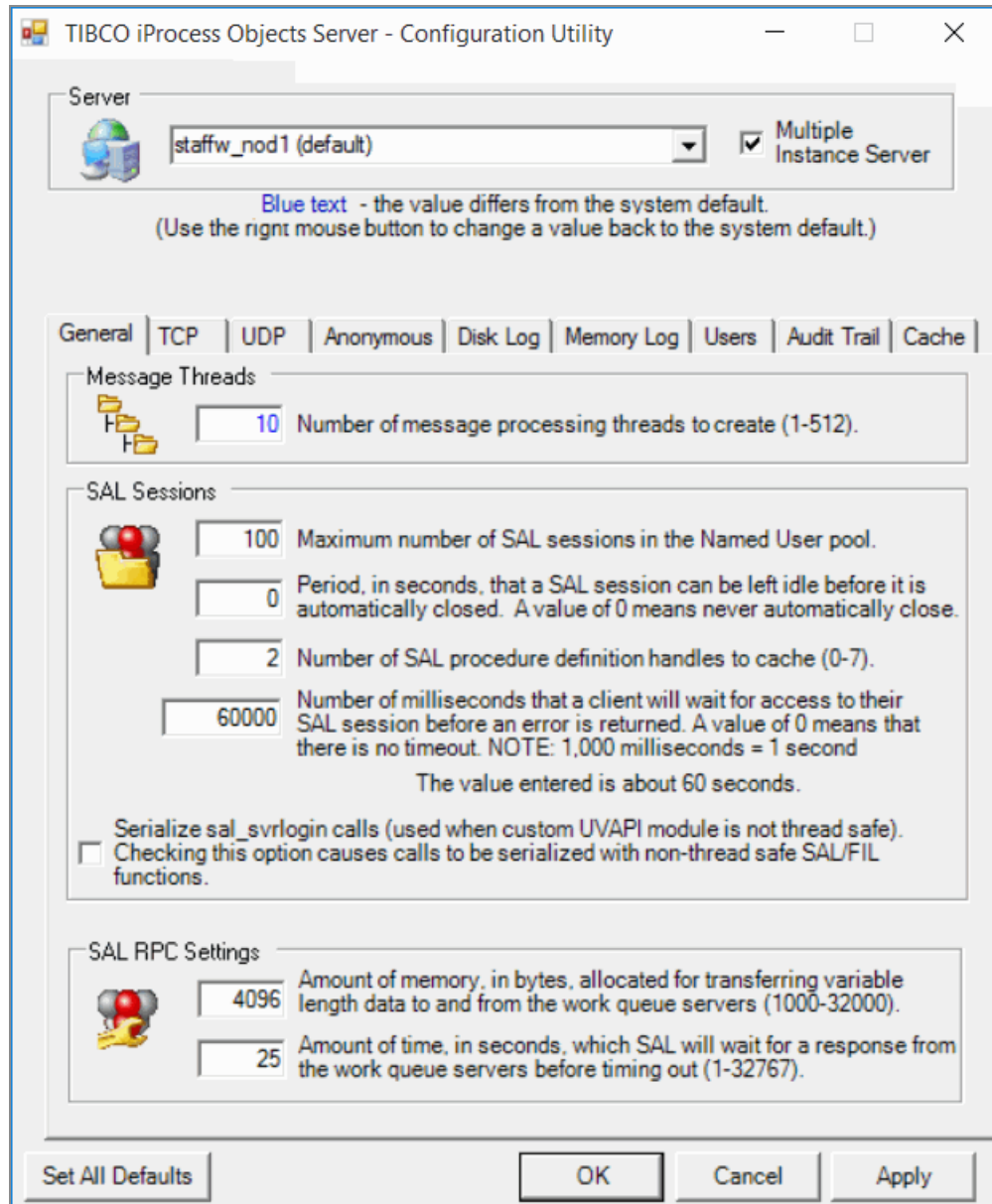
Figure 24: Select Components to Configure Dialog Box



9. (For Install Files Only) Click the **Next** button. In step 8, if you check
 - the Configure Email Plug-in checkbox, the SMTP Server Parameters dialog box appears. Configure the parameters that the iProcess Email Server Plug-in will use to connect to an SMTP server. For detailed information about configuration options in this dialog box, see [SMTP Server Parameters](#).
 - the Install iProcess 'Web Server' Service checkbox, the TIBCO iProcess Web Server Configuration dialog box appears. Specify the location of TIBCO Hawk and TIBCO Rendezvous that are used by the iProcess Web Server service. For detailed information about configuration options in this dialog box, see [Select Components To Configure](#).
 - the Enable IAP checkbox, the Default Java Message Service dialog appears. Configure the necessary Java Message Service (JMS) parameters to enable Activity Monitoring and Work Queue Delta publication on TIBCO iProcess Engine. For detailed information about configuration options in this dialog box, see [TIBCO iProcess Web Server Configuration](#).

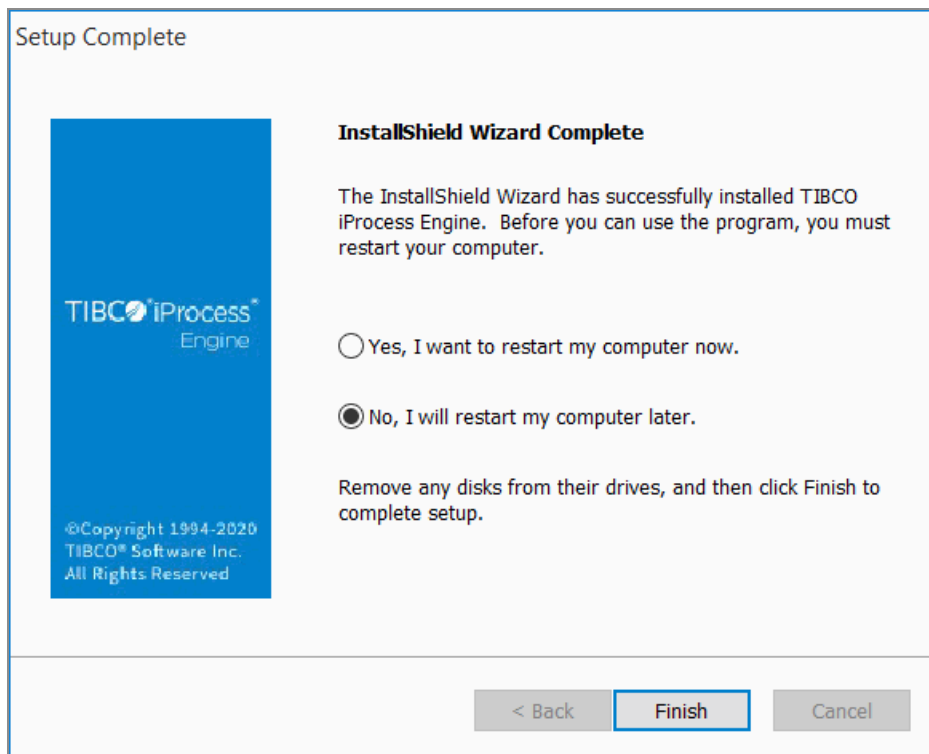
- any other checkbox, the Start Copying Files dialog box appears. Review the current settings in this dialog box.
10. Click the **Next** button to proceed with the installation. If you checked the Configure iProcess Objects Server checkbox in [Select Components to Configure Dialog Box](#), The TIBCO iProcess Objects - Server Configuration Utility dialog box appears, as shown in [TIBCO iProcess Objects - Server Configuration Utility Dialog Box](#).

Figure 25: TIBCO iProcess Objects - Server Configuration Utility Dialog Box



- Set your desired configuration parameters for iProcess Objects Server. See *TIBCO iProcess Objects Programmer's Guide* or *TIBCO iProcess Objects Server Administrator's Guide* for more information about the available parameters.
 - If you are installing to a Microsoft Windows Cluster, you must specify that iProcess Objects Server uses a *static port* (using the TCP tab).
11. Complete the installation. After completing the installation, the Setup Complete dialog box appears, as shown in [Setup Complete Dialog Box](#). You can choose to restart your computer right now or later.

Figure 26: Setup Complete Dialog Box



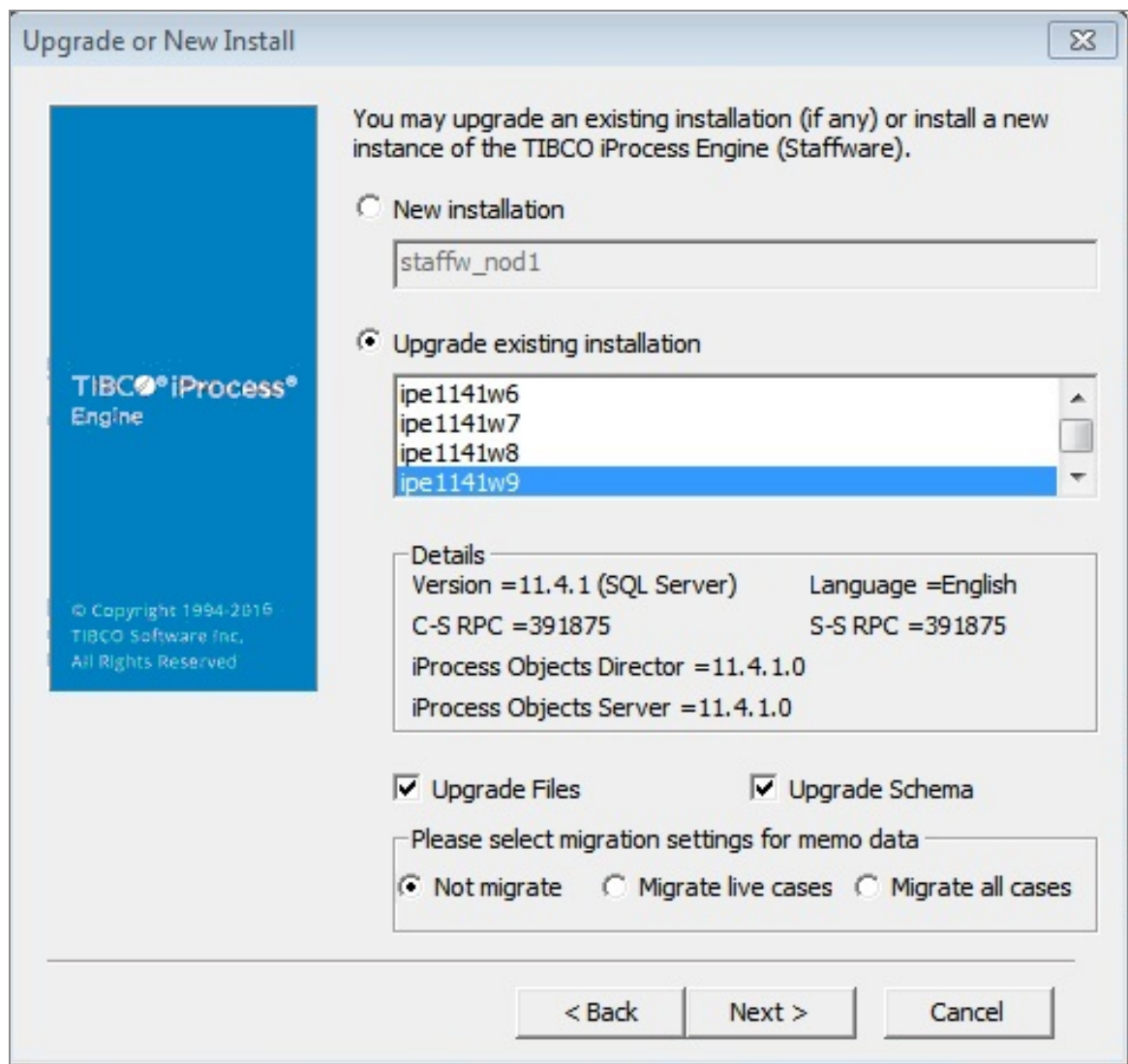
12. Click the **Finish** button to exit the installation program.

Custom Installation - Upgrade Existing Installation

For TIBCO iProcess Engine Custom Installation, complete the following steps:

1. Select the **Custom** radio button in the Setup Type dialog box, then click the **Next** button. The Upgrade or New Install dialog box appears, as shown in [Upgrade or New Install Dialog Box - Upgrade Existing Installation](#).

Figure 27: Upgrade or New Install Dialog Box - Upgrade Existing Installation



2. Select the **Upgrade Existing Installation** radio button, then select the iProcess node name you want to upgrade in the Upgrade or New Install dialog box.

- iProcess Files-install Owner can upgrade files.
- iProcess Schema-install Owner can upgrade schema tables.

You can either upgrade iProcess Engine files and schema tables simultaneously, or upgrade them separately. If there are no schema changes between the current version and the upgrade, the Upgrade Schema checkbox is unchecked and disabled. If you need to upgrade schema tables, you must upgrade iProcess Engine files also. For detailed information about configuration options in this dialog box, see [Upgrade or New Install](#).

To upgrade iProcess Engine schema tables separately, follow steps 3, 6, 7, 11, 12 and 13. [Click the Finish button to exit the installation program.](#)

To upgrade iProcess Engine files separately, follow steps 3, 4, 5, 9, 10, 11, 12 and 13. [Click the Finish button to exit the installation program.](#)

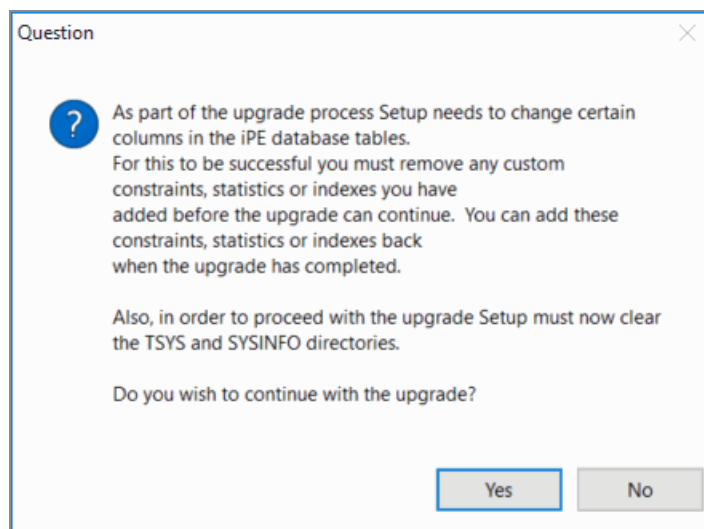
i
Note

Since iProcess Engine 11.5, all the new case memo data is stored in the `nmemo` table and `pack_nmemo` table. You can choose to migrate old case memo data when upgrading to iProcess Engine 11.9 by selecting the **Live cases** or **All cases** check box.

The migration for the case memo data might take a long time depending on the volume of the memos in the `pack_memo` and `memo` tables. You can also migrate the memo data by using the `swutil MIGRATEMEMOS` command after the upgrades.

3. Click the **Next** Button. The Question dialog box appears, as shown in [Question Dialog Box](#).

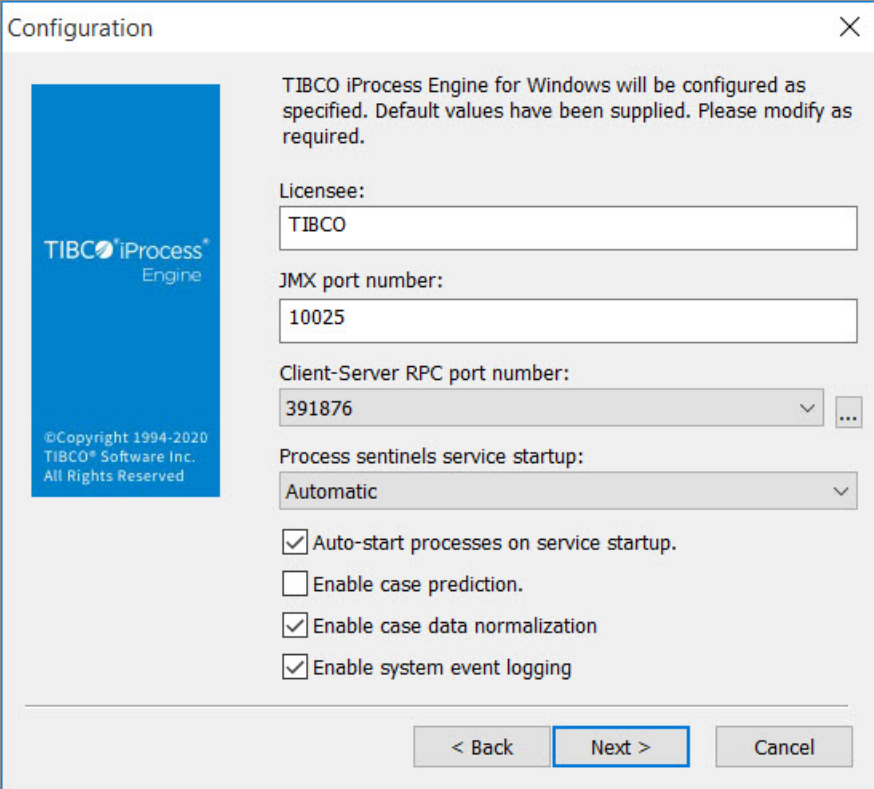
Figure 28: Question Dialog Box



It informs you that the installer needs to delete the contents of the `SWDIR\tsys` and `SWDIR\sysinfo` folders before continuing. It also reminds you that you must have removed any user-defined constraints, indexes, or statistics that you have added to iProcess Engine schema tables before continuing with the upgrade. For more information, see [Recreating All User-defined Constraints \(Or Triggers\), Indexes and Statistics on the iProcess Engine Schema Tables](#).

4. (For Upgrade Files Only) Click the **Yes** button when you are ready to continue with the upgrade. The Configuration dialog box appears, as shown in [Configuration Dialog - Upgrade](#). For detailed information about configuration options in this dialog box, see [Configuration](#)

Figure 29: Configuration Dialog - Upgrade



The screenshot shows the 'Configuration' dialog box for TIBCO iProcess Engine. The dialog has a title bar with a close button (X). On the left is a blue sidebar with the TIBCO iProcess Engine logo and copyright information: '©Copyright 1994-2020 TIBCO® Software Inc. All Rights Reserved'. The main area contains the following configuration options:

- A message: 'TIBCO iProcess Engine for Windows will be configured as specified. Default values have been supplied. Please modify as required.'
- 'Licensee:' text box with 'TIBCO' entered.
- 'JMX port number:' text box with '10025' entered.
- 'Client-Server RPC port number:' dropdown menu with '391876' selected and a '...' button to the right.
- 'Process sentinels service startup:' dropdown menu with 'Automatic' selected.
- Four checkboxes:
 - ☒ Auto-start processes on service startup.
 - ☐ Enable case prediction.
 - ☒ Enable case data normalization
 - ☒ Enable system event logging

At the bottom are three buttons: '< Back', 'Next >' (highlighted with a blue border), and 'Cancel'.

5. (For Upgrade Files Only) Click the **Next** button. The Group & User Configuration dialog box appears, as shown in [Group & User Configuration Dialog - Upgrade](#). Configure information in the Group & User Configuration dialog box. For detailed information about configuration options in this dialog box, see [Group & User Configuration](#).

Figure 30: Group & User Configuration Dialog - Upgrade

6. (For Upgrade Schema Only) Click the **Next** button.

If you are using an Oracle database with iProcess Engine, skip this step.

If you are using a SQL Server database with iProcess Engine, the SQL/ODBC Details dialog appears. If you select **Choose an existing ODBC data source**, the system will display a list of 32-bit odbc datasources for a 32-bit to a 64-bit software upgrade. Likewise, for a 64-bit to another 64-bit upgrade, a list of 64-bit odbc datasources will be displayed. For detailed information about configuration options in this dialog box, see [SQL/ODBC Details](#). Click the **Next** button.

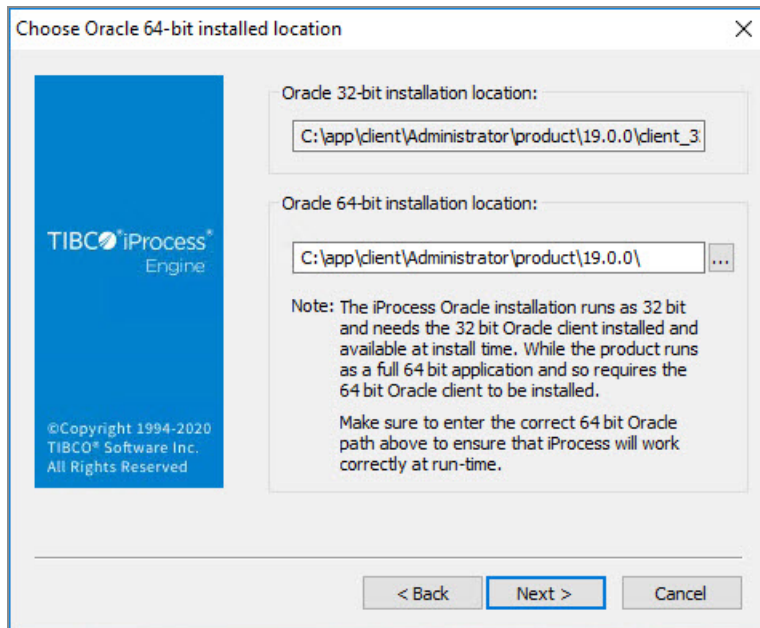
7. (For Upgrade Schema Only) Configure the database that iProcess Engine will connect to in the Database Details dialog box. For detailed information about configuration options in this dialog, see [Database Details](#).

If you are using an Oracle database with iProcess Engine, the configuration options are listed in [Configuration Options in the Database Details Dialog box - Oracle](#).

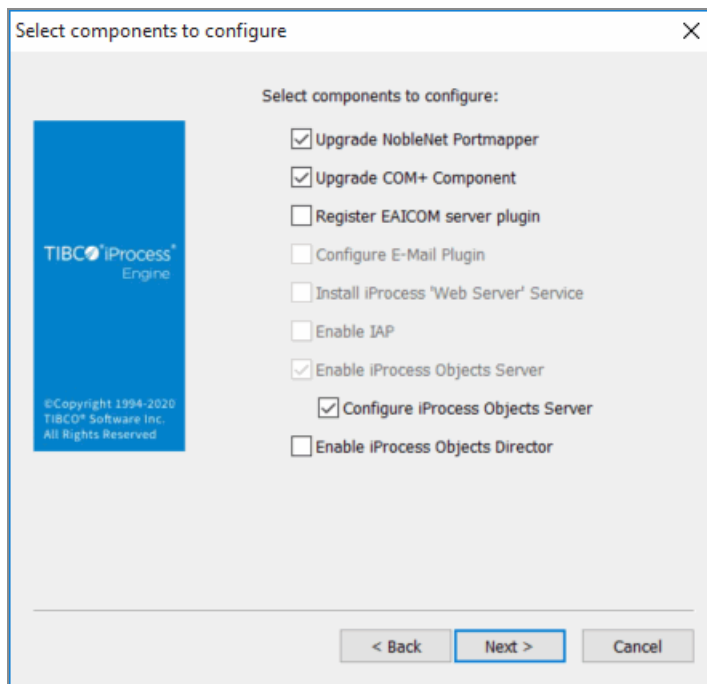
If you are using a SQL Server database with iProcess Engine, the configuration options are listed in [Configuration Options in the Database Details Dialog Box- SQL Server](#).

(For Upgrade Files Only) The Database Details dialog box is non-editable. You can only view the database configuration details.

8. (For Upgrade Files Only) Click the **Next** button. The "Choose Oracle 64-bit installed location" dialog box appears.



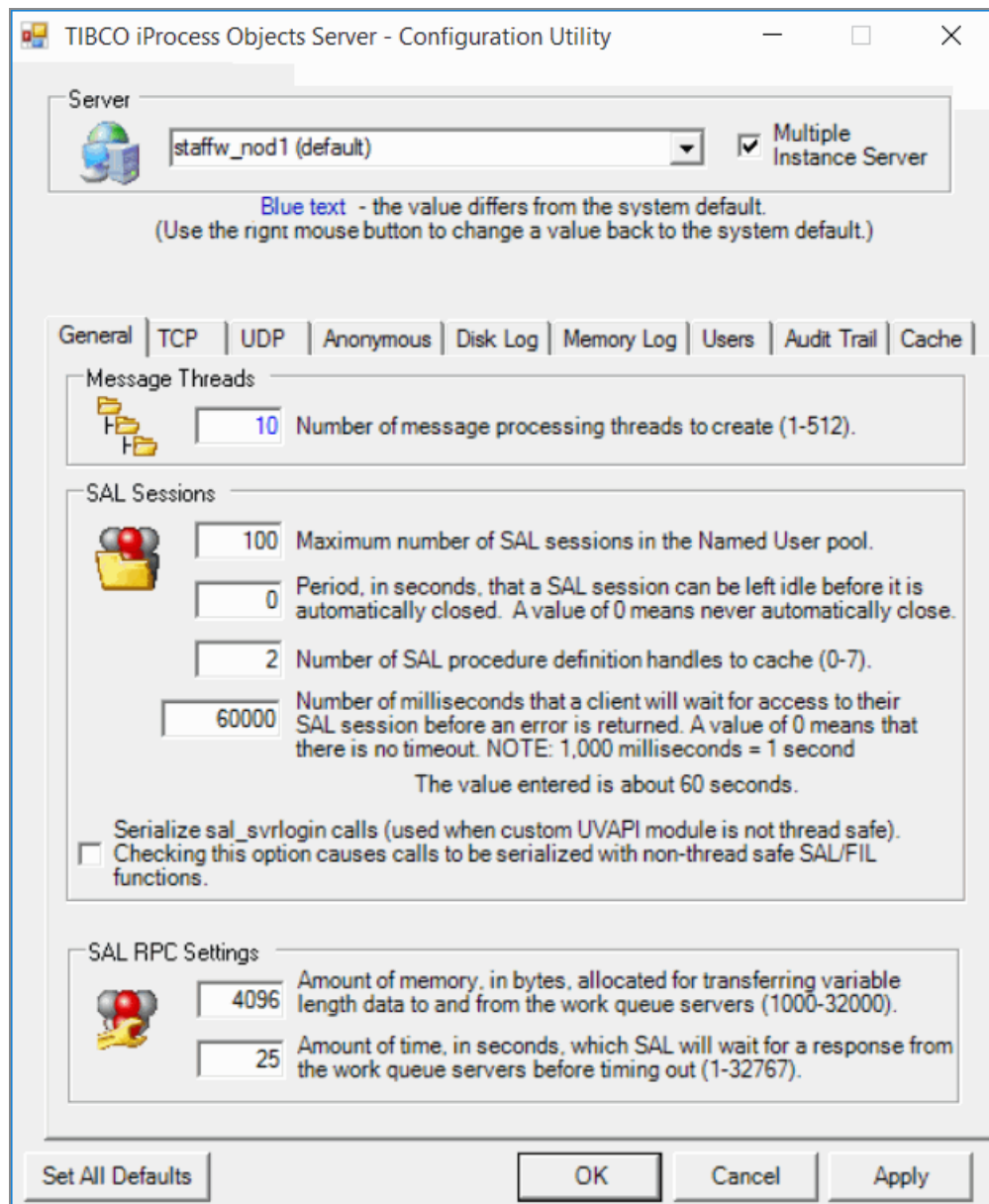
9. (For Upgrade Files Only) Click the **Next** button. The Select Components to Configure dialog box appears. Select the components that you want to configure during the upgrade in this dialog box, as shown in [Select Components to Configure Dialog Box](#). For detailed information about configuration options in this dialog box, see [Select Components To Configure](#).

Figure 31: Select Components to Configure Dialog Box

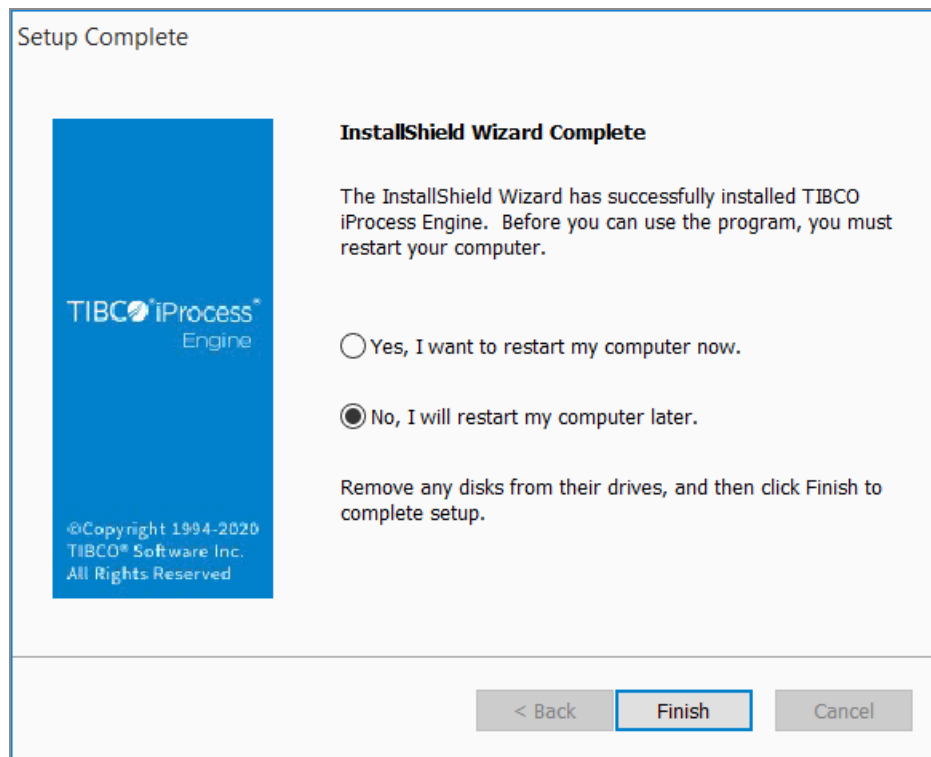
10. (For Upgrade Files Only) Click the **Next** button. The Start Copying Files dialog box appears. Review the current settings in this dialog box.
11. Click the **Next** button to proceed with the installation.

If you checked the Configure iProcess Objects Server checkbox in [Select Components to Configure Dialog Box](#), The TIBCO iProcess Objects - Server Configuration Utility dialog box appears, as shown in [TIBCO iProcess Objects - Server Configuration Utility Dialog Box](#).

Figure 32: TIBCO iProcess Objects - Server Configuration Utility Dialog Box



- Set your desired configuration parameters for iProcess Objects Server. See *TIBCO iProcess Objects Programmer's Guide* or *TIBCO iProcess Objects Server Administrator's Guide* for more information about the available parameters.
 - If you are installing to a Microsoft Windows Cluster, you must specify that iProcess Objects Server uses a *static port* (using the TCP tab).
12. Complete the installation. After completing the installation, the Setup Complete dialog box appears, as shown in [Setup Complete Dialog Box](#). You can choose to restart your computer right now or later.

Figure 33: Setup Complete Dialog Box

13. Click the **Finish** button to exit the installation program.

Installing TIBCO iProcess Engine in Silent Mode

If you want to install TIBCO iProcess Engine in silent mode, you must have installed it in GUI mode on a computer and generated a response file that provides all the configuration information. You can subsequently use this response file as a script to run a similar installation automatically, without having to manually enter values in the dialogs. You may want to do this if you are installing a master server and multiple slave servers: you can run the installer in GUI mode for the master server, and run it in silent mode using the resulting response file on each slave server.

The following procedure explains how to install TIBCO iProcess Engine in silent mode.

- [Generating a Response File](#)
- [Performing an Installation in Silent Mode](#)

Generating a Response File

To generate a response file, complete the following steps:

1. Perform all the necessary pre-installation tasks. See [Pre-installation](#) for detailed information.
2. Open a command-line window and type the following command:
`setupDir\setup.exe -bC:\spoinfo.reg -r -f1responseFileName.rst`
 where:

- *setupDir* is the directory from which you run the installer in GUI mode.
- *responseFileName.rst* is the full path of the response file in which you want to record your responses to the installation prompts.

For example:

```
E:\TIBCO\setup.exe -bC:\spoinfo.reg -r -f1C:\ipe113.rst
```

3. Run **setup.exe**, entering the required values to all the prompts as normal. See [Installing TIBCO iProcess Engine in GUI Mode](#).
4. Perform the post-installation tasks. See [Post-installation](#) for detailed information.
5. Start iProcess Engine to make sure that it has been correctly installed.

Performing an Installation in Silent Mode

To perform an installation in silent mode, complete the following steps:

1. Prepare a response file *responseFileName.rst*. For detailed information, see [Generating a Response File](#).
2. Perform all the necessary pre-installation tasks on each machine where you want to install iProcess Engine. See [Pre-installation](#) for detailed information.
3. Log in as a user who is a member of the Administrators group. See [IPEINSTALL](#) for more information.
4. Open a command-line window and type the following command:
`setupDir\setup.exe -bC:\spoinfo.reg -s -f1responseFileName.rst`
 where:
 - *setupDir* is the directory from which you run the installer in GUI mode.

- `responseFileName.rst` is the full path of the response file in which you want to record your responses to the installation prompts.
5. Press the **Enter** key on the keyboard. The installer installs iProcess Engine, automatically getting the necessary information from the response file.
 6. Perform the post-installation tasks. See [Post-installation](#) for detailed information.
 7. Start iProcess Engine to make sure that it has been correctly installed.

Upgrading TIBCO iProcess Engine

i Note: If you are using TIBCO iProcess Engine version 11.0 or higher, you can upgrade to Version 11.9.0 directly. If you are using TIBCO Process Engine 9.0, you have to upgrade to version 11.4.1 first, and then upgrade to Version 11.9.0. For detailed information of upgrade, see [Custom Installation - Upgrade Existing Installation](#).

Upgrade Performance and Timing

Upgrading to Version 11.9.0 can involve significant changes to iProcess data and data structures. The upgrade process is therefore complex, and can take a significant amount of time to complete if the system being upgraded has a large amount of case data.

TIBCO cannot provide an estimate of how long the upgrade will take because of the number of customer-specific factors that can have an impact, and the complexity of their interaction, such as, the amount of data in your existing system, the configuration of your database, and the hardware setup you are running.

TIBCO therefore strongly recommends that you test the upgrade before performing it on your target system, either in a representative production environment, or using a copy of your production system. This will allow you to determine how long the upgrade is likely to take, and to identify any specific factors that may affect the success or duration of the upgrade.

Upgrade Steps

To upgrade an existing iProcess Engine to Version 11.9.0, see [Custom Installation - Upgrade Existing Installation](#) for detailed information.

Post-installation

This section describes the tasks you need to perform after you have installed TIBCO iProcess Engine according to the instructions in [Installing TIBCO iProcess Engine in GUI Mode](#).

[Post-Installation Tasks Checklist](#) provides a checklist of the tasks that you must or may need to perform before starting iProcess Engine. The table shows:

- whether the iProcess Files-install Owner, iProcess Schema-install Owner, or DBA user needs to perform the task. See [Organization Roles](#) for more information about iProcess Files-install Owner, iProcess Schema-install Owner and DBA.
- the status of a task, depending on whether you are installing a new iProcess Engine or upgrading an existing one. There are four possible task statuses:
 - **Required** — You *must* perform this task before starting the iProcess Engine.
 - **Check** — You *may need* to perform this task before starting the iProcess Engine, depending on your installation scenario.
 - **Optional** — You *may want* to perform this task before starting the iProcess Engine, but it is not essential.
 - **N/A** — You can start iProcess Engine without performing this task.

For detailed information about each task, see [Post-installation Tasks](#).



Tip

You may want to print this table as a useful quick reference when performing the post-installation tasks. The Done? column in the table provides a place for you to check off tasks that have been done.

Post-Installation Tasks Checklist

Task	Database Type	To be done by	Install Status	Upgrade Status	See	Done?
Re-implementing Changes to Upgraded Configuration Files	Oracle SQL Server	iProcess Files-install Owner iProcess Schema-install Owner	N/A	Optional	Re-implementing Changes to Upgraded Configuration Files	<input type="checkbox"/>
Configuring Firewall Port Ranges on Slave Servers	Oracle SQL Server	iProcess Files-install Owner iProcess Schema-install Owner	Check	Check	Configuring Firewall Port Ranges on Slave Servers	<input type="checkbox"/>
Configuring TIBCO iProcess Objects Server and TIBCO iProcess Objects Director	Oracle SQL Server	iProcess Files-install Owner iProcess Schema-install Owner	Optional	Optional	Configuring TIBCO iProcess Objects Server and TIBCO iProcess Objects Director	<input type="checkbox"/>
Enabling COM+ Network Access	Oracle SQL Server	iProcess Files-install Owner iProcess Schema-install Owner	Check	Check	Enabling COM+ Network Access	<input type="checkbox"/>
Configuring the Microsoft	Oracle	iProcess Files-install	Check	Check	Configuring the Microsoft	<input type="checkbox"/>

Task	Database Type	To be done by	Install Status	Upgrade Status	See	Done?
Windows Cluster	SQL Server	Owner iProcess Schema-install Owner			Windows Cluster	
Enabling Oracle Function-based Indexes	Oracle	iProcess Schema-install Owner DBA	Check	Check	Enabling Oracle Function-based Indexes	<input type="checkbox"/>
Installing the IBM Client for JMS on J2SE with IBM WebSphere Application Server	Oracle SQL Server	iProcess Files-install Owner iProcess Schema-install Owner	Check	Check	Installing the IBM Client for JMS on J2SE with IBM WebSphere Application Server	<input type="checkbox"/>
Configuring IAPJMS Security Settings	Oracle SQL Server	iProcess Files-install Owner iProcess Schema-install Owner	Optional	Optional	Configuring IAPJMS Security Settings	<input type="checkbox"/>
Configuring the Default iProcess Engine Installer	Oracle SQL Server	iProcess Files-install Owner iProcess Schema-install Owner	Optional	Optional	Configuring the Default iProcess Engine Installer	<input type="checkbox"/>

Task	Database Type	To be done by	Install Status	Upgrade Status	See	Done?
Recreating Prediction Data	Oracle SQL Server	iProcess Files-install Owner iProcess Schema-install Owner	N/A	Optional	Recreating Prediction Data	<input type="checkbox"/>
Configuring Access to SSOLite Stored Procedures for TIBCO iProcess Plug-ins	SQL Server	iProcess Schema-install Owner DBA	Check	Check	Configuring Access to SSOLite Stored Procedures for TIBCO iProcess Plug-ins	<input type="checkbox"/>
Granting Permissions on Stored Procedures in EAI Database Steps	Oracle SQL Server	iProcess Schema-install Owner DBA	Check	Check	Granting Permissions on Stored Procedures in EAI Database Steps	<input type="checkbox"/>
Recreating All User-defined Constraints (Or Triggers), Indexes and Statistics on the iProcess Engine	Oracle SQL Server	iProcess Schema-install Owner DBA	N/A	Check	Recreating All User-defined Constraints (Or Triggers), Indexes and Statistics on the iProcess Engine	<input type="checkbox"/>

Task	Database Type	To be done by	Install Status	Upgrade Status	See	Done?
Schema Tables					Schema Tables	
Updating the Domain Group Policy for the Log On As A Service Right	Oracle SQL Server	iProcess Files-install Owner iProcess Schema-install Owner	Check	Check	Updating the Domain Group Policy for the Log On As A Service Right Updating the Domain Group Policy for the Log On As A Service Right	<input type="checkbox"/>
Disabling or Re-enabling Write Access to WebDav	Oracle SQL Server	iProcess Files-install Owner iProcess Schema-install Owner	Optional	Optional	Disabling or Re-enabling Write Access to WebDav	<input type="checkbox"/>
Configuring JMX Ports to Run Through a Firewall	Oracle SQL Server	iProcess Files-install Owner iProcess Schema-install Owner	Optional	Optional	Configuring JMX Ports to Run Through a Firewall	<input type="checkbox"/>
Setting Up iProcess Engine with	Oracle SQL Server	iProcess Files-install Owner	Optional	Optional	Setting Up iProcess Engine with	<input type="checkbox"/>

Task	Database Type	To be done by	Install Status	Upgrade Status	See	Done?
an IPv6 Address		iProcess Schema-install Owner			an IPv6 Address	
Starting TIBCO iProcess Engine	Oracle SQL Server	iProcess Files-install Owner iProcess Schema-install Owner	Optional	Optional	Starting TIBCO iProcess Engine	<input type="checkbox"/>
Setting the ORACLE_HOME environment variable to 64-bit path	Oracle	Windows Administrator	Required	Required		<input type="checkbox"/>

Installing or Upgrading TIBCO iProcess Engine to Version 11.9.0

To install or upgrade TIBCO iProcess Engine to Version 11.9.0, perform the following steps:

1. Make sure that you have both 32-bit (v2.7.0) and 64-bit (v2.9.1) pthread.dll files along with the msvcr100.dll file in the %systemroot%\System32 directory.

i Note: If the pthread.dll file is not saved in your local directory, see [Downloading the pthreads Library](#) for details on how to download the pthread.dll file.

2. Install or upgrade TIBCO iProcess Engine.

For more details on how to install TIBCO iProcess Engine in GUI mode, see [Installing TIBCO iProcess Engine in GUI Mode](#). For more details on how to install TIBCO

iProcess Engine in silent mode, see [Installing TIBCO iProcess Engine in Silent Mode](#). For more details on how to upgrade to TIBCO iProcess Engine 11.9, see [Upgrading TIBCO iProcess Engine](#).

3. After installing or upgrading TIBCO iProcess Engine to Version 11.9.0 by performing the above listed steps, you can run TIBCO iProcess Engine 11.9 successfully.

Uninstalling TIBCO iProcess Engine

This section describes how to uninstall TIBCO iProcess Engine on Windows.

Pre-removal Considerations

Before uninstalling your iProcess Engine, TIBCO recommends that you:

- Do not attempt to delete iProcess Engine files directly, as some may remain on the system, causing problems if you want to reinstall iProcess Engine later.
- Back up your database schema and any other files if you want to keep your existing iProcess Engine data. Otherwise it will be lost when you uninstall the iProcess Engine.

**Note**

Configuration changes that were made prior to installation are not automatically removed. Any such changes made must be manually changed back to their original values.

- If you uninstall an iProcess Engine that uses a node cluster architecture, you must remove things in the following sequence:
 - a. Remove iProcess Engine from each slave server.
 - b. Remove iProcess Engine from the master server.
 - c. Remove iProcess Engine database schema and Oracle users or SQL logins from the Oracle or SQL Server instance.

When you are ready to uninstall iProcess Engine, work through the instructions in the following sections in sequence.

**Warning**

It is essential that if you have TIBCO iProcess Technology Plug-ins installed, you uninstall these *before* uninstalling iProcess Engine. See *TIBCO iProcess Technology Plug-ins Installation* for detailed information.

Uninstalling iProcess Engine from a Windows Cluster

If you have installed iProcess Engine in a Windows cluster:

1. Run the following command on each *secondary* machine in the cluster:

```
SWDIR\mscluster\mscluster -r
```

**Warning**

Do not run this command on the machine where iProcess Engine is installed.

If you do so, you will not be able to uninstall iProcess Engine from that machine.

This command removes the following iProcess Engine shared resources and services:

- iProcess *nodeName* Process Sentinels service
- iProcess *nodename* Admin Console service
- NobleNet Portmapper for TCP service
- iProcess Events64 COM+ application
- iProcess COM+ Bridge COM+ application

where *nodename* is the node name of this iProcess Engine.

It also removes the port numbers used by the iProcess Engine watcher and worker process sentinels in the %systemroot%\system32\drivers\etc\services file.

2. Remove the Generic Service resources for the NobleNet Portmapper and Process Sentinels services for this iProcess Engine using Cluster Administrator, see [Configuring the Microsoft Windows Cluster](#) for details.

See Microsoft documentation for more information about the Cluster Administrator tool.

3. Remove the ODBC data source for this iProcess Engine from each secondary machine in the cluster if you are using a SQL Server database.
4. Uninstall iProcess Engine itself. See [Uninstalling iProcess Engine](#) for details.

Uninstalling iProcess Engine

To remove iProcess Engine from your computer, complete the following steps:

1. Log in to Windows using the [IPEADMIN](#) user account and also make sure that all users are logged out from iProcess Engine.
2. Open the Control Panel window.
 - a. Stop the following services:
`iProcess nodeName Process Sentinels`
`iProcess NodeName Admin Console` (if it exists)
 - b. Double-click the **Add or Remove Programs** button and select the **TIBCO iProcess Engine nodeName** item from the list, where *nodeName* is the name of iProcess Engine installation that you want to uninstall. Then click the **Remove** button to perform the uninstallation process.

**Note**

If any messages are displayed during the uninstallation, follow the on-screen instructions.

3. Remove the ODBC data source used by this iProcess Engine if you are using a SQL Server database. See [Removing the ODBC Data Source](#) for details.
4. Remove the iProcess Events64 COM+ application. See [Removing the iProcess Events64 COM+ Application](#) for details.

Removing the ODBC Data Source

If you are using a SQL Server database, the steps listed are required.

To remove the ODBC data source used by this iProcess Engine, complete the following steps:

1. Open the Control Panel window.
2. Click the **Administrative Tools** button, then double-click the **Data Sources (ODBC)** button.
3. Select the **SQL Server** data source used by this iProcess Engine database on the System DSN tab and click the **Remove** button.

4. Click the **Yes** button to confirm that you want to remove the ODBC data source in the ODBC Administrator dialog box.
5. Close the Data Sources (ODBC) and Administrative Tools windows.
6. Remove the iProcess Events64 COM+ application. See [Removing the iProcess Events64 COM+ Application](#) for details.

Removing the iProcess Events64 COM+ Application

Removing the iProcess Events64 COM+ application means that any other iProcess Engine installed on this computer will no longer work.

**Note**

Do not remove this application if there are other iProcess Engine installations on this computer.

To remove the iProcess Events64 COM+ application, complete the following steps:

1. Open the Control Panel window.
2. Click the **Administrative Tools** button, then double-click the **Component Services** button. The Component Services console appears.
3. Select **Component Services > Computers > My Computer > COM+ Application** in the left pane.
4. Right-click the **iProcess Events64** item and select **Delete** from the pop-up menu.
5. Click the **Yes** button to confirm that you want to delete the iProcess Events64 COM+ application in the Confirm Item Delete dialog box.
6. Close the Control Panel window.
7. Delete the following two files from your system:
 - winnt\system32\SWEventClass.dll
 - winnt\system32\SWEventClassSubscriber.dll
8. Remove the iProcess Engine database. See [Removing the iProcess Engine Database](#) for details.

Removing the iProcess Engine Database

You need to follow a specific procedure to remove your iProcess Engine database:

- [Oracle](#)
- [SQL Server](#)

Oracle



Warning

Do not remove the iProcess Engine schema and Oracle users until you have removed the iProcess Engine files from the master server and all slave servers.

Delete the iProcess schema and the iProcess background user and foreground user accounts from the Oracle database. See Oracle documentation for more information about how to do this.

SQL Server



Warning

Do not remove the iProcess Engine schema and SQL Server users until you have removed the iProcess Engine files from the master server and all slave servers.

To delete the iProcess Engine database and SQL logins:

1. Start **SQL Server Management Studio**.



Note

You must install SQL Tools to get the SQL Server Management Studio utility.

2. Delete the iProcess Engine database:
 - a. Expand **Databases** to the iProcess Engine database you want to delete.
 - b. Right-click the iProcess Engine database and select **Delete** from the pop-up menu.
 - c. Click the **Yes** button to confirm that you want to delete this database.
3. Delete the IPE DB Owner and IPE DB User SQL Server login IDs:

- a. Expand **Security** and click **Logins**.
- b. Right-click the IPE DB Owner login and select **Delete** from the pop-up menu. Click the **Yes** button to confirm that you want to delete this database.
- c. Right-click the IPE DB User login and select **Delete** from the pop-up menu. Click the **Yes** button to confirm that you want to delete this database.



Note

See SQL Server documentation for more information about this procedure.

Pre-installation Tasks

This appendix lists the pre-installation tasks.

Checking for Any Late-breaking Information

Status

If you are...	This task is...
Installing a new iProcess Engine Version 11.9.0	Required
Upgrading from an iProcess Engine Version 11.0 or later	Required

Database

Oracle, SQL Server

Description

Before installing TIBCO iProcess Engine, you need to check if there any restrictions, known issues, or other late-breaking information that may affect your installation.

See *TIBCO iProcess Engine Release Notes* for detailed information.

Procedure

To check for late-breaking information:

1. Read *TIBCO iProcess Engine Release Notes* and *TIBCO iProcess Engine Readme* that are supplied with the iProcess Engine software.
2. Visit the TIBCO Support Web, at <http://www.tibco.com/services/support>.

**Note**

Contact TIBCO support for any Hot fixes or service releases when near to production deployment time.

Backing Up the TIBCO iProcess Engine File System

Status

If you are...	This task is...
Installing a new iProcess Engine Version 11.9.0	N/A
Upgrading from an iProcess Engine Version 11.0 or later	Required

Database

Oracle, SQL Server

Description

**Warning**

You must back up your iProcess Engine system before an upgrade.

Make sure that you back up the entire *SWDIR* directory structure, and any other files you want to restore if a failure occurs during upgrade. The upgrade process has no UNDO capability. If it fails for any reason, you will require a full backup of your *SWDIR* file system to be able to restore your original iProcess Engine system.

You must also back up your database schema — For detailed information, see [Backing Up the TIBCO iProcess Engine Database Schema](#).

Procedure

Complete the following steps to back up an existing iProcess Engine:

1. Get all users to log out of the iProcess Engine.
2. Stop the iProcess *nodeName* Process Sentinels service and iProcess *nodeName* AdminConsole service from the Control Panel window to stop the iProcess Engine.
3. Make a secure offline copy of the entire *SWDIR* directory structure and any other files you want to restore if a failure occurs during upgrade using your operating system backup utility.

**Note**

If you have made any changes to the following files since they were installed, you need to manually re-implement those changes after upgrading the iProcess Engine:

- *SWDIR*\config\ipac.properties
- *SWDIR*\config\log4j.properties
- *SWDIR*\etc\iapjms_classpath.properties
- *SWDIR*\etc\iapjms_log4j.properties
- *SWDIR*\etc\swjmx_log4j.properties
- *SWDIR*\etc\language.lng\staffico
- *SWDIR*\etc\language.lng\auditusr.mes

This is because the files are overwritten during the upgrade and any changes to the original files are not automatically merged into the new files. See [Re-implementing Changes to Upgraded Configuration Files](#) for more information.

See Also

For more information about the procedures, see *TIBCO iProcess Engine Administrator's Guide* and your operating system documentation.

Backing Up the TIBCO iProcess Engine Database Schema

Status

If you are...	This task is...
Installing a new iProcess Engine Version 11.9.0	N/A
Upgrading from an iProcess Engine Version 11.0 or later	Required

Database

Oracle, SQL Server

Description



Warning

You must back up your iProcess Engine database schema before an upgrade.

In some circumstances, an upgrade may fail and leave iProcess Engine in an unusable condition. If this happens, you need to back up your database schema to restore the system to its previous condition before you can either use it or attempt to upgrade it again.

Procedure

See your database documentation for more information about how to back up the iProcess Engine database schema.

Checking for the Database Codepage Setting

Status

If you are...	This task is...
Installing a new iProcess Engine Version 11.9.0	Required
Upgrading from an iProcess Engine Version 11.0 or later	Possibly required

Database

Oracle, SQL Server

Description

Before installing TIBCO iProcess Engine, check that the database codepage setting and the codepage setting of your system environment variable used to start up iProcess Engine are consistent.

Node Cluster

The codepage setting of your database must be consistent with the system environment variable in both master server and slave servers.

Procedure

For detailed information about how to configure the codepage setting of the system environment variable and databases, see your operating system documentation and your database documentation.

For example, if you want to use UTF-8 codepage for Oracle database and your system environment variable, you need to do the following settings:

```
export NLS_LANG=AMERICAN_AMERICA.AL32UTF8
```

Upgrading the Operating System

Status

If you are...	This task is...
Installing a new iProcess Engine Version 11.9.0	Possibly required
Upgrading from an iProcess Engine Version 11.0 or later	Required

Database

Oracle, SQL Server

Description

TIBCO iProcess Engine requires a specific release version of an operating system. For supported operation systems information, see [Supported Platforms](#).

Node Cluster

The operating system version used must be the same on the master server and on each slave server.

Procedure

If you are using an operating system version that does not meet the specified requirements, you must upgrade it.

See Also

See your operating system documentation for more information about how to upgrade your operation system.

Upgrading the Database

Status

If you are...	This task is...
Installing a new iProcess Engine Version 11.9.0	Possibly required
Upgrading from an iProcess Engine Version 11.0 or later	Possibly required

Database

Oracle, SQL Server

Description

TIBCO iProcess Engine requires a specific release version of a database. For supported database information, see [Supported Databases](#).

Node Cluster

The database version used must be the same on the master server and on each slave server.

Procedure

If you are using a version of database that does not meet the specified requirements, you must upgrade it.

See Also

See your database documentation for more information about how to upgrade a database.

Stopping Any Other iProcess Engines on the Same Machine

Status

If you are...	This task is...
Installing a new iProcess Engine Version 11.9.0	Required <i>for the first installation</i>
Upgrading from an iProcess Engine Version 11.0 or later	Required <i>for the first upgrade</i>

Database

Oracle, SQL Server

Description

Before installing TIBCO iProcess Engine on a machine, you need to stop any other iProcess Engines running on the same machine. If you do not do this when it is required, the installer will display an error dialog box and fail when you run it. See [Installer Cannot Continue Because Another iPE is Running](#) for more information.

After stopping iProcess Engines running on a machine, the installer can stop and replace components (for example, the iProcess Events64 COM+ application) that are also used by other iProcess Engine installations. The installer checks whether the latest versions of these components are currently installed, and only replaces them where the version delivered with this iProcess Engine is more recent than the installed version of the component.

Therefore, it is only necessary to stop other iProcess Engines for the first installation of iProcess Version 11.9.0 on a given machine. When you install a second or subsequent instance of iProcess, these components will already be at the latest versions, and will not need to be replaced.

Procedure

To stop any other iProcess Engines running on the same machine, complete the following steps:

1. Open the Control Panel window.
2. Double-click the **Administrative Tools** item.
3. Double-click the **Services** item.
4. Search for any running services with the following names:
 - iProcess *nodeName* Process Sentinels
 - iProcess *nodeName* Web Server
 - iProcess *nodeName* AdminConsole service
5. If there are any, right-click each service and select **Stop** from the pop-up menu.

See Also

For more information about how to stop an iProcess Engine, see “Stopping iProcess Engine” in *TIBCO iProcess Engine Administrator’s Guide*.

Setting Up DCOM Permissions for the iProcess Objects Server

Status

If you are...	This task is...
Installing a new iProcess Engine Version 11.9.0	Required
Upgrading from an iProcess Engine Version 11.0 or later	Required

Database

Oracle, SQL Server

Description

If the Windows Distributed Component Object Model (DCOM) facility is enabled on this machine and you intend to enable the iProcess Objects Server during the installation (see [Select Components To Configure](#) for detailed information), you must ensure that the *IPEADMIN* user has DCOM Access Permissions and Launch Permissions.

**Note**

If you have chosen to use separate accounts for the *IPEADMIN* and *IPESERVICE* users, you must give the *IPESERVICE* user the same DCOM permissions as the *IPEADMIN* user.

You may have DCOM enabled without having explicitly set it. For example, Microsoft Web Server enables it as part of its setup.

Procedure

To set up DCOM permissions, complete the following steps:

1. Log in to Windows as an administrator user.
2. Run **dcomcnfg** in the command-line window. The Component Services window appears.
3. Double-click the **Computers** icon to locate the My **Computer** icon.
4. Right-click the **My Computer** icon and select **Properties** from the pop-up menu. The My Computer Properties dialog box appears.
5. Click the **Default Properties** tab.
 - If the Enable Distributed COM On This Computer checkbox is checked, you must set the necessary permissions for the *IPEADMIN* user. See your operating system documentation for detailed information.
 - If the Enable Distributed COM On This Computer checkbox is unchecked, DCOM is not enabled and you can proceed with other pre-installation tasks.
6. If you have chosen to use separate accounts for the *IPEADMIN* and *IPESERVICE* users, repeat the above procedure for the *IPESERVICE* user.

Setting Up DCOM Permissions for a Node Cluster

Status

If you are...	This task is...
Installing a new iProcess Engine Version 11.9.0	Optional
Upgrading from an iProcess Engine Version 11.0 or later	Optional

Database

Oracle, SQL Server

Description

In a node cluster, iProcess Engine machines communicate by publishing and subscribing to events using the iProcess Engine event mechanism. This means that all machines in a node cluster must have permission to instantiate events. To allow this, you must configure the Windows Distributed Component Module (DCOM) facility to allow ANONYMOUS LOGON permissions on each machine.

Procedure

To set up DCOM permissions, complete the following steps:

1. Log in to Windows as an administrator user.
2. Run **dcomcnfg** in the command line window. The Component Services window appears.
3. Double-click the **Computers** icon to locate the **My Computer** icon.
4. Right-click the **My Computer** icon and select **Properties** from the pop-up menu. The My Computer Properties dialog box appears.
5. Click the **COM Security** tab. Follow these steps to set up Access Permissions:

- a. Click the **Edit Limits...** button in the Access Permissions area. The Access Permission dialog box appears.
- b. Select the **ANONYMOUS LOGIN** option from the Group Or User Names list and check the **Allow** checkbox for Remote Access in the Permissions for ANONYMOUS LOGON area.
- c. Click the **OK** button to return to the My Computer Properties dialog box.
- d. Click the **OK** button to return to the Component Services dialog box.
- e. Exit the Component Services window.

Configuring the Oracle Schema

Status

If you are...	This task is...
Installing a new iProcess Engine Version 11.9.0	Optional
Upgrading from an iProcess Engine Version 11.0 or later	N/A

Database

Oracle

Description

When running the installer, it creates a small database by default (approximately 50Mb) that is suitable for benchmarking or development purposes.

You can modify this default database configuration if you want to optimize it for your Oracle environment, taking into account factors specific to your installation, such as the number of cases, the amount of case data, the life of cases, and so on.

The Default iProcess Engine Schema Configuration

By default, the installer performs the following operations when it creates the iProcess Engine schema:

- It creates the following tablespaces for the Oracle instance. In the non- RAC environment, the default tablespaces location is `ORACLE_HOME\database`. In a RAC environment, the installer does not specify the `datefile` value, and RAC determines the tablespaces location automatically.
 - a data tablespace (with the default name `staffwar`). By default, all iProcess Engine tables, indexes, and Oracle AQ queues are stored in this tablespace.
 - a temporary tablespace (with the default name `temp`), which is used for sorting.
- It creates the following Oracle users:
 - iProcess Engine DB Schema Owner User (with the default name `swpro`).
 - iProcess Engine DB User (with the default name `swuser`).

The `staffwar` and `temp` tablespaces are allocated to these users as their default tablespaces.

- It creates the iProcess Engine schema tables, indexes, and Oracle AQ queues in the default `staffwar` tablespace.



Note

The use of the `staffwar` tablespace is defined in the `tablesizes` file. See [How the Installer Sets Up the Default Configuration](#) for details.

How the Installer Sets Up the Default Configuration

The installer uses [the `init2Kora_tok.sql` file](#) and [the `tablesizes` file as the template files to create the iProcess Engine schema:](#)

- the `init2Kora_tok.sql` file

The `init2Kora_tok.sql` file defines the following configuration macros for each iProcess Engine table and index that is to be created:

 - `SIZETABLESIZE`—the initial size (in extents) of a table.
 - `SIZETABLEPCTINCREASE`—the percentage increase to be applied when growing a table.
 - `SIZETABLESPACE`—the tablespace to be used by a table.

— `SIZEINDEXSPACE`—the tablespace to be used by an index.

where `SIZE` is one of seven different categories, as shown in [SIZE Categories](#).

SIZE Categories

Category	Used For	Example
TINY	Small tables that do not grow.	flag_table procedure_lock
SMALL	Generally static tables that contain small amounts of data.	list_names dbs_names
MEDIUM	Generally static tables that contain more data.	user_names user_values
BIG	Slightly larger tables that typically hold values for references held in SMALL and MEDIUM tables.	user_values db_str_values
LARGE	Most of the tables that contain case-related information, typically ones that only have one or two rows per case.	case_ information outstanding_ addr staffo
HUGE	Tables that hold multiple rows per case, but not for all cases.	pack_data pack_memo
MASSIVE	Tables that hold multiple rows per case for all cases.	audit_trail case_data



Note

See *TIBCO iProcess Engine (Oracle) Administrator's Guide* to see which macros are defined for each table and index in the iProcess Engine database.

- the `tablesizes` file

The `tablesizes` file defines a real value for each configuration macro in the `init2Kora_tok.sql` file. The default values for the different `TABLESIZE` macros are shown :

```
#
# Initial size (in extents) for each
# category of table.
#
TINYTABLESIZE=1K
SMALLTABLESIZE=2K
MEDIUMTABLESIZE=40K
BIGTABLESIZE=200K
LARGETABLESIZE=500K
HUGETABLESIZE=500K
MASSIVETABLESIZE=1M
```

When running the installer, it:

1. copies the following files to the installing user's temporary folder (as defined by the %TEMP% user environment variable):
 - init2Kora_tok.sql
 - the tablesizes file specified in the Select Tablesizes Profile dialog box.
2. updates the init2Kora_tok.sql script to:
 - a. replace the configuration macros with the actual values from the tablesizes file.
 - b. replace occurrences of the default data tablespace name (staffwar) with the name specified in the Confirm Tablespace dialog.
3. runs the init2Kora_tok.sql script to create the iProcess database schema.

How to Change the Default Configuration

You can change the default configuration of the iProcess Engine schema to match your particular requirements. Depending on the level of configuration control you need, you can use any combination of the following methods:

- **Change the Default Data Tablespace**

There are two ways in which you can change the default data tablespace to be used:

- The installer can automatically create the default data tablespace for you, using the name you specify in the Database Details dialog. See [Database Details](#) for details.

- Alternatively, you can create the default data tablespaces manually before running the installer. You may want to do this if, for example, you want to spread the larger iProcess tables across multiple tablespaces.

**Note**

If you are using Oracle Real Application Clusters (RAC) you *must* create all required tablespaces on the RAC shared storage device or devices before running the installer. If you do not do this, the installer creates the data file or files for the tablespace in the `ORACLE_HOME\database` directory.

To do this:

- Manually create a tablespace you want to use as the default data tablespace. If you have created multiple tablespaces, simply specify the name of one of these tablespaces.
- When running the installer, specify that you want to use this tablespace in the Database Details dialog, then specify that all database objects should be created in this tablespace in the Confirm Tablespace dialog. See [Database Details](#) for details.

- **Use an Alternative tablespaces File**

When you run the installer, you can use the Select Tablesizes Profile dialog to choose one of the following alternative tablespaces file:

- `tablesizes.med`—Using this file will create a medium-sized database, requiring at least 2.5 GB of disk space.
- `tablesizes.large`—Using this file will create a large-sized database, requiring at least 65 GB of disk space.

**Note**

See [Usage Profiles for Tablesizes Files](#) for more information about the intended usage profiles of these files.

- **Customize Specific Configuration Macros in the Tablesizes File**

If you require more specific configuration control, you can edit the `tablesizes` file to change the values assigned to specific configuration macros. For example, you may want to:

- increase the initial size of tables that use the `LARGETABLESIZE` macro.

- spread the larger iProcess tables across multiple tablespaces or file systems (to aid I/O performance and reduce contention) by modifying individual *SIZETABLESPACE* or *SIZEINDEXSPACE* entries.

**Note**

Remember to create any additional tablespaces before you run the installer.

You can edit the `tablesizes` file when you run the installer.

- **Customize the `init2Kora_tok.sql` File to Assign Different Configuration Macros or Values to Specific Tables or Indexes**

Finally, you can edit the `init2Kora_tok.sql` file to assign different configuration macros (or hard code specific values) to specific tables and indexes. You can do this when you run the installer.

**Note**

By default, the `predict` and `predict_lock` tables use the `SMALL` macro values. If you intend to enable background case prediction on your system (using the `ENABLE_CASE_PREDICTION` process attribute), TIBCO recommends that you change these tables to use a larger value in line with the level of background prediction activity you expect. See “Administering Process Attributes” in TIBCO iProcess Engine Administrator’s Guide for more information.

See Also

For more information about how to estimate the size and layout requirements of your iProcess Engine schema, consult the following sources:

- TIBCO iProcess Engine (Oracle) Administrator’s Guide—this documentation defines the structure of each table, and provides guidance on the number of records a table should contain depending on the iProcess data.
- your TIBCO representative, who can work with you to prepare a detailed sizing and configuration estimate.

Setting Up ORACLE_HOME to 32 bit path

Status

If you are...	This task is...
Installing a new iProcess Engine Version 11.9.0	Required
Upgrading from an iProcess Engine Version 11.0 or later	Required

Database

Oracle

Description



Note

Before installing the iProcess Engine on your machine, ensure that you have Oracle 19c client 32 bit and 64 bit installed.

Procedure

Before installing the iProcess Engine, set the ORACLE_HOME environment variable to ORACLE 32 bit location, say C:\app\oracle\product\19.0.0\client32_1. Also, set the PATH variable to %ORACLE_HOME%/bin.

Setting Up Oracle Transparent Application Failover (TAF)

Status

If you are...	This task is...
Installing a new iProcess Engine Version 11.9.0	Optional or Required (see)
Upgrading from an iProcess Engine Version 11.0 or later	Optional or Required (see)

Database

Oracle

Description

Oracle TAF enables an application user (such as the iProcess Engine) to automatically reconnect to a database if the connection fails. If you are running parallel servers, using TAF can allow the iProcess Engine to switch to an alternative instance if the one that it is using fails. Even if you are not using parallel servers, using TAF still means that although the iProcess Engine will not function while the database is down, it can recover immediately and automatically when the database is recovered.



Note

- TIBCO strongly recommends the use of Oracle TAF with iProcess Engine to provide 24*7 resilient operation. If you are deploying iProcess Engine for user acceptance testing (UAT) or to a production environment, you *must* enable TAF.

For more information about how the iProcess Engine supports database failover, see *TIBCO iProcess Engine Architecture Guide*.
- You should not use TAF to protect the iProcess Engine from a scheduled Oracle shutdown.
- The standard Oracle client connection is not protected by TAF. Therefore, if a failover occurs, iProcess Engine Workspace users may need to log in again.

To enable the use of TAF with the iProcess Engine, you need to configure TAF support for the service name that you intend to use to connect to the Oracle database.

Procedure

The procedure you use to set up TAF depends on whether you are using Oracle RAC:

- If you are not using Oracle RAC, you must manually configure a net service name that includes the `FAILOVER_MODE` parameter included in the `CONNECT_DATA` section of the connect descriptor.

You must specify at least the `TYPE` and `METHOD` sub-parameters for the `FAILOVER_MODE` parameter.

- If you are installing iProcess Engine on one of the nodes of an Oracle RAC, you can use Oracle's Database Configuration Assistant (DBCA) to create a new service that will use TAF. DBCA will update all the `tnsnames.ora` files for the instances you choose to be in the Oracle RAC. If your iProcess Engine is connected via an Oracle client to the Oracle RAC, you can copy the changes that DBCA makes to the Oracle database `tnsnames.ora` file to the client's `tnsnames.ora` file.

See Also

For more information about how to set up TAF, see the following documents in the Oracle documentation set:

- *Oracle Net Services Administrator's Guide*
- *Oracle Clusterware and Oracle Real Application Clusters Administration and Deployment Guide* (if you are using Oracle RAC)

Configuring Oracle OPEN_CURSORS

Status

If you are...	This task is...
Installing a new iProcess Engine Version 11.9.0	Required

If you are...	This task is...
Upgrading from an iProcess Engine Version 11.0 or later	N/A

Database

Oracle

Description

The Oracle `OPEN_CURSORS` parameter is defined in the initialization parameter file for the Oracle instance. It defines the limit on the maximum number of cursors (active SQL statements) for each session on this Oracle instance.

Procedure

Make sure that the Oracle `OPEN_CURSORS` parameter is set to a value of at least 200.

See Also

See the Oracle documentation for more information about the initialization parameter file and the `OPEN_CURSORS` parameter.

Disabling Oracle Authentication Services

Status

If you are...	This task ...
Installing a new iProcess Engine Version 11.9.0	Possibly required
Upgrading from an iProcess Engine Version 11.0 or later	Possibly required

Database

Oracle

Description

If you are installing the iProcess Engine in an Active Directory environment, you must disable Oracle authentication services. If you do not do this, the following error occurs when it attempts to connect to the Oracle database:

```
TNS-12638 Credential retrieval failed
```



Note

If you are not using Active Directory you do not need to do this.

Procedure

To disable authentication services, set the following parameter in the Oracle `sqlnet.ora` configuration file:

```
SQLNET.AUTHENTICATION_SERVICES=none
```



Note

By default, the `sqlnet.ora` file is located in the `ORACLE_HOME\network\admin` directory, or in the directory specified by the `TNS_ADMIN` environment variable.

Configuring Oracle Character Set Support

Status

If you are...	This task is...
Installing a new iProcess Engine Version 11.9.0	Possibly required
Upgrading from an iProcess Engine Version 11.0 or later	Possibly required

Database

Oracle

Description

Oracle's NLS_LANG parameter sets the language, territory, and character set that the iProcess Engine uses to communicate with the Oracle database. The iProcess Engine requires that NLS_LANG uses an 8-bit character set.

NLS_LANG is defined in the following Windows registry subkey:

Oracle Version	Key
Oracle 11g	<i>RegistryLocation</i> \ORACLE\KEY_ORAHOME where <i>ORAHOME</i> is the Oracle home name.

where *RegistryLocation* is \HKEY_LOCAL_MACHINE\Software



Note

You can also set NLS_LANG as a System or User environment variable (using System in the Control Panel window). However, if you do this the environment variable setting is used for ALL Oracle homes and takes precedence over any parameters set in the Windows registry.

Oracle recommends that you use the Windows registry to set NLS_LANG unless you have a specific requirement to use an environment variable.

Node Cluster

NLS_LANG must be set to the same value on the master server and on each slave server.

Procedure

To set NLS_LANG, complete the following steps:

1. Set the NLS_LANG value to use an 8-bit character set component (charset).
2. If you are using a TNS connection, make sure that the character set component (charset) of the NLS_LANG value for the Oracle client matches the character set component of the NLS_LANG setting on the Oracle database.

The format of the NLS_LANG string is:

NLS_LANG = *language_territory.charset*

Example

NLS_LANG=American_America.WE8ISO8859P1

See Also

For more information about using NLS_LANG, see *Oracle Database Globalization Support Guide*.

Disabling Oracle Flashback Query

Status

If you are...	This task is...
Installing a new iProcess Engine Version 11.9.0	N/A
Upgrading from an iProcess Engine Version 11.0 or later	Possibly required

Database

Oracle

Description

Oracle has a *flashback query* feature, which lets you view and repair historical data. (The initialization parameter, `UNDO_RETENTION`, provides a means of explicitly specifying the amount of UNDO information to retain.)

If flashback query is enabled, the amount of UNDO tablespace required while you are upgrading (see [Creating an Oracle UNDO Tablespace](#) for details) will increase significantly. You may therefore want to disable this feature while you are upgrading the iProcess Engine or Process Engine.

However, this may not be possible if there are other applications that use the same database and that may require a flashback query while the upgrade is taking place. If that is the case, you must leave the feature enabled and make sure you have sufficient UNDO tablespace available.



Note

- It is possible for UNDO to reach 100%, as the flashback query UNDO will still be allocated. This will make it difficult to monitor the UNDO tablespace.
 - If UNDO is set to autoextend, it may grow extremely large, as all UNDO transactions for the entire upgrade will be stored.
-

Procedure

To disable flashback query, use the Oracle command:

```
alter system set UNDO_RETENTION=0
```

See Also

See your Oracle documentation for more information about flashback query.

Creating an Oracle UNDO Tablespace

Status

If you are...	This task is...
Installing a new iProcess Engine Version 11.9.0	Required
Upgrading from an iProcess Engine Version 11.0 or later	Required

Database

Oracle

Description

Oracle uses UNDO tablespaces to rollback transactions. Previous versions of Oracle used rollback segments.

Procedure

Create an Oracle UNDO tablespace for the iProcess Engine database.

See Also

See:

- your Oracle documentation, for more information on how to create and manage UNDO tablespaces.
- [Disabling Oracle Flashback Query](#) for more information about Oracle's flashback query feature and its impact on the amount of UNDO tablespace you require.

Creating the SQL Server Database and Logins

Status

If you are...	This task is...
Installing a new iProcess Engine Version 11.9.0	Optional
Upgrading from an iProcess Engine Version 11.0 or later	N/A

Database

SQL Server

Description

The iProcess Engine stores its data in a SQL Server database, and requires two SQL Server logins to access this database:

- iPE DB Owner—owns the iProcess Engine database
- iPE DB User—used for read access to the iProcess Engine database

The installer can automatically create the iProcess Engine database and these logins for you, but only if you know the system administrator SQL login name (default sa) and password for the SQL Server instance that you want to use. See [SQL/ODBC Details](#) for details.

If you do not know the system administrator SQL login name and password, the installer cannot do this. In this case, you must use the following procedure to manually create the SQL Server database and logins *before* you run the installer.



Note

Depending on the authentication method used by the SQL Server instance (Windows or SQL Server), you must use a Windows account or SQL Server login that has been assigned the System Administrators server role. If you do not have access to such an account or login, contact your SQL Server database administrator for assistance.

Procedure

To manually create the iProcess Engine database and SQL Server logins, complete the following steps:

1. Start SQL Server Management Studio.



Note

You must install SQL Tools to get the SQL Server Management Studio utility.

2. If necessary, connect to or register the server where you intend to create the iProcess Engine database.
3. Right-click the server you want to use, then select **Properties** from the pop-up menu.
4. Set the value of the Maximum number of concurrent connections field on the Connections page for this server.

Set this value to either 0 (unlimited), or a value that is equal to or greater than the following calculation:

$$9 + wiscount + bgcount + ((users/maxusers_per_process) \times maxpoolsize)$$

where:

- 9 is the number of connections to the database required by iProcess Engine server processes. This number is fixed.
- *wiscount* is the number of Work Item Server (WIS) processes configured for this iProcess Engine. The default is 2.
- *bgcount* is the number of background (BG) processes configured for this iProcess Engine. The default is 4.
- *users* is the maximum number of TIBCO iProcess Workspace (Windows) users expected to concurrently use the iProcess Engine database.
- *max_users_per_process* is the maximum number of iProcess Engine users per RPC pool server process (RPC_POOL). The default value is 20. You can reduce this value by changing the MAX_USERS_PER_PROCESS parameter in the STAFF section of the *SWDIR\etc\staffcfg* file.

**Note**

Changing the MAX_USERS_PER_PROCESS parameter may increase the number of RPC processes, and therefore impact performance.

- *maxpoolsize* is the maximum number of database connections a single RPC pool server process will create, if required. This value is defined by the MAXPOOLSIZE parameter in the BPOOL section of the *SWDIR\etc\staffcfg* file. The default value is 10. In the calculation above *maxpoolsize* is used to represent the maximum possible number of connections. Under normal runtime conditions, the number of connections per server is unlikely to exceed 2 or 3.

5. Click the **OK** button.
6. Create a new database on this SQL server to hold iProcess Engine data. To do this:
 - a. Right-click **Databases** , then select **New Database**.
 - b. Enter a name for the iProcess Engine database on the General tab.
 - c. Enter a suitable `Initial size (MB)` value on the General page.

TIBCO recommends a minimum database size of 20Mb.

Certain iProcess operations (for example, purging cases and restores) may generate large numbers of database transactions. You should configure the SQL Server and iProcess Engine database so that it has sufficient resources to handle the expected transaction load. For more information about how to estimate the size and layout requirements of your iProcess Engine database, consult the following sources:

- *TIBCO iProcess Engine (SQL Server) Administrator's Guide*. this documentation defines the structure of each table, and provides guidance on the number of records a table should contain depending on the iProcess data.
- Your TIBCO representative, who can work with you to prepare a detailed sizing and configuration estimate.

Make sure that the Autogrowth checkbox for the data and log files on the General tab has been checked.

Click the **OK** button.

**Warning**

If these options are not selected and the SQL Server runs out of resource when trying to process an iProcess Engine operation, iProcess Engine will fail and a *SWDIR\logs\sw_* error file will be created.

7. Right-click the iProcess Engine database, then select **Properties** from the pop-up menu.
8. On the Options tab, Select the database Recovery Model (Simple, Full, or Bulk-Logged) that is most appropriate for your database backup/recovery environment.
9. Click the **OK** button.
10. Create the IPE DB Owner and IPE DB User SQL Server login IDs. To do this (for each login):
 - a. Expand **Security**, right-click **Logins**, then click **New Login**.
 - b. Enter a Name for the login. You can use any name you want to, but the suggested ones are **swpro** for the IPE DB Owner and **swuser** for the IPE DB User.
 - c. Click the **User Mapping** tab.
 - d. In the list of databases, select the iProcess Engine database that you just created, then check the **Map** checkbox to allow this log in to access the database.
 - e. In the Database roles section, check the **db_owner** checkbox for the IPE DB Owner login, or the **db_datareader** checkbox for the IPE DB User login.
 - f. Click the **OK** button.
11. Right-click the iProcess Engine database, then select **Properties** from the pop-up menu.
12. Click the **Permissions** tab. Make sure that the IPE DB Owner and IPE DB User logins are listed. Check the **Grant** checkbox for each permission listed against each login.
13. Click the **OK** button.
14. Create a default schema for the IPE DB Owner and IPE DB User. To do this (for each login):
 - a. Expand the iProcess Engine database, expand **Security**, right-click **Schema** then select **New Schema**.

- b. Enter the login ID as the Schema owner and as the Schema name.
- c. Click the **OK** button.

15. Ensure that the SQL Server collation setting specifies the correct character set for TIBCO iProcess Engine.

**Note**

If both TIBCO iProcess Engine and SQL Server have been installed on a native operating system and you plan to run TIBCO iProcess Engine on the native operating system, you will not have to change the collation settings.

For more information about collation settings, see *SQL Server Database Engine Guide*.

Creating the ODBC Data Source

Status

If you are...	This task is...
Installing a new iProcess Engine	Optional
Upgrading from any Version 10, or 11 iProcess Engine	N/A

Database

SQL Server

Description

TIBCO iProcess Engine uses an ODBC data source to connect to the SQL Server.

The installer can automatically create an ODBC data source for you. However, you can use the following procedure to manually create it *before* you run `setup.exe`.

If you are installing the iProcess Engine into a Microsoft Windows Cluster, the `msclustercommand` automatically creates an ODBC data source with the same name and details on each secondary machine in the cluster.

Procedure

To manually create an ODBC data source, perform the following steps:

1. Open the ODBC Data Source Administrator dialog box on Windows. Run the following utility:

```
\windows\system32\odbcad32.exe
```



Note

For detailed configuration information in the SQL/ODBC Details dialog box, see [SQL/ODBC Details](#).

2. Click the **Add** button under the System DSN tab. The Create New Data Source dialog box appears.
3. Select **SQL Native Client** as the driver for which you want to set up a data source.



Note

If SQL Native Client is not shown in the list of available drivers, you will need to download it from the Microsoft Download Center at:

<http://www.microsoft.com/downloads/details.aspx?FamilyId=DF0BA5AA-B4BD-4705-AA0A-B477BA72A9CB&DisplayLang=en>

4. Click the **Finish** button. The Create A New Data Source To SQL Server wizard appears.
5. Specify the information listed in the Create A New Data Source To SQL Server wizard to complete the operation. For detailed information about the Create a New Data Source to SQL Server wizard, see Microsoft documentation.



Note

The layout of this wizard depends on the version of the SQL Server driver installed on the computer. The required information may be on different pages.

Removing All User-defined Constraints (or Triggers), Indexes, and Statistics From the iProcess Engine Schema Tables

Status

If you are...	This task is...
Installing a new iProcess Engine Version 11.9.0	N/A
Upgrading from an iProcess Engine Version 11.0 or later	Possibly required

Database

Oracle, SQL Server

Description

For an existing iProcess Engine, you have created constraints (or triggers), indexes, and statistics in the iProcess Engine schema tables. As part of an upgrade, the installer needs to modify certain columns in the iProcess Engine schema tables, then recreate constraints (or triggers), indexes, and statistics after the necessary columns has been changed in the upgrade process.

To successfully upgrade an existing iProcess Engine, you need to remove any user-defined constraints (or triggers), indexes, and statistics from the iProcess Engine schema tables manually before running the upgrade installer. The installer cannot automatically remove them.

Procedure

Using an appropriate SQL utility, remove all user-defined constraints (or triggers), indexes, or statistics that you have added to iProcess Engine schema tables.

You can manually recreate them after completing the upgrade. See [Recreating All User-defined Constraints \(Or Triggers\), Indexes and Statistics on the iProcess Engine Schema Tables](#) for more information.

Configuring the Microsoft Windows Cluster

Status

If you are...	This task is...
Installing a new iProcess Engine Version 11.9.0	Required <i>if you use a Windows Cluster</i>
Upgrading from an iProcess Engine Version 11.0 or later	Required <i>if you use a Windows Cluster</i>

Description

If you are installing iProcess Engine into a Microsoft Windows Cluster, you must perform some preliminary tasks to enable iProcess Engine to operate in the Microsoft Windows Cluster environment.

Procedure

Perform the following steps:

1. Install iProcess in Custom Mode and select Windows Cluster Network Name.
2. Create storage for Windows Cluster using iCSCI or other approach. For details to setup Windows Cluster, see the Microsoft website.
3. Add Anonymous Logon user.
 - a. Run dcomcnfg.exe.
 - b. In Component Services, click Computers, then click My Computer.
 - c. In Properties, choose COM Security and select both Edit Default buttons.
 - d. Add an entry for ANONYMOUS LOGON and Allow all options.

4. Modify MSDTC security settings:
 - a. Run dcomcnfg.exe.
 - b. In Component Services, click My Computer.
 - c. In Distributed Transaction Coordinator, click Local DTC.
 - d. Right-click Properties to select Tab Security.
 - e. Select all the checkboxes and No Authentication Required radio button.
5. Enable COM+ Network Access:
 - a. Open Windows Firewall settings.
 - b. Allow an app or feature through Windows Firewall.
 - c. Enable COM+ Network Access.
 - d. Open Regedit. HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\COM3
 - e. Change the value of RemoteAccessEnabled to 1.
6. If you are upgrading an iProcess Engine that is part of a Windows cluster, run the following command on each *secondary* machine in the cluster:

**Note**

Primary node is the node in which the iProcess Engine is installed. All other nodes in the cluster are referred as secondary.

```
SWDIR\mscluster\mscluster -r
```

**Warning**

Do not run this command on the machine where the iProcess Engine is installed. You will not be able to start or upgrade the iProcess Engine, if you run this on the primary machine.

This command removes the iProcess Engine shared resources and services, and the port numbers used by the iProcess Engine watcher and worker process sentinels in the %systemroot%\system32\drivers\etc\services file.

**Note**

You will need to create the shared resources and services used by the upgraded iProcess Engine after you have run the installer.

7. Enable network DTC access on the cluster. If network DTC access is not enabled, database transactions are limited to the local server.

For more information about how to enable network DTC access, see article 817064 in Microsoft's Knowledge Base at <http://support.microsoft.com>.

8. Using Cluster Administrator, install a Distributed Transaction Coordinator resource. If this resource is not available, the installer will not be able to add the iProcess Events64 and (optional) iProcess COM+ Bridge COM+ applications to Component Services during installation.

For more information about how to do this, see "Installing a Distributed Transaction Coordinator resource" in the Microsoft Cluster Administrator Help.

See Also

See Microsoft documentation for more information about the Cluster Administrator tool.

Post-installation Tasks

This appendix lists the post-installation tasks.

Re-implementing Changes to Upgraded Configuration Files

Status

If you are...	This task is...
Installing a new iProcess Engine Version 11.9.0	N/A
Upgrading from an iProcess Engine Version 11.0 or later	Optional

Database

Oracle, SQL Server

Description

If you made any changes to the default values in the following files on your original system, you should now manually re-implement any of those changes that you want to keep in the upgraded files:

- `SWDIR\etc\language.lng\staffico`
- `SWDIR\etc\language.lng\auditusr.mes`
- `SWDIR\etc\iapjms_classpath.properties`
- `SWDIR\etc\iapjms_log4j.properties`
- `SWDIR\etc\swjmx_log4j.properties`

- `SWDIR\config\ipac.properties`
- `SWDIR\config\log4j.properties`

See Also

For more information about the default contents of these files, and how to edit them, see the following:

For Information About	See
<code>SWDIR</code> <code>\etc\language.lng\staffico</code>	Using iProcess Engine Configuration Files in <i>TIBCO iProcess Engine Administrator's Guide</i>
<code>SWDIR</code> <code>\etc\language.lng\auditusr.mes</code>	Defining Audit Trail Entries in TIBCO iProcess swutil and swbatch Reference Guide.
<code>SWDIR\etc\iapjms_</code> <code>classpath.properties</code>	Configuration for JMS Connectivity.
<code>SWDIR\etc\iapjms_</code> <code>log4j.properties</code>	Debugging JMS Connectivity.
<code>SWDIR\etc\swjmx_</code> <code>log4j.properties</code>	Debugging JMX connectivity.
<code>SWDIR</code> <code>\config\ipac.properties</code>	Configuring TIBCO iProcess Administration Console in <i>TIBCO iProcess® Engine Administration Console User's Guide</i>
<code>SWDIR</code> <code>\config\log4j.properties</code>	Debugging in <i>TIBCO iProcess® Engine Administration Console User's Guide</i>

Configuring Firewall Port Ranges on Slave Servers

Status

If you are...	This task is...
Installing a new iProcess Engine Version 11.9.0	Required
Upgrading from an iProcess Engine Version 11.0 or later	Required

Database

Oracle, SQL Server

Description

Onward firewall port range configuration data in TIBCO iProcess Engine Version 11.9.0 is stored in the port_range database tables, and can be configured by using the `SWDIR\util\swadm` utility.

If you are installing or upgrading an iProcess Engine as:

- a slave server in a Node Cluster, you must now manually configure any required firewall port range data.
- a master server or single server, you do not need to do anything. The installer automatically creates the necessary port range configuration data in this case, either using default values (for a new installation), or using the existing values for an upgrade.

Procedure

If you are either:

- installing a new slave server, or
- upgrading an existing slave server,

you should use the `swadm` utility to create the necessary port range configuration data for your firewall configuration.

See Also

See Administering Firewall Port Ranges in *TIBCO iProcess Engine Administrator's Guide* for more information about using the iProcess Engine with a firewall, and how to use the `SWDIR\util\swadm` utility to configure firewall port ranges.

Configuring TIBCO iProcess Objects Server and TIBCO iProcess Objects Director

Status

If you are...	This task is...
Installing a new iProcess Engine Version 11.9.0	Optional
Upgrading from an iProcess Engine Version 11.0 or later	Optional

Database

Oracle, SQL Server

Description

If you chose to enable the iProcess Objects Server and/or iProcess Objects Director during the installation process (see [Select Components To Configure](#)), you can now configure them according to your requirements before starting iProcess Engine.

Node Cluster

The iProcess Objects Server and/or iProcess Objects Director must communicate using the same Client-Server RPC port number (see [Configuration](#)) used by the node on which the iProcess Engine foreground processes (WIS, WQS, and so on) are running. If they do not

match, errors will be written to the iProcess Objects Server and/or iProcess Objects Director log file on startup.

Procedure

To configure iProcess Objects Server, run the iProcess Objects Server Configuration Utility. To start this utility, select **Start > Settings > Control Panel > TIBCO iProcess Objects Server**.



Note

You do not need to run this utility again if you choose to run iProcess Objects Server Configuration Utility as part of the installation process, see [Select Components To Configure](#) for details.

For more information about this utility, and how to use it, see Configuring the TIBCO iProcess Objects Server in *TIBCO iProcess Objects Server Administrator's Guide*.

To configure iProcess Objects Director, set the iProcess Engine process attributes that control the iProcess Objects Director to your required values.

For more information about these attributes and their possible values, see “Configuring the TIBCO iProcess Objects Director” in the *TIBCO iProcess Objects Director Administrator's Guide*.

If the iProcess Objects Server or iProcess Objects Director is installed on a master or slave server (in a node cluster) that is *not* running any iProcess Engine foreground processes (WIS, WQS, and so on):

1. Determine the client or server RPC port being used by the node on which the foreground processes are running by looking at line 11 of the *SWDIR\swdefs* file on that node's machine.
2. Compare the client or server RPC port specified in the *SWDIR\swdefs* file of the machine on which you are installing the iProcess Objects Server and iProcess Objects Director with the port number you determined in the previous step. If the RPC numbers match, no further action is required. If they do not match:
 - a. Change the client or server RPC port specified in the *SWDIR\swdefs* file of the machine on which you are installing so it is the same as on the machine running the foreground processes.
 - b. Change the RPC number in the following registry location on the machine on

which you are installing so it matches the number in the *SWDIR\swdefs* file:

RegistryLocation\TIBCO iProcess\TIBCO iProcess Engine\Nodes\MyNode\RPC_CLTSRV

where *RegistryLocation* is \HKEY_LOCAL_MACHINE\Software.

Enabling COM+ Network Access

Status

If you are...	This task is...
Installing a new iProcess Engine Version 11.9.0	Possibly required
Upgrading from an iProcess Engine Version 11.0 or later	Possibly required

Database

Oracle, SQL Server

Description

COM+ network access is disabled by default when you install the iProcess Engine. If the iProcess Engine is installed on a Microsoft Windows Cluster. You must enable COM+ network access on each machine in the cluster.

Procedure

To enable COM+ network access:

1. Open the Control Panel window and click **Add or Remove Programs**.
2. Click the **Add/Remove Windows Components** button. The Windows Components Wizard is displayed.
3. Select **Application Server** and click **Details**.
4. Check the **Enable network COM+ access** checkbox.

5. Click the **OK** button.
6. Click the **Next** button to complete the Windows Components Wizard.
7. Click the **Finish** button to close the wizard.

Configuring the Microsoft Windows Cluster

Status

If you are...	This task is...
Installing a new iProcess Engine Version 11.9.0	Required <i>if you use a Windows Cluster</i>
Upgrading from an iProcess Engine Version 11.0 or later	Required <i>if you use a Windows Cluster</i>

Database

Oracle, SQL Server

Description

If you are installing the iProcess Engine into a Microsoft Windows Cluster, you must perform some additional tasks to enable the iProcess Engine to operate in the Microsoft Windows Cluster environment.

Procedure

Perform the following steps:

1. Add the SWDIR environment variable. This is required for IPAC on all the nodes in Windows Cluster.

2. To configure secondary nodes:

- a. Add "Staffware Users", "Staffware Administrators" groups with iProcess users (for example, TIBCO\iPEUser) from Computer Management --> Local Users and Groups --> Groups.
- b. Open Services. Right-click iProcess<node name>AdminConsole service -> properties -> Log On -> This Account and login again by entering the password.
- c. Export "TIBCO iProcess" registries from iPE installed machine and Import entry to each node in windows cluster.

3. Copy NobleNet Portmapper to C:\Program Files (x86).

4. Run swadm to move the iProcess engine from Cluster Name to Role Name. swadm MOVE_SERVER <Logical Machine ID> <Role Name>. See [Open the Control Panel window, and select Administrative Tools > Failover Cluster Manager](#). for <Role Name>.

5. Configure Service Startup on every node:

NobleNet Portmapper	Automatic
iProcess<nodeName>ProcessSentinels	Manual
iProcess<nodeName>AdminConsole	Manual

6. If you did not check the **Auto Start Processes On Service Startup** checkbox when you ran the installer (see [Configuration](#)), set the iProcess Engine PM_AUTO_BOOT process attribute value to **1** (so that iProcess Engine processes automatically start after the Process Sentinels have started).7. Open the Control Panel window, and select **Administrative Tools > Failover Cluster Manager**.

- a. Install a new Role for the iProcess Engine Process Sentinels service. This role must have the following properties:

Property	Description
Role name	Any suitable descriptive name you choose.
IP Address	Assign a static IP address to this role that will be used by all client programs to connect.
Resources	<p>Add both the entries given :</p> <ul style="list-style-type: none"> • iProcess Sentinels Service • iProcess Admin Console Service.
Service name	<p>Add both the entries given :</p> <p><code>iProcessnodeNameProcessSentinels</code> (add following dependency to this)</p> <ul style="list-style-type: none"> — Cluster Disk (where iProcess Engine is installed) <p><code>iProcessnodeNameAdminConsole</code> (add following dependency to this)</p> <ul style="list-style-type: none"> — Cluster Disk (where iProcess Engine is installed) <p>where, <i>nodeName</i> is the node name of this iProcess Engine.</p> <p>Note: There must be no spaces anywhere in the name or at the end of the string.</p>
Registry Replication > Root Registry Key	<p>Add both of the following entries:</p> <ul style="list-style-type: none"> • <code>RegistryLocation\TIBCO iProcess\TIBCO iProcess Engine\Nodes\nodeName</code> • <code>RegistryLocation\TIBCO iProcess\TIBCO iProcess Objects Server\Nodes\nodeName</code> <p>where:</p> <p><i>RegistryLocation</i> is SOFTWARE.</p> <p><i>nodeName</i> is the node name of this iProcess Engine.</p>

8. If you are using EMS, you must now:
 - a. install the same EMS *Version* on each secondary machine in the cluster. See *TIBCO Enterprise Message Service Installation* for more information about how to install EMS.
 - b. configure EMS to work as part of the cluster. For more information about how to do this, see EMS documentation.

**Warning**

If you are upgrading your version of TIBCO EMS, you must follow the instructions in [How Do I Upgrade TIBCO EMS](#). Failure to do so will result in the loss of work queue data.

9. If you are using Hawk, you must now:
 - a. install the same Hawk *Version* on each secondary machine in the cluster. You can find the Hawk *Version* distribution set and documentation in the `SWDIR\hawk` folder. See *TIBCO Hawk Installation and Configuration* for more information about how to install Hawk.
 - b. configure Hawk to work as part of the cluster. For more information about how to do this, see Hawk documentation.
10. If your Microsoft Windows Cluster is *not* running software to ensure that services, components, and shared DLLs are replicated between machines, and therefore identical between the machines in the cluster, run the following command on each secondary machine in the cluster:

```
SWDIR\mscluster\mscluster
```

This command creates the following shared resources and services that are required by iProcess Engine:

- iProcess *nodeName* Process Sentinels service
 - iProcess *nodeName* Admin Console service
 - NobleNet Portmapper for TCP service
 - iProcess Events64 COM+ application
 - iProcess COM+ Bridge COM+ application
-

where *nodeName* is the node name of this iProcess Engine.

It also replicates the port numbers used by the iProcess Engine watcher and worker process sentinels in the %systemroot%\system32\drivers\etc\services file.

See Also

See Microsoft documentation for more information about the Cluster Administrator tool.

Setting the ORACLE_HOME environment variable to 64-bit path

Status

If you are...	This task is...
Installing a new iProcess Engine Version 11.9.0	Required
Upgrading from an iProcess Engine Version 11.0 or later	Required

Database

Oracle

Description

Procedure

Once the installation is complete, set up the ORACLE_HOME environment variable to 64-bit path, say C:\app\oracle\product\19.0.0\client64_1.

On completing the set up, iProcess Engine is ready to be used.

Enabling Oracle Function-based Indexes

Status

If you are...	This task is...
Installing a new iProcess Engine Version 11.9.0	Required
Upgrading from an iProcess Engine Version 11.0 or later	N/A

Database

Oracle

Description

The case_information table contains an Oracle function-based index, idx_ci_casedesc_UC, which allows iProcess Engine to perform non-case-sensitive searches on the table.

Procedure

To enable the use of the idx_ci_casedesc_UC index in Oracle, you must:

1. Set the following Oracle initialization parameters:

```
QUERY_REWRITE_INTEGRITY=TRUSTED;
```

```
QUERY_REWRITE_ENABLED=TRUE;
```

2. Ensure that the following SQL command is run at regular intervals (for example, as a scheduled job in the database or as part of your maintenance activities).

```
analyze table case_information compute statistics;
```


**Note**

On systems with large amounts of data, this command can take a long time to complete. TIBCO recommends that you run the command when there are not many users logged in, for example, overnight.

This command computes the necessary statistics on the `case_information` table which the Oracle query optimizer uses to perform Cost-Based Optimization (CBO). If there is no cost-based information, or if CBO is disabled, searches involving the `case_information` table will require a full table scan, which can take a long time to complete.

See Also

See Oracle documentation for more information about function-based indexes and CBO.

Installing the IBM Client for JMS on J2SE with IBM WebSphere Application Server

Status

If you are...	This task is...
Installing a new iProcess Engine Version 11.9.0	Required <i>if you use Websphere 6.x</i>
Upgrading from an iProcess Engine Version 11.0 or later	Required <i>if you use Websphere 6.x</i>

Database

Oracle, SQL Server

Description

If you intend to use Websphere 6.x as your JMS provider for Activity Publication, and you do not already have the IBM Client for JMS on J2SE with WebSphere Application Server installed on your system, you must install it now.

**Warning**

You must install the IBM JMS Client into the directory you specified for it when you ran the installer, see [Default Java Message Service](#) for details.

The IBM JMS Client is an embeddable technology that provides JMS V1.1 connections to a service integration bus messaging engine in WebSphere Application Server V6.0.2 (or above). It is available from the following IBM URL:

<http://www-1.ibm.com/support/docview.wss?uid=swg24012804>

Procedure

To do this:

1. Download the IBM JMS Client download file (*sibc_install-build.jar*) from the above URL.
2. Use the following command to install the IBM JMS Client:

```
java -jar sibc_install-build.jar jms_jndi_sun directory
```

where:

- *jms_jndi_sun* is the installation option for JMS + JNDI for Sun JREs. You must use this installation option to ensure that the IBM JMS Client uses a Sun JRE, which it must do to work with iProcess Engine IAPJMS process.
- *directory* is the same pathname that you entered in the Base field of the Default Java Message Service dialog box(see [Default Java Message Service](#)). You must install to this directory because that is where the iProcess Engine will look for the client JAR files.

Configuring IAPJMS Security Settings

Status

If you are...	This task is...
Installing a new iProcess Engine Version 11.9.0	Optional

If you are...	This task is...
Upgrading from an iProcess Engine Version 11.0 or later	Optional

Database

Oracle, SQL Server

Description

If you chose to enable Activity Publication when you run the installer (see [Select Components To Configure](#)), default values for the JNDI/JMS username and password are written to the `SecurityPrinciple` and `SecurityCredentials` properties (respectively) in the `SWDIR\etc\iapjms.properties` file. This file contains all the configuration information for the IAPJMS library.

If you want to change these values for security reasons, you should do so now.



Note

Enabling activity publishing does not result in events being automatically published by the iProcess Engine. See [Select Components To Configure](#) for more information.

See Also

For more information about how to change the default values for the JNDI/JMS username and password, see “Updating the IAP Security Principle and Credentials” in *TIBCO iProcess Engine Administrator’s Guide*.

Configuring the Default iProcess Engine Installer

Status

If you are...	This task is...
Installing a new iProcess Engine Version 11.9.0	Optional
Upgrading from an iProcess Engine Version 11.0 or later	Optional

Database

Oracle, SQL Server

Description

The installer creates a default set of server processes, process attributes, message queues, and Mbox sets for the iProcess Engine. You can, if you want, change this default installer to suit your particular requirements.

Node Cluster

The default processes are all set up on the master server. When a slave server is added, no processes are initially configured to run on it.

Procedure

Use the `SWDIR\util\swsvrmgr` or `SWDIR\util\swadm` utility to set up server processes, process attributes, message queues, and Mbox sets according to your requirements.

See Also

See the following in *TIBCO iProcess Engine Administrator's Guide* for more information.

For Information About Configuring	See This Section
processes	Administering iProcess Engine Server Processes
process attributes	Administering Process Attributes
message queues and Mbox sets	Administering Message Queues and Mbox Sets

Recreating Prediction Data

Status

If you are...	This task is...
Installing a new iProcess Engine Version 11.9.0	N/A
Upgrading from an iProcess Engine Version 11.0 or later	Optional

Database

Oracle, SQL Server

Description

During the upgrade process the predict and predict_lock tables are dropped and then recreated. Accordingly, any prediction data contained in those tables is lost.

Procedure

You can recreate the data in these tables (for any procedures that you want to) by using the following command:

```
SWDIR\bin\swutil PREDICT procname ALL_CASES
```

where *procname* is the name of the procedure that you want to recreate prediction data for.

See Also

For more information about:

- case prediction, see Using Case Prediction to Forecast Outstanding Work Items in *TIBCO iProcess Modeler Advanced Design*.
- the `swutil PREDICT` command, see Updating Prediction for Cases in *TIBCO iProcess swutil and swbatch Reference*.

Configuring Access to SSOLite Stored Procedures for TIBCO iProcess Plug-ins

Status

If you are...	This task is...
Installing a new iProcess Engine Version 11.9.0	Possibly required
Upgrading from an iProcess Engine Version 11.0 or later	Possibly required

Database

Oracle, SQL Server

Description

SSOLite is a set of stored procedures, available in the iProcess Engine database, that provide applications with direct access to a limited subset of iProcess Engine functionality.

The following TIBCO iProcess Plug-ins require access to the SSOLite stored procedures:

- TIBCO iProcess Web Services Plug-in
- TIBCO iProcess Java Plug-in

- TIBCO iProcess Connector for ActiveMatrix BusinessWorks

**Note**

If you want to use any of these plug-ins with SQL Server, you do not need to assign the SQL Server System Administrators server role to the IPE DB Owner SQL Server login ID.

Procedure

To assign the SQL Server System Administrators server role to the IPE DB Owner SQL Server login ID:

1. Start SQL Server Management Studio.

**Note**

You must install SQL Tools to get the SQL Server Management Studio utility.

2. Expand **Security** and click **Logins**.
3. Right-click the IPE DB Owner SQL Server login ID, see [Database Details](#), then select **Properties** from the pop-up menu.
4. Click the **Server Roles** tab.
5. Select **System Administrators**, then click the **OK** button.

See Also

For more information about SSOLite stored procedures, see *TIBCO iProcess Engine (SQL Server) Administrator's Guide*.

Granting Permissions on Stored Procedures in EAI Database Steps

Status

If you are...	This task is...
Installing a new iProcess Engine Version 11.9.0	Possibly required
Upgrading from an iProcess Engine Version 11.0 or later	Possibly required

Database

Oracle, SQL Server

Description

The EAI steps are used to communicate with database stored procedures. You must grant execute permission to `swuser` on all custom stored procedures used by EAI Database steps if you are using TIBCO iProcess Engine version 11.4.0 or later.

If you are using TIBCO iProcess Engine earlier version than 11.4.0, the foreground processes connect to the database using the Oracle foreground user (`swuser`), whereas the Oracle background user (`swpro`), is used for the background processes. For example, the WIS processes connect to the Oracle database as the `swuser` user whereas the BG processes connected to the Oracle database as the `swpro` user.

If you are using TIBCO iProcess Engine version 11.4.0 or later, all the processes, regardless of whether they are background or foreground processes, connect to the Oracle database as the Oracle foreground user, which by default is the `swuser` user.

Procedure

See related database documentation on how to grant execute permission.

Recreating All User-defined Constraints (Or Triggers), Indexes and Statistics on the iProcess Engine Schema Tables

Status

If you are...	This task is...
Installing a new iProcess Engine Version 11.9.0	N/A
Upgrading from an iProcess Engine 11.1 or later	Possibly required

Database

Oracle, SQL Server

Description

After the upgrade has finished you need to recreate any user-defined constraints (or triggers), indexes, or statistics that you deleted before upgrading the iProcess Engine. See [Removing All User-defined Constraints \(or Triggers\), Indexes, and Statistics From the iProcess Engine Schema Tables](#) for more information.

Procedure

Using an appropriate SQL utility, recreate all user-defined constraints (or triggers), indexes, or statistics on iProcess Engine schema tables that you deleted before you upgraded.

Updating the Domain Group Policy for the Log On As A Service Right

Status

If You Are	This task
Installing a new iProcess Engine Version 11.9.0	Possibly required
Upgrading from an iProcess Engine Version 11.0 or later	Possibly required

Database

Oracle, SQL Server

Description

When you install iProcess Engine, the installer assigns the Log on as a service right to the user account you have chosen to use to run the iProcess *nodeName* Process Sentinels service (the [IPESERVICE](#) user). The right is assigned on the computer where you have installed the iProcess Engine.

If you have installed the iProcess Engine in a domain, using domain users, *and* the domain uses a group policy for the Log on as a service right, you must now also update that group policy to include the [IPESERVICE](#) user.

If you do not do this, the [IPESERVICE](#) user's locally-assigned right will be overwritten when the domain controller propagates the group policy to the member machines in the domain (which happens, by default, every 90 minutes). The account will therefore lose the Log on as a service right, and so be unable to start the iProcess *nodeName* Process Sentinels service.

Procedure

Change the group policy on the domain controller for the Log on as a service right to include the [IPESERVICE](#) user.

**Warning**

You must have access to an account that has Domain Administrator privileges to be able to change the group policy.

See Also

There are a number of ways to change group policies, depending on how the domain is configured. See your Microsoft documentation for more information about group policies and how to change them.

Disabling or Re-enabling Write Access to WebDav

Status

If you are...	This task is...
Installing a new iProcess Engine Version 11.9.0	Optional
Upgrading from an iProcess Engine Version 11.0 or later	Optional

Database

Oracle, SQL Server

Description

You may find, once you have installed or upgraded the iProcess Engine, that you want to disable or re-enable write access to WebDav on the Apache Tomcat Application Server installed with the iProcess Engine. To do this, you must edit the `$WDIR\tomcat\webdav\WEB-INF\web.xml` file.

Procedure

To disable or re-enable write access to WebDav on the Apache Tomcat Application Server installed with the iProcess Engine, do the following:

1. In a text editor, open the *SWDIR\tomcat\webdav\WEB-INF\web.xml* file.
2. Depending on your requirements, either uncomment or comment out the following section:

```
<init-param>  
<param-name>readonly</param-name>  
<param-value>false</param-value>  
</init-param>
```

3. Save the file.

Configuring JMX Ports to Run Through a Firewall

Status

If you are...	This task is...
Installing a new iProcess Engine Version 11.9.0	Optional
Upgrading from an iProcess Engine Version 11.0 or later	Optional

Database

Oracle, SQL Server

Description

JMX relies on JAVA technology called RMI, which uses dynamic ports to be able to communicate between a client and a server. Firewalls cannot handle dynamic ports, as they need to know the port number. iProcess overcomes this problem by statically assigning a listening port for the RMI server.

To do this you need to configure the `%SWDIR%/etc/swjmx.properties` file.

Procedure

To configure the `swjmxproperties` file, complete the following steps:

1. Open the `SWDIR/etc/swjmx.properties` file. You can see the following lines:
`SWJMXConfig.location=C:/swserver/staffw_nod1/etc/swjmx_config.xml`
`SWJMXConfig.port=10025`
2. Change the `SWJMXConfig.port` property to a port of your choosing.
The RMI server port number will then be automatically set to the value of `SWJMXConfig.port + 1`.
3. Save the file.

Setting Up iProcess Engine with an IPv6 Address

Status

If you are...	This task is...
Installing a new iProcess Engine Version 11.9.0	Possibly required
Upgrading from an iProcess Engine Version 11.0 or later	Possibly required

Database

Oracle, SQL Server

Description

If you want to use iProcess Engine with an IPv6 Address, you need to set up your iProcess Engine. The IPv4 address is used for iProcess Engine by default.

To use LDAP server with an IPv6 address, you need to add an IPv6 address as a host name when setting up the LDAP server connection. See "Setting Up the Connection" in *LDAPCONF Utility User's Guide*.

Procedure

Perform the following steps to set up IPv6 in iProcess Engine:



Note

The network and machines that host iProcess Engine servers or clients must support IPv6.

1. Configure your database to support IPv6.
 - **Oracle** To configure IP addresses for Oracle, edit the `tnsnames.ora` file, which is located in the `ORACLE_HOME\network\admin` directory. Set the value of the `HOST` parameter to the IPv6 address. The `ORACLE_HOME` directory specifies where your Oracle database installs into. For more information about how to edit the `tnsnames.ora` file, see Oracle documentation.
 - **SQL Server** To configure IP addresses for SQL Server, create an ODBC Data Source. Add the IPv6 address in the Server field when selecting a server that SQL Server connects to. For more information about how to create an ODBC data source, see [Creating the ODBC Data Source](#).
2. Stop iProcess Engine by running the following commands:


```
$SWDIR\bin\swstop
$SWDIR\bin\swstop -p
```
3. Configure the `STAFFCFG` file, which is located in the `$SWDIR\etc` directory. Change the value of the `IPPROTOCOL` parameter to 6:


```
IPPROTOCOL, 6; 4 is IPV4, 6 is IPV6
```

For more information about the `IPPROTOCOL` parameter see "Tuning the iProcess Engine Using `SWDIR\etc\staffcfg` Parameters" in *TIBCO iProcess Engine Administrator's Guide*.
4. Restart iProcess Engine.

Starting TIBCO iProcess Engine

Status

If you are...	This task is...
Installing a new iProcess Engine Version 11.9.0	Optional
Upgrading from an iProcess Engine Version 11.0 or later	Optional

Database

Oracle, SQL Server

Description

The iProcess Engine is now properly installed, configured, and ready to start up

Node Cluster

Install each node in the cluster before trying to start the iProcess Engine.

Procedure

To start iProcess Engine:

1. If you were prompted to reboot your computer when the installer finished, and you have not yet done so, you must reboot now.
2. Log in as the iProcess Engine [IPEADMIN](#) user.
3. If you have installed the iProcess Engine to a Windows cluster, use the Bring onLine service in the Microsoft Cluster Administrator to start the iProcess Engine.



Warning

Do not start iProcess Engine on a Windows cluster using **Control Panel** > **Services** or the `SWDIR\bin\swstart` command.

4. If you are not using a Windows Cluster:

- a. Open a command prompt window.
- b. Enter the following command to start the iProcess Engine process sentinels:

```
SWDIR\bin\swstart -p
```

If you did not check the **Auto start processes on service startup** checkbox when you ran the installer, enter the following command to start the iProcess Engine processes:

```
SWDIR\bin\swstart
```

If you did check the **Auto start processes on service startup** checkbox, the process sentinels will automatically start all of the iProcess Engine processes.

Quick Starting and Restarting iProcess Engine

You can also use the following command to quick start the iProcess Engine processes:

```
SWDIR\bin\swstart -q
```

You can use the `RESTART_SPO_CACHE_PROC` process attribute to define how many latest versions of procedure definition to be cached by the iProcess Objects Server processes when restarting the iProcess Objects Server processes or quick starting iProcess Engine; use the `RESTART_WIS_CACHE_THRESHOLD` process attribute to define the threshold number of work items in a work queue to be cached by the WIS processes when restarting the WIS processes or quick starting iProcess Engine.

For more information about the `swstart -q` command, see "Controlling the iProcess Engine" in *TIBCO iProcess Engine Administrator's Guide*. For more information about the `RESTART_SPO_CACHE_PROC` and `RESTART_WIS_CACHE_THRESHOLD` process attributes, see "Administering Process Attributes" in *TIBCO iProcess Engine Administrator's Guide*.

See Also

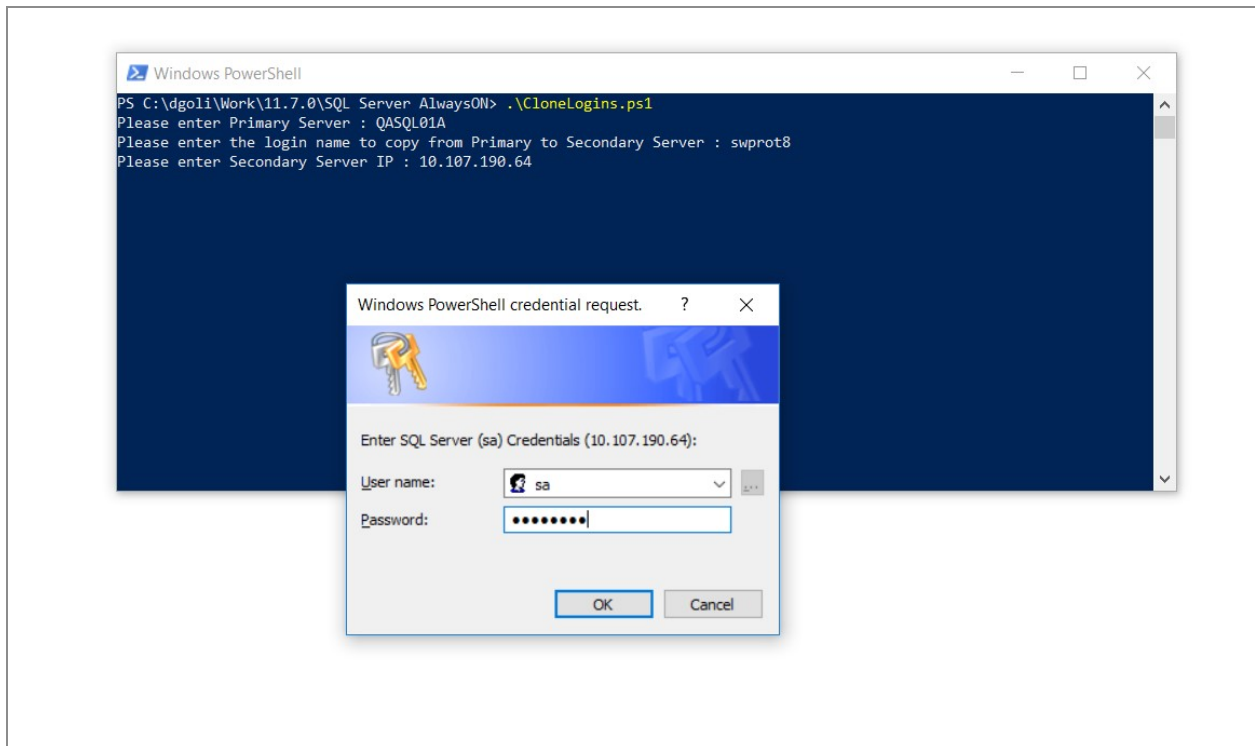
See "Controlling the iProcess Engine" in *TIBCO iProcess Engine Administrator's Guide* for more information about how to start the iProcess Engine.

SQL Server Always On

iProcess Engine now supports Always On feature for SQL Server. This fail-over mechanism enables iProcess Engine to automatically connect to a secondary database server in case the primary database server fails. For more information about SQL Server Always On, see Always On Availability Groups in *SQL Server 2017 documentation*.

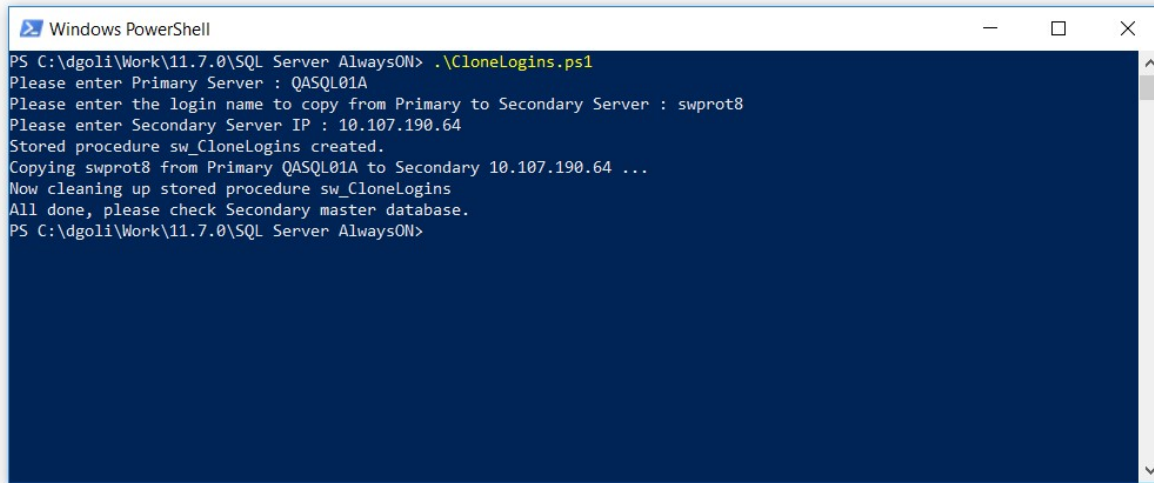
To use this feature for iProcess Engine, perform the following steps to clone database login information for iProcess Engine from the primary database server to a secondary database server.

1. Run the `SQLAlwaysOn_CloneLogins.ps1` script located in `$SWDIR\util` in Windows PowerShell.
2. When prompted for, enter the primary server name.
3. Then, enter the login name that you want to clone to the secondary server.
4. Then, enter the secondary server IP.
A Windows PowerShell credential request dialog box will be displayed.



5. Enter the user name and password to authenticate the connection to the secondary server.

The login information will be cloned from the primary server to the secondary server.



```
Windows PowerShell
PS C:\dgoli\Work\11.7.0\SQL Server AlwaysON> .\CloneLogins.ps1
Please enter Primary Server : QASQL01A
Please enter the login name to copy from Primary to Secondary Server : swprot8
Please enter Secondary Server IP : 10.107.190.64
Stored procedure sw_CloneLogins created.
Copying swprot8 from Primary QASQL01A to Secondary 10.107.190.64 ...
Now cleaning up stored procedure sw_CloneLogins
All done, please check Secondary master database.
PS C:\dgoli\Work\11.7.0\SQL Server AlwaysON>
```

**Note**

For this feature to work correctly, you must clone both the foreground and the background users.

**Note**

If you have multiple secondary servers, you must clone login information to each secondary server separately.

Copying Webservices Server plug-in files

When you install or upgrade to iProcess Engine 11.8.0, a 64-bit eaiwebsvc.ear file is available in \$SWDIR/web_svc_plugin.

- Copy this 64-bit eaiwebsvc.ear file to \$SWDIR/lib.
- Rename the file as "EAIWEBSVCS_11_3_0.EAR.
- Register it by one of the following ways:

- using register.bat script, and register.sh located in webservices_server_location\esaiwebsvcs\scripts.
- using the sweaireg command as follows:
`sweaireg REG EAI_WEBSERVICES -m machine_name -l <SWDIR>\lib\EAIWEBSVC_n_n_n.ear -i <webservices_server_location>\esaiwebsvcs`

For more details, see the Web Services Server Plug-in installation document on TIBCO website.

Configuring the CORS Filter

You can now configure the cross-origin resource sharing (CORS) filter in TIBCO iProcess® Engine for Windows.

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

Configuration Options for TIBCO iProcess Engine Installation

This appendix lists the configuration options for TIBCO iProcess Engine installation.

Upgrade or New Install

The Upgrade or New Install dialog box allows you to choose whether to install a new iProcess Engine or upgrade an existing one using the [Custom](#) installation type.

- For information about a new installation, see [Custom Installation - New Installation](#).
- For information about upgrading an existing iProcess Engine, see [Custom Installation - Upgrade Existing Installation](#).

The following table contains detailed information for configuration options available in the Upgrade Or New Install dialog box.

Configuration Options in the Upgrade or New Install Dialog Box

Configuration Option	Description	Default Value
New Installation	<p>Select the New Installation radio button to install a new iProcess Engine. You need to specify an iProcess node name for the new installation. You can either accept the default entry or enter a new name in the text field.</p> <p>Note: If you want to install a master server, the node name must be 24 characters or less using letters or digits, which can be separated by an underscore character.</p> <p>If you want to install a <i>slave</i> server, the node name must be exactly the same as the one used on the master server.</p>	Selected
Upgrade Existing	Select the Upgrading Existing Installation radio button	Unselected

Configuration Option	Description			Default Value
Installation	<p>to upgrade an existing iProcess Engine. You need to select the iProcess Engine that you want to upgrade in the list of node names.</p> <p>When you select a node name in the list, the related information of the selected iProcess Engine is displayed in the Details area, such as, Version, Language, Client-Server RPC port number, and so on.</p> <p>Note: If you cannot directly upgrade the selected iProcess Engine node name to this version, an error message is displayed in the Details area. Click the Cancel button to exit the installation.</p> <p>For detailed information of iProcess Engine upgrade requirements, see Upgrade Requirements.</p>			
Install Files (Upgrade Files)	Custom Installation - New Installation	<p>Check the Install Files or Upgrade Files checkbox to install iProcess Engine files.</p> <p>Note: Generally, the administrator of your operating system has access to install files.</p>	<p>When performing a new installation Custom Installation - New Installation, if you want to install both iProcess Engine files and schema tables simultaneously, check both checkboxes. If you want to install them separately, you must install schema tables first. After successfully installing the</p>	Checked

Configuration Option	Description	Default Value
	Custom Installation - Upgrade Existing Installation	<p>schema tables, restart the installer to install files.</p> <p>Note: If you check the Install Files checkbox first, you will be prompted to install schema tables before installing files in the following installation steps.</p>
Install Schema (Upgrade Schema)	<p>Check the Install Schema or Upgrade Schema checkbox to install iProcess Engine schema tables.</p> <p>Note: Generally, the database administrator (DBA) has access to install schema tables.</p>	Checked
	<p>When performing an upgrade, you can choose whether to migrate memo data by clicking the following radio buttons: Not migrate, Migrate live cases, and Migrate all cases.</p> <p>You can migrate the memo data by using the memo migration utility after the upgrades.</p>	N/A

Group & User Configuration

The Group & User Configuration dialog box allows you to specify iProcess Engine group names, the administrator account, the services account, and whether iProcess Workspace users need a password to log in.

TIBCO iProcess® Engine for Windows Installation

The following table contains detailed information for configuration options available in the Group & User Configuration dialog box:

Configuration Options in the Group & User Configuration Dialog Box

Configuration Option	Description	Default Value
Please Select The iPE User And Administration Groups		
Administrators Group	Specify the local Windows group, for example, a group on the computer where you are installing the iProcess Engine. This group will be used to contain iProcess Engine administrators.	iProcess Administrators
	Basic Installation	You cannot change the default value.
	Custom Installation - New Installation	You can either select an existing group from the drop-down list or enter a new group name. The installer will create this group for you.
	Custom Installation - Upgrade Existing Installation	
Users Group	Specify the local Windows group, for example, a group on the computer where you are installing the iProcess Engine. This group will be used to contain iProcess Engine users.	iProcess Users
	Basic Installation	You cannot change the default value.
	Custom Installation - New	You can either select an existing group from the drop-down list or enter a new group name. The

Configuration Option	Description	Default Value
	<div><div>Installation</div><div>Custom Installation - Upgrade Existing Installation</div></div> <div>installer will create this group for you.</div>	
Please Select The iPE Administrator Account		
Select Account From List	<div>This checkbox is only enabled when performing the Custom Installation.</div> <div>Check this checkbox to populate the field with a drop-down list of user accounts that are available from the location you specified in the Operating System Users Location dialog box.</div>	Unchecked
Username	<div>Specify the Windows account you want to use to administer the iProcess Engine, for example, the <i>IPEADMIN</i> user.</div> <div><div>Basic Installation</div><div>You cannot change the default account shown.</div><div>Note: If you do not want to use the default account as the <i>IPEADMIN</i> account, you must click the Cancel button to exit the installation and run <i>setup.exe</i> again using the desired account as the <i>IPEADMIN</i> account.</div></div> <div><div>Custom Installation - New</div><div>You can either enter the name of the Windows account you want to use directly or check the Select</div></div>	<div>The <i>IPEINSTALL</i> user</div> <div>The <i>IPEINSTALL</i> user</div>

Configuration Option	Description	Default Value
	<p>Installation</p> <p>Account From List checkbox to populate the field with a drop-down list of user accounts that are available from the location you specified in the Operating System Users Location dialog box.</p>	
	<p>Custom Installation - Upgrade Existing Installation</p> <p>Note: If you have a large number of Windows operating system users across a domain and trusted domains, this can take a long time. To avoid this, enter the name of the Windows account you want to use directly.</p>	<p>The existing IPEADMIN account that is defined on line 3 of the <code>SWDIR\swdefs</code> file.</p>
Password	Enter the password for the selected iProcess Engine administrator account user.	None
Please Select The iPE services Account		
Use Separate Account For iPE Services	<p>This checkbox is only enabled when performing the Custom Installation.</p> <p>Check this checkbox to use different Windows accounts for the IPESERVICE users.</p>	Unchecked
User Name	Specify the Windows account you want to use to run the iProcess Engine, for example, the IPESERVICE user.	
	<p>Basic Installation</p> <p>You cannot change the default account shown.</p> <p>Note: If you do not want to use the default account as the IPEADMIN account, you must click the Cancel button to exit the installation and</p>	<p>The IPEINSTALL user</p>

Configuration Option	Description	Default Value
	run <code>setup.exe</code> again using the desired account as the <i>IPEADMIN</i> account.	
	<p>Custom Installation - New Installation</p> <p>You can either enter the name of the Windows account you want to use directly or check the Select account from list checkbox to populate the field with a drop-down list of user accounts that are available from the location you specified in the Operating System Users Location dialog box.</p>	The IPEINSTALL user
	<p>Custom Installation - Upgrade Existing Installation</p> <p>Note: If you have a large number of Windows operating system users across a domain and trusted domains, this can take a long time. To avoid this, enter the name of the Windows account you want to use directly.</p>	The existing IPEADMIN account that is defined on line 3 of the <code>SWDIR\swdes</code> file.
Password	Enter the password for the selected iProcess Engine services account user.	N/A
Users Are Required To Login with A Password	<p>This checkbox is only enabled when performing the Custom Installation.</p> <p>Check this checkbox if you require iProcess Workspace users to supply a password to log in to this iProcess Engine.</p> <p>Uncheck this checkbox if you want to allow iProcess Workspace users to be able to log in to this iProcess Engine without a password.</p>	Checked

SQL/ODBC Details

The SQL/ODBC Details dialog box allows you to configure the ODBC data source that is used to connect to SQL Server through iProcess Engine.

The following table contains detailed information for configuration options available in the SQL/ODBC Details dialog box.

Configuration Options in the SQL/ODBC Dialog Box

Configuration Options	Description	Default Value
Choose An Existing ODBC Data Source	<p>Select this radio button if you want to use an existing ODBC data source, then select the ODBC data source you want to use from the drop-down list.</p> <p>Note: When installing the iProcess Engine on a 64-bit Windows system, only ODBC data sources created for 64-bit applications will appear in the drop-down list. See Creating the ODBC Data Source for detailed information.</p>	Cleared
Enter A New ODBC Data Source	<p>Select this radio button if you want to create a new ODBC data source, and then enter a name in the field for the new ODBC data source.</p> <p>Note: This name must not be the same as any existing ODBC data source name on the computer where you are installing the iProcess Engine.</p> <p>If you intend to use the TIBCO iProcess Connector for ActiveMatrix BusinessWorks with this iProcess Engine, this name must be the same as the name of the database you want to use.</p> <p>If you are installing the iProcess Engine into a Microsoft Windows Cluster, the <code>msscustercommand</code> automatically creates an ODBC data source with the same name and</p>	Selected

Configuration Options	Description	Default Value
	<p>details on each secondary machine in the cluster. See Configuring the Microsoft Windows Cluster for detailed information.</p> <p>Note: A 32-bit data source is created with <datasourcename>, <datasourcename>_master because the installer is 32-bit and it requires a 32-bit data source to connect to the database.</p> <p>The odbc data source <datasourcename>_master is generated temporarily to connect to the master database. Once the installation is complete, this is removed.</p>	

Configuration Options	Description	Default Value
SQL Server		
Choose The SQL Server To Connect To	<p>Select the name of the SQL Server that you want your new ODBC Data Source to connect to in the drop-down list or enter its name in the field directly.</p> <p>Note: If the SQL Server you want to connect to is not listed in the drop-down list, make sure that the SQL Server Browser service is running. This service runs automatically, but if it is not running for any reason, the SQL Server will not be shown in this list.</p>	N/A
Use Integrated Windows Authentication	<p>This setting determines the authentication method that the ODBC data source will use when connecting to the SQL Server.</p> <p>Check this checkbox if you want the ODBC data source to connect to the SQL Server using Windows authentication.</p> <p>Uncheck this checkbox if you want the ODBC data source to connect to the SQL Server using SQL Server authentication (SQL Server login ID and password).</p>	Checked
You Have DBA Privileges	<p>Check this checkbox if you have the name and password of a SQL Administrator login. This SQL Server login must be a member of the sysadmin fixed server role.</p> <p>Note: You must check this checkbox if you want the installer to create the iProcess Engine database and iPE DB Owner and iPE DB User logins for you. For detailed information about iPE DB Owner and iPE DB User, see Database Details.</p>	Checked

Configuration Options	Description	Default Value
	<p>Uncheck this checkbox if you do not have the name and password of a SQL Administrator login. In this situation, the installer will not be able to create the iProcess Engine database and iPE DB Owner and iPE DB User logins. To continue with the installation, you must have created the iProcess Engine database and iPE DB Owner and iPE DB User logins before running the installer. For detailed information, see Creating the SQL Server Database and Logins.</p> <p>Note: It is mandatory to enter SQL Administrator login and password for Azure SQL.</p>	
SQL Server Login Name	<p>This field is only available if you check the You Have DBA Privileges checkbox.</p> <p>Specify the username of the SQL Administrator login that you want the installer to use to connect to this SQL Server.</p>	sa
SQL Server Login Password	<p>This field is only available if you check the You have DBA privileges checkbox.</p> <p>Enter the password for the specified SQL Administrator login.</p>	N/A

Database Details

The Database Details dialog box allows you to configure the database that the iProcess Engine will connect to.

The following two databases can be used with the iProcess Engine on Windows:

- [SQL Server](#)
- [Oracle](#)

SQL Server

If you are using a SQL Server database, the following table contains detailed information for configuration options available in the Database Details dialog box.

Configuration Options in the Database Details Dialog Box- SQL Server

Configuration Option	Description	Default Value
ODBC Source	<p>The ODBC Data Source being used appears in this field.</p> <p>You cannot change this value. If it is not the ODBC Data Source you want to use, click the Back button to return to the SQL/ODBC Details and select a different ODBC Data Source.</p>	<p>The ODBC Source that is defined in SQL/ODBC Details</p>
Database Details		
Database Name	<p>Specify the name of the database that you want to create.</p> <p>Note: If you chose to use an existing ODBC Data Source, you cannot change the value shown, which is the name of the database associated with that ODBC data source. If this is not the database you want to use, click the Back button to return to the SQL/ODBC Details and choose a different ODBC Data Source.</p> <p>In the SQL/ODBC Details, if you do not check the You Have DBA Privileges checkbox, you must specify the name of an existing database here.</p> <p>If you intend to use the TIBCO iProcess Connector for ActiveMatrix BusinessWorks with this iProcess Engine, this name must be the same as the name of the ODBC Source.</p> <p>See Microsoft SQL Server documentation for information regarding applicable naming conventions.</p>	<p>The name of the database associated with the selected ODBC data source</p>

Configuration Option	Description	Default Value
	<p>Note: A 32-bit data source is created with <datasourcename>, <datasourcename>_master because the installer is 32-bit and it requires a 32-bit data source to connect to the database.</p> <p>These 32-bit data sources are temporary to connect to database during installation and will be removed once the installation is complete. A 64-bit is created to use during run-time.</p>	
iPE DB Owner Login	<p>Specify the name of the SQL Server login that owns the iProcess Engine database.</p> <p>Note: In the SQL/ODBC Details, if you do not check the You Have DBA Privileges checkbox, you must specify the name of an existing SQL Server login here.</p> <p>If you are using Windows-authenticated accounts, you must enter the simple username not the fully qualified name, for example, swpro rather than EMEA\swpro. For more information, see Authentication Requirements.</p> <p>See Microsoft SQL Server documentation for information regarding applicable Naming Conventions.</p>	N/A
iPE DB Owner Password	<p>Specify the password for the iPE DB owner.</p> <p>Note: When entering a password, you must ensure that the password conform to the password complexity requirements of your site. If you are unsure of the password complexity requirements, contact your system administrator.</p>	N/A
iPE DB User Login	<p>Specify the name of the SQL Server login that the iProcess Engine will use for read access to the iProcess Engine database.</p>	N/A

Configuration Option	Description	Default Value
	<p>Note: See Microsoft SQL Server documentation for information regarding applicable Naming Conventions.</p> <p>In the SQL/ODBC Details, if you do not check the You Have DBA Privileges checkbox, you must specify the name of an existing SQL Server login here.</p>	
iPE DB User Password	<p>Enter the password for the specified iPE DB User Login.</p> <p>Note: When entering a password, you must ensure that the password conforms to the password complexity requirements of your site. If you are unsure of the password complexity requirements, contact your system administrator.</p>	N/A
Support Unicode Encoding	<p>Check this checkbox if you want the iProcess database to support unicode (UTF-8) encoding. For more information, see Does the iProcess Engine Database Support UTF-8</p> <p>Uncheck it to disable this function.</p>	Unchecked

Oracle

If you are using an Oracle database, the following table contains detailed information for configuration options available in the Database Details dialog box.

Configuration Options in the Database Details Dialog box - Oracle

Configuration Option	Description	Default Value
Enter The Oracle Database Service (TNS) Name	Specify the service name of the Oracle database in which you want to create the iProcess Engine	N/A

Configuration Option	Description	Default Value
Database Admin User (e.g. system)	<p>schema.</p> <p>Note: If you are using a direct connection to the default database hosted on the computer where you are installing the iProcess Engine, you can leave this field blank. For more information, see Direct Connection Requirements for Oracle.</p> <p>TIBCO strongly recommends the use of an Oracle TAF-enabled service name to provide 24*7 resilient operation. If you are deploying the iProcess Engine for user acceptance testing (UAT) or to a production environment, you must enable TAF. For detailed information, see Setting Up Oracle Transparent Application Failover (TAF).</p> <p>You cannot change this value if you are upgrading the iProcess Engine.</p> <p>See Oracle Database documentation for information regarding applicable naming conventions.</p>	system
	<p>Specify the name of the Oracle user that the iProcess Engine will use when it needs to connect to the database as a database administrator (DBA).</p> <p>This must be an account which has the necessary permissions to create tables and users, for example, either with the DBA role assigned or with access to the Oracle Data Dictionary.</p> <p>Note: See Oracle Database documentation for information regarding applicable naming</p>	

Configuration Option		Description	Default Value
		conventions.	
	Password	Specify the password for the Oracle DBA user. Note: When entering a password, you must ensure that the password conform to the password complexity requirements of your site. If you are unsure of the password complexity requirements, contact your system administrator.	N/A
Support Unicode Encoding		Check this checkbox if you want the iProcess database to support unicode (UTF-8) encoding. Uncheck it to disable this function.	Unchecked
Database Users	Change	If you want to use different users, click the Change button to open the Database Users dialog box. You can define the iPE DB Owner and password, the iPE User and password, and Tablespace in the dialog box. Note: When entering a password, you must ensure that the password conforms to the password complexity requirements of your site. If you are unsure of the password complexity requirements, contact your system administrator.	N/A

Select Components To Configure

The **Select Components to Configure** dialog box allows you to choose whether you want to install, enable, or configure optional iProcess Engine components.

The following table contains detailed information for configuration options available in the **Select Components To Configure** dialog box.

Configuration Options in the Select Components to Configure Dialog Box

Configuration Option	Description
Upgrade NobleNet Portmapper	<p>This check box is only enabled if the installer detects that the NobleNet Portmapper service is installed on your system.</p> <p>Check this check box if you want to upgrade this service. The upgrade will replace the existing service with a new version with the name NobleNet Portmapper for TCP.</p> <p>TIBCO advises you to perform this upgrade, unless you have other services on your computer which have a <i>hardcoded</i> dependency on the NobleNet Portmapper service.</p> <p>Uncheck this check box if you do not want to upgrade the NobleNet Portmapper service.</p>
Upgrade COM+ Component	<p>Check this check box if you want to upgrade the COM+ Component.</p> <p>Uncheck this check box if you do not want to upgrade the COM+ Component.</p>
Register EAI COM Server Plug-in	<p>Check this check box to enable TIBCO iProcess COM Server Plug-in.</p> <p>TIBCO recommends that you do this only if you need to use this plug-in, and if you have ensured that your iProcess environment fully supports distributed transactions. See Is It Necessary to Use TIBCO iProcess COM Server Plug-in for more information.</p> <p>Uncheck the check box to disable this plug-in.</p>
Configure E-Mail Plug-in	<p>Check this check box if you want to configure SMTP server parameters for the TIBCO iProcess Email Server Plug-in as part of the installation. You will be able to configure these parameters in a later installation dialog.</p> <p>You cannot change this setting if you are upgrading from Version 10.5 or later, or from an earlier version that already has the TIBCO iProcess Email Server Plug-in installed. The check box is disabled.</p> <p>Alternatively, you can configure SMTP server parameters after you have installed the iProcess Engine. See <i>TIBCO iProcess Email Plug-in User's</i></p>

Configuration Option	Description
	<p><i>Guide</i> for more information. Uncheck this check box if you want to do this.</p>
Enable IAP	<p>Check this check box to enable activity publishing (both IAPJMS and Work Queue Delta publishing). Uncheck this check box to disable it.</p> <p>If you are upgrading from Version 10.3 or later you cannot change this setting. The check box is disabled.</p> <p>If activity publishing is enabled, activity information about auditable objects (for example, procedures and steps) can be published to an external application. (The BG process publishes monitored activities to the IAPJMS process.) This enables real-time monitoring of auditable objects so that mission critical or important business events can be easily monitored.</p> <p>Similarly, details of a work item are provided whenever the work item changes on a queue that the subscribing application is subscribed to.</p> <div data-bbox="483 993 1373 1062"> <p>Note: If you enable activity publishing on the master server, you must also enable it on each slave server.</p> </div> <p>Selecting this check box sets the value of the iProcess Engine IAPJMS_PUBLISH process attribute to 1 (enabled). Clearing it sets it to 0 (disabled). For more information about this process attribute, see <i>TIBCO iProcess Engine Administrator's Guide</i>.</p> <p><i>Enabling activity publishing does not result in activities being automatically published by the iProcess Engine.</i> To get the iProcess Engine to actually monitor and publish events, you must also:</p> <ul style="list-style-type: none"> • configure the activities and events that you want to monitor and publish. For more information, see “Configuring Activity Monitoring” in <i>TIBCO iProcess Modeler - Integration Techniques</i>. • configure how iProcess Engine will handle and publish monitored events. For more information, see “Administering Activity Monitoring” in <i>TIBCO iProcess Engine Administrator's Guide</i>.

Configuration Option	Description
Use Cluster Network Name	<p>Check this check box if you want to install the iProcess Engine to a virtual server in a Microsoft Windows cluster. (The indicated Microsoft Windows cluster Network Name will be written to the iProcess Engine database <code>node_cluster</code> table at the end of the installation process.)</p> <p>You must do this if you want to run the iProcess Engine in an interference-free failover configuration on a Microsoft Windows cluster.</p> <p>Deselect this check box if you want to install the iProcess Engine on the physical computer instead.</p> <p>Note: This check box is only displayed if a Microsoft Windows cluster Network Name can be found for the machine on which the installation is being performed. The Cluster Network Name is also displayed for information.</p> <p>If you are upgrading from Version 10.5 or later you cannot change this setting. The check box is disabled.</p> <p>You can update the <code>node_cluster</code> table with a Microsoft Windows cluster Network Name after installation if you prefer.</p> <p>You must perform some additional post-installation tasks to configure the iProcess Engine to run in a cluster.</p>
Enable iProcess Objects Server	<p>Check this check box if you want to enable the iProcess Objects Server process (SPO). Uncheck it to disable the process.</p> <p>The iProcess Objects Server receives requests for services or data from TIBCO iProcess Objects (COM, JAVA, or C++) or TIBCO iProcess Server Objects (JAVA or .NET). The iProcess Objects Server processes the request, then makes the appropriate call to an iProcess Engine to initiate the desired service or obtain the desired information.</p> <p>For more information, see <i>TIBCO iProcess Objects Server Administrator's Guide</i>.</p>
Configure iProcess Objects	<p>Check this check box if you want to run the iProcess Objects Server Configuration Utility later in the installation process. This utility allows</p>

Configuration Option	Description
Server	<p>you to set configuration parameters for the iProcess Objects Server.</p> <p>Deselect this check box if you do not want to run the configuration utility.</p> <p>For information about the parameters available in this utility, see <i>TIBCO iProcess Objects Programmer's Guide</i> or <i>TIBCO iProcess Objects Server Administrator's Guide</i>.</p>
Enable iProcess Objects Director	<p>Check this check box if you want to enable the iProcess Objects Director process (DIRECTOR).</p> <p>The iProcess Objects Director is a standalone program that maintains a list of iProcess Objects Servers that are configured in a node cluster. When a client needs access to an iProcess Objects Server, it first establishes a connection to the iProcess Objects Director. The iProcess Objects Director then decides, based on a “pick method”, which iProcess Objects Server the client should connect to.</p> <p>For more information, see <i>TIBCO iProcess Objects Director Administrator's Guide</i>.</p>


Configuration

The Configuration dialog box allows you to define a number of basic iProcess Engine configuration options.

The following table contains detailed information for configuration options available in the Configuration dialog box.

Configuration Options in the Configuration Dialog Box

Configuration Options	Description	Default Value
Licensee	<p>Specify a name to identify the installing iProcess Engine.</p> <p>Note: The length of the name must be between 4 and 32</p>	TIBCO

Configuration Options	Description	Default Value
	characters.	
JMX Port Number	<p>TIBCO iProcess Engine includes a Java Management Extensions (JMX) engine that enables TIBCO Business Studio to deploy procedures to the iProcess Engine.</p> <p>Specify the port number on which the JMX engine should run.</p> <p>The port number must be:</p> <ul style="list-style-type: none"> —an integer value between 0 and 65535. —unique across all iProcess Engine installations on this computer. <p>If you do not specify a number, the default port 10025 will be used.</p> <p>In Business Studio, a Deployment Server can use this port number to deploy processes to this iProcess Engine using the JMX Remote Method Invocation (RMI) interface. See <i>TIBCO Business Studio Process Developer's Guide</i> for more information.</p> <p>The port number will be written to the <code>SWJMXConfig.port</code> entry in the <code>SWDIR\etc\swjmx.properties</code> file, and can be changed after installation if needed. See <i>TIBCO iProcess Engine Administrator's Guide</i> for more information.</p>	10025
Client-Server RPC Port Number	<p>Specify the RPC service number that the TIBCO iProcess Workspace (Windows) clients use to communicate with this iProcess Engine:</p> <ul style="list-style-type: none"> - Select a new value from the drop-down list. - Click the  button to open the RPC Port Numbers dialog box. Enter the RPC port numbers in the Client-Server RPC Port Number field. 	391877

Configuration Options	Description	Default Value
	<p>Note: You cannot change this value when upgrading an existing iProcess Engine.</p> <p>391875 to 391879 are reserved for iProcess Engine client-server RPC program numbers. Using a number in this range should prevent any clash with other applications using the same number, provided that other applications also use legitimate RPC numbers.</p> <p>The RPC service number must be unique across all iProcess Engine installations on this computer.</p>	
Process Sentinels Service Startup	<p>Select the startup mode you want to use for the iProcess Process Sentinels service from the drop-down list:</p> <p>Automatic - The iProcess Process Sentinels service starts automatically when the computer starts up.</p> <p>Manual - You must manually start the Process Process Sentinels service either locating the service from Control Panel > Services or using the <code>SWDIR\bin\swstart</code> command.</p> <p>Disabled - You cannot start the iProcess Process Sentinels service.</p> <p>After the installation, you can change this setting by using the Services Console on Windows.</p>	Automatic
Auto-start Processes On Service Startup	<p>Check this checkbox to automatically start the iProcess Engine processes after the iProcess Process Sentinels service has started and set the value of the iProcess Engine PM_AUTO_BOOT process attribute to 1 (enabled).</p> <p>Uncheck this checkbox to disable automatic process startup and set the value of the iProcess Engine PM_AUTO_BOOT process attribute to 0 (disabled). You will need to manually start the iProcess Engine processes after the iProcess Process Sentinels service has started.</p>	Checked

Configuration Options	Description	Default Value
	<p>For an existing iProcess Engine, if the automatic process startup is currently enabled (PM_AUTO_BOOT=1), you cannot disable it during the upgrade. The checkbox is disabled.</p> <p>See <i>TIBCO iProcess Engine Administrator's Guide</i> for more information about the PM_AUTO_BOOT process attribute.</p> <p>Note: You must check this checkbox if you are installing the iProcess Engine to a Microsoft Windows Cluster.</p>	
Enable Case Prediction	<p>Check this checkbox to enable the case prediction server process (BGPREDICT) and set the value of the iProcess Engine ENABLE_CASE_PREDICTION process attribute to 1 (enabled).</p> <p>Uncheck this checkbox to disable the case prediction server process (BGPREDICT) and set the value of the iProcess Engine ENABLE_CASE_PREDICTION process attribute to 0 (disabled).</p> <p>For an existing iProcess Engine, if the case prediction server process is currently enabled (ENABLE_CASE_PREDICTION=1), you cannot disable it during the upgrade. The checkbox is disabled.</p> <p>See <i>TIBCO iProcess Engine Administrator's Guide</i> for more information about the iProcess Engine ENABLE_CASE_PREDICTION process attribute.</p> <p>Note: The case prediction server process only affects background case prediction. It has no effect on live case prediction or case simulation.</p> <p>For more information about the usage of case prediction, see the <i>Using Case Prediction to Forecast Outstanding Work Items</i> section in <i>TIBCO iProcess Modeler Advanced Design</i>.</p>	Unchecked

Configuration Options	Description	Default Value
Enable Case Data Normalization	<p>Case data normalization is a feature used to make case data searching more efficient and therefore faster. It uses the <code>field_value_N</code> column in the <code>case_data</code> table in the iProcess Engine database. This column provides a <i>normalized</i> value of the value in the <code>field_value</code> column, allowing the database to do simple string comparisons, instead of having to do type conversions.</p> <p>Check this checkbox to enable case data normalization and set the value of the iProcess Engine <code>NORMALISE_CASE_DATA</code> process attribute to 1 (enabled).</p> <p>Uncheck this checkbox to disable case data normalization and set the value of the iProcess Engine <code>NORMALISE_CASE_DATA</code> process attribute to 0 (disabled).</p> <p>For an existing iProcess Engine, if case data normalization is currently enabled (<code>NORMALISE_CASE_DATA=1</code>), you cannot disable it during the upgrade. The checkbox is disabled.</p> <p>See <i>TIBCO iProcess Engine Administrator's Guide</i> for more information about the <code>NORMALISE_CASE_DATA</code> process attribute.</p> <p>Note: If you intend to use iProcess Objects to perform case data searches, TIBCO strongly recommends that you enable case data normalization. If you do not do this, you will be able to view and start procedures, but you will not be able to view the cases until you normalize the data.</p> <p>You can enable or disable case data normalization after installation by using the Case Data Normalization Utility. See the <i>Administering Case Data Normalization</i> section in the <i>TIBCO iProcess Engine Administrator's Guide</i> for more information about this utility.</p> <p>When upgrading an existing iProcess Engine, you should</p>	Checked

Configuration Options	Description	Default Value
	<p>also note the following before choosing to enable case data normalization:</p> <p>The installer will need to populate the <code>field_value_N</code> column for every row in the <code>case_data</code> table, using the values from the <code>field_value</code> column. This can significantly impact the duration of the upgrade process if there are large numbers of cases on the system. See How Long Will an Upgrade Take for more information.</p>	
Enable system event logging	<p>The system event logging records system events like logins, login failures, movesysinfos, and so on. The recorded system events are saved in the <code>system_event</code> table. You can change the configuration in the <code>system_event_conf</code> table to decide which system events are audited and published. See <i>TIBCO iProcess Engine (DB2, SQL, and Oracle) Administrator's Guide</i> for more information.</p> <p>Check this checkbox to enable the system event logging and set the value of the iProcess Engine <code>SYSTEM_EVENT_LOGGING</code> process attribute to 1 (enabled).</p> <p>Uncheck this checkbox to disable the system event logging and set the value of the iProcess Engine <code>SYSTEM_EVENT_LOGGING</code> process attribute to 0 (disabled).</p> <p>See <i>TIBCO iProcess Engine Administrator's Guide</i> for more information about the iProcess Engine <code>SYSTEM_EVENT_LOGGING</code>, <code>PUBLISH_SYS_EVENT_METHOD</code>, and <code>SEJMS_TOPICNAME</code> process attributes.</p>	Checked

SMTP Server Parameters

The SMTP Server Parameters dialog box allows you to configure the parameters that the iProcess Email Server Plug-in will use to connect to an SMTP server.

**Note**

The values you specify in the SMTP Server Parameters dialog are written as parameters to the `SWDIR\libs\eai_mail.cfg` file. For more information about these parameters, see *TIBCO iProcess Email Plug-in User's Guide*.

If you are upgrading a system that already has the iProcess Email Plug-in installed, the default values shown in this dialog box are taken from the existing `SWDIR\libs\eai_mail.cfg` file.

The following table contains detailed information for configuration options available in the SMTP Server Parameters dialog box.

Configuration Options in the SMTP Server Parameters Dialog

Configuration Option		Description	Default Value
Mail From		Specify the default email address that you want to use to send EAI Mail messages from.	N/A
SMTP Server Parameters	Host	Specify the name or IP address of the machine hosting the SMTP server that you want to use.	N/A
	Port	Specify the TCP port number on which the SMTP server is running.	25
	Test Connection	Click this button if you want to test the connection to the SMTP server using the specified Host and Port parameters.	N/A
Specify SMTP Backup Hosts		<p>Check this checkbox if you want to specify SMTP backup hosts.</p> <p>Click the Next button, the SMTP Backup Servers dialog box appears. Configure the parameters for your SMTP backup servers in this dialog box. For detailed information, see SMTP Backup Servers.</p>	Unchecked
Specify Mail Message Headers		Check this checkbox if you want to specify	Unchecked

Configuration Option	Description	Default Value
	the header information to be used with all EAI Mail messages.	
	Click the Next button, enter the information in the Enter Message Header field.	

SMTP Backup Servers

The SMTP Backup Servers dialog box allows you to configure parameters that the iProcess Email Plug-in will use to locate backup servers in case of a failure in the primary SMTP server. For more information about backup servers, see *TIBCO iProcess Email Plug-in User's Guide*.



Note

The values you specify in this dialog box are written as parameters to the `SWDIR\libs\esai_mail.cfg` file. For more information about these parameters, see *TIBCO iProcess Email Plug-in User's Guide*.

The following table contains detailed information for configuration options available in the SMTP Backup Servers dialog box.

Configuration Options in the SMTP Backup Servers Dialog Box

Configuration Option	Description	Default Value
SMTP Backup Servers		
Host	For each backup server in turn, you can specify the machine name or the IP address of the machine hosting the backup SMTP server. There can be as many backup host entries as there are SMTP servers available for failover.	N/A
Port	The port number on which the preceding backup host is running. There must be one backup port entry for each	25

Configuration Option	Description	Default Value
	backup host server.	
Retry Count	<p>Specify how many times the iProcess Email plug-in will use a backup server before retrying the primary host.</p> <p>Enter a non-zero numeric value in this field.</p> <p>Note:</p> <p>—If a negative value is entered, it is interpreted as the default value.</p> <p>—If zero or a non-numeric value is entered, the configuration of backup servers has no effect and the plug-in reverts to the primary host.</p> <p>If a successful connection is made on retrying the primary host, the plug-in reverts to using that host. If not, the plug-in continues with the backup server that is currently in use.</p>	50



TIBCO iProcess Web Server Configuration

The TIBCO iProcess Web Server Configuration dialog box allows you to specify the location of TIBCO Hawk and TIBCO Rendezvous that are used by the iProcess Web Server service.

The following table contains detailed information for configuration options available in the TIBCO iProcess Web Server Configuration dialog box.

Configuration Options in the TIBCO iProcess Web Server Configuration Dialog Box

Configuration Option	Description	Default Value
TIBCO Software Location		

Configuration Option	Description	Default Value
Please Enter The Directory Where TIBCO HAWK Is Installed	<p>Specify the full pathname of the directory where the TIBCO Hawk software is installed.</p> <p>—Enter the full pathname of the directory in the field.</p> <p>—Click the  button. The Locate TIBCO Hawk dialog box appears. Select the appropriate directory, then click the OK button.</p>	C:\tibco\hawk\ <i>version</i>
Please Enter The Directory Where TIBCO Rendezvous Is Installed	<p>Specify the full pathname of the directory where the TIBCO Rendezvous software is installed.</p> <p>—Enter the full pathname of the directory in the field.</p> <p>—Click the  button. The Locate TIBCO Rendezvous dialog box appears. Select the appropriate directory, then click the OK button.</p>	C:\tibco\tibrv
Enable The Webdav Server For Write Access	<p>Check this check box if you want write access to WebDav enabled on the Apache Tomcat application server that is installed with iProcess Engine.</p> <p>Selecting this option enables you to easily deploy your TIBCO Forms using TIBCO Business Studio. If you want to use TIBCO Forms and do not want to enable this option, then you must install the forms manually on this or your own web server.</p> <p>There are security issues around enabling WebDav and if you select this option, the following warning message is displayed:</p> <p>You have enabled write access to WebDAV, which allows you to make your own deployed forms for the browser client. This may cause your server potential security issues and/or cause your deployed forms</p>	Unchecked

Configuration Option	Description	Default Value
	for the browser client to fail.	
	TIBCO Software Inc. is not responsible for these or any other consequences caused by your use of the write access to WebDAV.	
	If you do not want to use TIBCO Forms, then TIBCO recommends that you do not enable write access to WebDav. See Apache Tomcat Application Server Documentation for more information about security.	

Default Java Message Service

The Default Java Message Service dialog box, along with two subsequent dialog boxes, allows you to configure the necessary Java Message Service (JMS) parameters to enable Activity Monitoring and Work Queue Delta publication on the iProcess Engine.

For more information about the use of these parameters, see *Administering Activity Monitoring* in *TIBCO iProcess Engine Administrator's Guide*.

To configure the default JMS parameters, complete the following steps:

1. Select one JMS provider that the iProcess Engine will publish messages to in the Default Java Message Service dialog box, as shown in [Default Java Message Service Dialog Box](#).



Note

If you want to use TIBCO EMS, select **TIBCO EMS 8.0** if you are using TIBCO EMS version 8.0, otherwise select TIBCO EMS if you are using TIBCO EMS other supported versions.

If you want to use JBoss 4.0.0, you need to select the **JBoss** radio button. If you want to use any other version of JBoss or JBoss Messaging, you need to select the **Other** radio button instead.

If you want to use IBM Websphere 7.x, you need to select the **IBM Websphere 8.x** button. If you are using IBM Websphere 8.x, SSL will be enabled by default. Since SSL is disabled by default in TIBCO iProcess Engine, you should either disable SSL

in IBM Websphere 8.x or enable SSL in TIBCO iProcess Engine.

Similarly, if you want to use Oracle WebLogic Server Version, you should select the Oracle WebLogic Server radio button. If you want to use any other version of WebLogic Server, you select the Other radio button instead.

Figure 34: Default Java Message Service Dialog Box




2. Click the **Next** button. The **JAR Files For JMS Connectivity** dialog box appears. Configure the items listed in [Configuration Options in the JAR Files For JMS Connectivity Dialog Box](#).

Configuration Options in the JAR Files For JMS Connectivity Dialog Box

Configuration Option	Description
Base	In the Default Java Message Service dialog box shown in Default Java Message Service Dialog Box , if you select: IBM Websphere 6.x

Configuration Option	Description
	<p>Specify the full path of the directory containing the IBM Client for JMS on J2SE with WebSphere Application Server. The iProcess Engine IAPJMS process must use this client to communicate with the WebSphere 6.x Application Server.</p> <p>If you do not already have this client installed on this computer, TIBCO recommends that you use the default location (<i>SWDIR\jmsclient</i>). You <i>must</i> then install this client into the specified directory after you have installed iProcess Engine. See Installing the IBM Client for JMS on J2SE with IBM WebSphere Application Server for more information about how to do this.</p> <p>IBM Websphere 8.x</p> <p>You must specify the <i>websphere_home</i> directory where IBM Websphere 8.x is installed and make sure the following files are saved in the <i>websphere_home\runtimes</i> directory:</p> <ul style="list-style-type: none"> • <code>com.ibm.ws.sib.client.thin.jms_versionnumber.jar</code> • <code>com.ibm.ws.ejb.thinclient_versionnumber.jar</code> • <code>com.ibm.ws.orb_versionnumber.jar</code> <p>JBoss 6.x</p> <p>Specify the full path of the directory containing the following files:</p> <ul style="list-style-type: none"> • <code>jboss-jms-api_1.1_spec.jar</code> • <code>jnp-client.jar</code> • <code>hornetq-core-client.jar</code> • <code>hornetq-jms-client.jar</code> • <code>netty.jar</code> • <code>jboss-logging.jar</code> <p>Note: In JBoss 6.x, JMS service is provided by HornetQ. So you need to install HornetQ. On the other hand, you can find the listed .jar files either in HornetQ or in JBoss 6.x final installation directory.</p>

Configuration Option	Description
Base	<p>anything else</p> <p>Specify the full path (or comma-separated paths) of the JAR files required by this JMS provider.</p> <p>When specifying the path, make sure that you use the forward slash character (/) as the path separator, rather than the backslash character (\). For example, specify <code>e:/tibco/ems/clients/java/jms.jar</code> not <code>e:\tibco\ems\clients\java\jms.jar</code>.</p> <p>The installer writes this value to the IAPJMS configuration file: <code>SWDIR\etc\iapjms_classpath.properties</code>.</p>
Additional	<p>Specify the full path (or comma-separated paths) of any additional JAR files that are required for your JMS configuration.</p> <p>When specifying the path, make sure that you use the forward slash character (/) as the path separator, rather than the backslash character (\).</p> <p>The installer writes this value to the IAPJMS configuration file: <code>SWDIR\etc\iapjms_classpath.properties</code>.</p>
 Warning	<p>If you are using a Microsoft Windows Cluster, the Base and Additional paths must be accessible to every physical machine in the cluster.</p>

- Click the **Next** button. The IAPJMS Properties dialog box appears. Configure the items listed in [Configuration Options in IAPJMS Properties Dialog Box](#).

Configuration Options in IAPJMS Properties Dialog Box

Configuration Option	Description
Context	Specify the name of the context factory that produces context instances for the selected JMS Provider.

Configuration Option	Description
	The installer writes this value to the IAPJMSConnect.InitialContextFactory property in the IAPJMS configuration file: <i>SWDIR\etc\iapjms_classpath.properties</i> .
URL	<p>Specify the URL that the iProcess Engine uses to connect to the selected JMS Provider.</p> <p>The installer writes this value to the IAPJMSConnect.InitialURL property in the IAPJMS configuration file: <i>SWDIR\etc\iapjms_classpath.properties</i>.</p>
Connection	<p>Specify the name of the object that iProcess Engine uses to create a connection to the selected JMS Provider.</p> <p>The installer writes this value to the IAPJMSConnect.TopicConnectionFactory property in the IAPJMS configuration file: <i>SWDIR\etc\iapjms_classpath.properties</i>.</p>

4. Click the **Next** button to continue with the installation.

Usage Profiles for Tablesizes Files

This appendix shows the usage profiles that have been used to calculate the values used in the alternative tablesizes files `tablesizes.med` and `tablesizes.large`.

**Note**

In each file, the sizing of the initial extent is 10% of the maximum estimated tablesize. This means that as the table grows it will expand to fill 10 database extents.

tablesizes.med File

This file defines tablesizes for a medium-sized installation. If you use this file, you must reserve at least 2.5 GB of disk space for the database.

Statistic	
Number of registered iProcess Engine users	200
Number of iProcess Engine groups	10
Number of user-defined attributes	4
Average number of groups a user belongs to	5
Average number of case starts per day	2000
Average number of days before a case is purged	90
Average number of days before a case is closed	30
Average percentage of steps processed via queues	90%

Statistic	
Average number of assigned fields per case	50
Average number of steps processed per case	10
Average number of CustAudits per case	20
Average number of sub-procedure calls per case	3
Average size of field name	10
Average size of field value	50

tablesizes.large File

This file defines tablesizes for a large-sized installation. If you use this file, you must reserve at least 65 GB of disk space for the database.

Statistic	
Number of registered iProcess Engine users	9500
Number of iProcess Engine groups	500
Number of user-defined attributes	12
Average number of groups a user belongs to	15
Average number of case starts per day	20000
Average number of days before a case is purged	90
Average number of days before a case is closed	30
Average percentage of steps processed via queues	90%

Statistic	
Average number of assigned fields per case	150
Average number of steps processed per case	25
Average number of CustAudits per case	50
Average number of sub-procedure calls per case	8
Average size of field name	12
Average size of field value	50

Frequently Asked Questions

This appendix lists some frequently asked questions.

Does the iProcess Engine Database Support UTF-8

TIBCO iProcess Suite supports Unicode (UTF-8) character encoding natively within its component products. When you install TIBCO iProcess Engine, you have the option to specify whether or not you want your iProcess database to support UTF-8, see the option listed in [Database Details](#).

Determining whether or not to support UTF-8 is a major decision. Before you start the installation process, TIBCO recommends that you consult “Using the TIBCO iProcess Suite in a Multilingual Environment” in *TIBCO iProcess Engine Architecture Guide*. This sets out the advantages and costs of using UTF-8, both in new installations, and when upgrading existing iProcess installations.

How Do I Create the SQL Server Database

When you install a new iProcess Engine, you can use one of the following two methods to create iProcess Engine users and schema in the SQL Server database:

- Let the installer create the iProcess Engine users and schema. TIBCO recommends using this method wherever possible. However, to do this, you must have access to a SQL Server DB Administrator (DBA) account when you run the installer.
- Get a SQL Server DB Administrator to create the iProcess Engine users and schema *before* you run the installer, as a pre-installation task, see [Creating the SQL Server Database and Logins](#). Using this method allows you to run the installer without access to a SQL Server DB Administrator account.

You can choose the method which best suits the operational, organizational, and security requirements of your particular installation scenario.

Is It Necessary to Use TIBCO iProcess COM Server Plug-in

The iProcess COM Server Plug-in is a component of the iProcess Engine that you can optionally choose to register when you run the installer, see [Select Components To Configure](#) for details. You need to register this plug-in if the iProcess Engine will handle procedures that use EAI COM steps to call external COM applications.

**Note**

The iProcess COM Server Plug-in can have a significant impact on iProcess Engine performance. TIBCO recommends that you register it only if you need to use EAI COM steps.

The iProcess COM Server Plug-in uses the transaction infrastructure provided by the Microsoft Distributed Transaction Coordinator service (MSDTC). This infrastructure imposes security and authentication requirements which can cause permissions problems if the iProcess environment is not set up correctly to support distributed transactions. If such problems occur, the iProcess COM Server Plug-in will not work, see [Distributed Transaction Errors Occur When You Start iProcess Engine](#) for details.

Consequently, TIBCO recommends that if you intend to use the iProcess COM Server Plug-in, you make sure that you adhere to the following requirements when installing the iProcess Engine:

- The following entities must all be located *either* on the same machine or in the same domain:
 - the iProcess Engine
 - the Windows iProcess Engine administrator account ([IPEADMIN](#)), which runs the iProcess *nodeName* Process Sentinels service
 - the Oracle or SQL Server database
 - the Windows account that is running the Oracle or SQL Server database
 - the Windows account that is running the Distributed Transaction Coordinator service.
- In a domain, the Distributed Transaction Coordinator service must be running on every machine that is running an iProcess Engine master or slave server, or the Oracle or SQL Server database.

See *TIBCO iProcess COM Plug-in User's Guide* for more information.

How Long Will an Upgrade Take

Upgrading to TIBCO iProcess Engine Version 11.9.0 can involve significant changes to iProcess Engine data and data structures. The upgrade process is therefore complex, and can take a significant amount of time to complete if the system being upgraded has a large amount of case data.

TIBCO cannot provide an estimate of how long the upgrade will take because of the number of customer-specific factors that could have an impact, and the complexity of their interaction, such as the amount of data in your system, the configuration of your Oracle or SQL Server system, and the hardware setup you are running.

TIBCO therefore strongly recommends that you test the upgrade before performing it on your target system, either on a representative production environment, or using a copy of your production system. This will allow you to determine how long the upgrade is likely to take, and to identify any specific factors that may affect the success or duration of the upgrade. If you require further advice or assistance on this, contact TIBCO Support.

How Do I Upgrade TIBCO EMS

TIBCO iProcess Engine version 10.6.x was shipped with a version of TIBCO EMS that contains a security vulnerability (EMS 4.4.1 or earlier). See the following link for more information:

http://www.tibco.com/resources/mk/ems_security_advisory_20080115.txt

**Note**

In order to fix the vulnerability EMS must be updated to version 6.0 or later. It is therefore fixed by upgrading EMS to the version required for TIBCO iProcess Engine Version 11.9.0.

Updating EMS

The EMS installer does not currently offer an upgrade option. The install process removes any queues, topics, factories, or other configurations that have been applied to the EMS server and restores to the default configurations.

In order to backup and restore all your existing EMS queues, factories, topics, queue messages, topic messages and configuration use the following process:

1. Stop your EMS applications.
2. Stop `tibemspd` and `tibemsadmin`.
3. Make a copy of all `.conf` files and `.db` files found under the `ems/bin` directory and its sub-directories.
4. Uninstall the old EMS version.
5. Install the new EMS version.
6. Replace your `.conf` files and `.db` files from step 3.

For more detailed instructions on how to install and uninstall EMS, see *TIBCO Enterprise Message Service Installation*.

It is important that this configuration is maintained because iProcess features, such as IAPJMS, Technology Plug-ins, and Web Services Plug-in, rely on EMS queues and topics to function correctly.

IAPJMS Specific Procedure

With a basic iProcess Engine installation, EMS can be used by the IAPJMS process for activity publication.

After the upgrade IAPJMS will continue to function. IAPJMS uses client jar files found in the EMS install directory to connect to EMS. As long as the configuration is correct no other update should be needed.

TIBCO iProcess Web Services Plug-in Specific Procedure

TIBCO iProcess Web Services Plug-in can be configured to use EMS as the JMS provider. In this case an additional step is required after the EMS upgrade.

Update the `tibjms.jar` file stored under the `SWDIR\jetty-6.1.1\jms\tibco` directory to the new version supplied with the updated EMS server.

TIBCO iProcess Technology Plug-in Specific Procedure

The TIBCO iProcess Technology Plug-in uses EMS to communicate with the ActiveMatrix BusinessWorks Engine when iProcess Engine > BusinessWorks EAI steps are being defined. The following additional step is required after EMS has been updated:

Update the `tibjms.jar` file stored under the `SWDIR\jmslib\ems` directory to the new version supplied with the updated EMS server.

Troubleshooting

This appendix describes how to deal with errors that you may encounter when installing the iProcess Engine.

**Note**

If the information in this appendix does not help you to resolve the problem, or if you are in any way unsure as to how to proceed, contact TIBCO Support for further assistance.

The Installer Fails with an Unable to Open the File Warning

Problem Description

When you run the installer a Warning dialog box is displayed with the following message:

Unable to open the file: fil.dll

You can only click the OK button to this dialog box, and when you do so, the installer exits.

This error occurs if you do not have the correct Oracle database and/or client releases (along with any additionally required patches or components) installed on the computer where you are trying to install the iProcess Engine.

The `fil.dll` file requires the Oracle client `.dll` files to be able to connect to the Oracle database. When the installer starts, it tries to load the `fil.dll` file, which in turn attempts to load the required Oracle `.dll` files. If these files cannot be found, the error occurs.

What to Do

Install the required Oracle database and/or client release on the computer where you are trying to install iProcess Engine. See [Oracle Database](#) for more information.

**Warning**

Make sure that you have installed any additional patches or components that are required.

**Warning**

Make sure that you have both 32-bit and 64-bit Oracle client software installed before running the installer.

The Installer Exits Because You Are Not a Local Administrator

Problem Description

When you run the installer it exits immediately with the following error message:

You are not a local machine Administrator. Setup cannot continue

To be able to run the installer, you must be logged in as a user that is a member of the Windows Administrators group on the computer where you are trying to run the installer.

What to Do

To resolve this problem:

1. Either:
 - Log out, then log in as a user who is already a member of the local Administrators group.
 - Add the user you are logged in as to the local Administrators group.

**Note**

To access the Administrators group, select **Control Panel > Administrative Tools > Computer Management > System Tools > Local Users and Groups > Groups > Administrators**. For more information, see your Windows documentation.

2. Run the installer again.

Installer Cannot Continue Because Another iPE is Running

Problem Description

The installer displays an error when you click the Next button on the Setup Type dialog box, see [Upgrade or New Install](#). For example:

The following iPE services have been found to be running:

`rocess staffw_nod1 Process Sentinels`

The installation process cannot continue until all installations have been shutdown.

Please see the iPE server document for more information.

The installer has detected that the indicated `iProcess nodeName Process Sentinels` service is running, where `nodeName` is the nodename of the iProcess Engine that is running the service.

The installer may need to stop and replace components (such as the `iProcess Events64 COM+` application) that are also used by other iProcess Engine installations, if those components need updating. If so, it cannot perform the installation if another iProcess Engine is running on the same machine.

What to Do

To resolve this problem:

1. Stop the indicated iProcess *nodeName* Process Sentinels service. To do this:
Open the **Control Panel** window.
Double-click the **Administrative Tools** icon.
Double-click the **Services** icon.
Right-click the iProcess *nodeName* Process Sentinels service and choose **Stop**.
2. Click the **Next** button on the Setup Type dialog box again. If you have chosen:
 - a **Basic** installation, the Choose Destination Location dialog box is displayed.
 - a **Custom** installation, the Upgrade or New Install dialog box is displayed.

See Also

See “Stopping the TIBCO iProcess Engine” in *TIBCO iProcess Engine Administrator’s Guide* for more information.

Installation Encounters an Error Trying to Locate pthread.dll

Problem Description

When you run the installer, the installer exits immediately with one of the following error messages:

-
- Failed to locate the 'pthread.dll' component
 - The minimum 'pthread.dll' component version required is 2.7.0. The version available on the system is 2.6.0
 - Failed to load the 'pthread.dll' component as no version information could be found in it
 - Failed to determine the version of the 'pthread.dll' component.
-

accompanied by the following message:

POSIX Threads (pthreads) for Win32 is required in order for the software to run correctly. Please refer to the Installation Guide for information on where to get hold of this component and how to install it.

What to Do

To resolve this problem:

1. Obtain the POSIX Threads (pthreads) library for Windows distribution set library from TIBCO Software Inc. and make it available on your system PATH. For detailed information, see [POSIX Threads \(pthreads\)](#).
2. Run the installer again.

Connecting to the Oracle Database Fails During Installation

Problem Description

The installer displays the following error when you click the Next button from the Database Details dialog box:

Failed to connect to database with username, password and connection supplied.

Do you wish to continue with this setup?

The installer cannot connect to the Oracle database.

What to Do

To resolve this problem:

1. Check the following:

- You have specified the correct information in the Database Details dialog box.
 - The Oracle database is running and your computer has a network connection to it.
2. If you want to continue with the installation, click the **Yes** button. If you do not want to continue with the installation, click the **No** button. The installer exits.

Installing with an Unsupported Database Version

Problem Description

If you try to install or upgrade the iProcess Engine using a database version that does not meet the minimum requirements for this version of the iProcess Engine, the installer displays the following error messages when you click the Next button from the Database Details dialog box. For example,

- for the Oracle database:

`WARNING: the version of Oracle you are using is not supported.`

`See the Installation Guide for full details of supported Oracle versions.`

`Minimum versions required are`

`12c R2 (12.2.0.1)`

`18c (12.2.0.2)`

`19c (19.0.0.0)`

`Do you wish to continue with this installation?`

- for the SQL Server database:

Failed to determine the version of SQL server.
Do you wish to continue with this installation?

or

WARNING: the version of SQL server you are using is not supported.

Minimum version required is:

SQL Server 2016

SQL Server 2017

SQL Server 2019

Continue with installation?



Warning

Although you can continue, TIBCO recommends that you only install the iProcess Engine using a supported database version.

What To Do

If you want to continue with the installation, click the **Yes** button.

If you do not want to continue with the installation:

1. Click the **No** button. The installer exits.
2. Upgrade your operating system and/or database to a supported version and then restart the installer.

The Installer Cannot Locate an Oracle UNDO Tablespace

Problem Description

The installer displays one of the following error messages when you click the Next button from the Database Details dialog box:

Error Message	Meaning
This Oracle instance does not have an UNDO tablespace defined. You cannot continue the installation without an UNDO tablespace.	The installer has connected to the Oracle database and determined that an UNDO tablespace does not exist.
Failed to determine if there is an UNDO tablespace present.	The installer has attempted to connect to the Oracle database to determine if an UNDO tablespace exists, but has been unable to do so.

The installer cannot create the iProcess Engine database schema without an UNDO tablespace.

What To Do

To resolve this problem:

1. Click the **OK** button. The Database Details dialog box is displayed.
2. Make sure that the Oracle database is running and that your computer has a network connection to it.
3. Make sure that an Oracle UNDO tablespace exists for the iProcess Engine database. Create one if it does not. See Oracle documentation for more information on how to create and manage UNDO tablespaces.
4. Click the **Next** button on the Database Details dialog box.

Oracle TAF Is Not Enabled

Problem Description

The installer displays one of the following error messages when you click the Next button from the Database Details dialog box:

Error Message	Meaning
This Oracle connection does NOT have TAF enabled, you can still continue, but if this installation is to be used in a UAT or Production environment you MUST enable TAF (Failover). Continue without TAF enabled?	The installer has connected to the Oracle database and determined that Oracle TAF is not enabled for the specified Oracle database service (TNS) name.
Failed to determine whether TAF is configured for the Oracle connection.	The installer has attempted to connect to the Oracle database to determine if Oracle TAF is enabled, but has been unable to do so.



Warning

TIBCO strongly recommends the use of Oracle TAF with the iProcess Engine to provide 24*7 resilient operation.

If you are deploying iProcess Engine for user acceptance testing (UAT) or to a production environment, you *must* enable TAF.

What To Do

If you want to enable TAF before continuing with the installation:

1. Click the **No** button to return to the Database Details dialog box.
2. Make sure that the Oracle database is running and that your computer has a network connection to it.
3. Enable Oracle TAF on your chosen service name.
4. Click the **Next** button on the Database Details dialog box.

If you want to continue with the installation without enabling TAF, click the **Yes** button.

Oracle Advanced Queuing Is Not Enabled

Problem Description

The installer displays one of the following error messages when you click the **Next** button from the Database Details dialog box:

Error Message	Meaning
This Oracle connection does NOT have Advanced Queuing installed. Oracle Advanced Queuing (AQ) is required for iPE.	The installer has connected to the Oracle database and determined that Oracle Advanced Queuing is not installed for the specified Oracle database service (TNS) name.
Failed to determine whether Oracle AQ is correctly installed.	The installer has attempted to connect to the Oracle database to determine if Oracle TAF is installed, but has been unable to do so.

Oracle Advanced Queuing provides the message queuing and event handling systems used by the iProcess Engine. The iProcess Engine will not work if Oracle Advanced Queuing is not installed.

What To Do

To resolve this problem:

1. Click the **No** button to return to the Database Details dialog box.
2. Make sure that the Oracle database is running and that your computer has a network connection to it.
3. Make sure that Oracle Advanced Queuing is installed. See your Oracle documentation for more information about installing Advanced Queuing.
4. Click the **Next** button on the Database Details dialog box.

Oracle Client and Database NLS_LANG Settings Do Not Match

Problem Description

The installer displays one of the following error messages when you click the Next button from the Database Details dialog box:

Error	Meaning
The NLS_LANG environment setting doesn't match the database's setting.	The installer has connected to the Oracle database and determined that its NLS_LANG setting does not match the NLS_LANG setting on the Oracle client.
Failed to check the NLS environment settings with that of the database.	The installer has attempted to connect to the Oracle database to check its NLS_LANG setting, but has been unable to do so.

What To Do

To resolve this problem:

1. Click the **No** button to return to the Database Details dialog box.
2. Make sure that the Oracle database is running and that your computer has a network connection to it.
3. Change the NLS_LANG setting for the Oracle client so that it matches the NLS_LANG setting on the Oracle database.
4. Click the **Next** button on the Database Details dialog box.

Oracle OPEN_CURSORS Value Is Less Than 200

Problem Description

The installer displays one of the following error messages when you click the Next button from the Database Details dialog box:

Error	Meaning
WARNING: This Oracle instance has the OPEN_CURSORS parameter configured to a value less than 200. It should be set to 200 or greater.	The installer has connected to the Oracle database and determined that its OPEN_CURSORS parameter is configured to a value less than 200.
Failed to get the current value of the Oracle OPEN_CURSORS parameter.	The installer has attempted to connect to the Oracle database to check its OPEN_CURSORS parameter value, but has been unable to do so.

What To Do

To resolve this problem:

1. Click the **No** button to return to the Database Details dialog box.
2. Make sure that the Oracle database is running and that your computer has a network connection to it.
3. Increase the OPEN_CURSORS parameter to a value of 200 or more.
4. Click the **Next** button on the Database Details dialog box.

The Installer Cannot Initialize the iProcess Engine Database

Problem Description

The installer displays the following error when it tries to run the SQL script to initialize the iProcess Engine database schema:

```
The database initialization script has failed to run successfully.  
Setup cannot continue.
```

What To Do

To resolve this problem:

1. Click the **Exit** button to exit from the installer.
2. Examine the following log file to determine the cause of the error:
 - For Oracle users
`SWDIR\logs\init2Kora_tok.sql_UserName_TimeStamp.log`
 - For SQL Server users
`SWDIR\logs\init2Ksql.sql_UserName_TimeStamp.log`where:
 - *UserName* is the name of the account being used to run the installer (such as, the **IPINSTALL** user).
 - *TimeStamp* is the time that the log file was created, in the form DDMMYYYY_HHMM.
3. If the cause of the error is obvious, correct it and restart the installer. If not, contact TIBCO Support for further assistance.

Errors Occur on Validating the Installation

Problem Description

The installer displays one or more of the following error messages when it attempts to validate that the installation has succeeded:

Error Message

Failed to start the NobleNet Portmapper for TCP service or contact it once it had been started. *ErrorDescription*

Failed to start the iPE COM+ component. *ErrorDescription*

Some or all of the iPE registry entries haven't been created or updated correctly. *ErrorDescription*

Failed to subscribe, publish or receive a COM+ event. *ErrorDescription*

Failed to access the database and validate the nodename. *ErrorDescription*

Failed to enqueue message to the BG. *ErrorDescription*

In each case, *ErrorDescription* provides more detailed information about the specific error that has occurred. There may also be further information in the Windows System and/or Application event logs (which you can view by selecting **Control Panel > Administrative Tools > Event Viewer**.)

In the case of the COM+, database access and enqueueing message errors, the following log file also provides further information about the error:

`SWDIR\logs\PostChecks_UserName_TimeStamp.log`

where:

- *UserName* is the name of the account being used to run the installer (for example, the **IPeINSTALL** user).
- *TimeStamp* is the time that the log file was created, in the form DDMMYYYY_HHMM.

What To Do

Examine the *ErrorDescription* and, if applicable, the log file to try and determine the cause of the error and its possible resolution.

TIBCO recommends that you contact TIBCO Support for further assistance with any of these errors unless the cause and resolution are immediately obvious.

License File Cannot Be Found

Problem Description

When the installer attempts to generate configuration files, it displays an error message stating that the license file cannot be found. When you click the **OK** button to acknowledge this message, a Dr. Watson error is generated.

When running the installer, in the Choose Destination Location dialog box, the Destination Folder for the iProcess system directory (*SWDIR*) had a full pathname of more than 64 characters.

What to Do

To resolve this problem:

1. Run the installer again.
2. In the Choose Destination Location dialog box, specify a **Destination Folder** pathname that has a length 64 characters or less.

Upgrading Fails Because It Cannot Create the Process Sentinels Process

Problem Description

The installer displays the following fatal error:

```
InstallService(): CreateService (iProcess staffw_nod1 iProcess Sentinels) The specified service has been marked for deletion.
```

The Services dialog box was open when you ran the installer.

If the Services dialog box is open when the installer runs, the installer cannot upgrade the indicated iProcess Engine service.

What to Do

To correct this error:

1. Close the Services dialog box.
2. Run the installer again.

Recovering iProcess Engine if an Upgrade Fails

Problem Description

In some circumstances, it is possible that an upgrade can fail and leave the iProcess Engine system in an unusable condition. If this happens:

1. You must restore your original system to its previous condition before you can either use it or attempt to upgrade it again.
2. If you suspect that:

- the error was caused by an external factor (for example, a system hardware failure while the upgrade was in progress), you can, if you want, attempt to upgrade the system again.
- the error was connected with the upgrade process itself (for example, the installer crashes for unknown reasons), TIBCO recommends that you do not attempt to upgrade again. Instead, you should contact TIBCO Support for further assistance.

What to Do

If you are using iProcess Engine with the Oracle database, follow these steps to restore your original system:

1. Log in as the background user, for example, the **IPADMIN** user.
2. Delete the *SWDIR* directory structure.
3. Restore your backup of the *SWDIR* directory structure. See your operating system documentation for more information about how to do this.
4. Run the *SWDIR\bin\fixperms* program, to grant appropriate permissions on all files in and under *SWDIR*. Use the command:

```
SWDIR\bin\fixperms -r -y SWDIR
```

The system should now be restored to the same state it was in before you attempted to upgrade it.

If you are using iProcess Engine with the SQL Server database, follow these steps to restore your original system:

1. Re-install the version of the iProcess Engine or Process Engine that you were attempting to upgrade from. Make sure that you install it in the same folder.



Warning

Do not start iProcess Engine or Process Engine at the end of installation.

2. Restore the backup of your iProcess system directory (*SWDIR*) which you made before attempting the upgrade.
3. From the SQL Server, restore the backup of the iProcess database which you made

before attempting the upgrade. See the SQL Server documentation for more information about how to do this.

4. Restore default file permissions to all iProcess server files. (This may be necessary if any file permissions were changed during the backup or restore operation.) To do this:
 - a. Log in as the [IPEADMIN](#) user.
 - b. Take ownership of all files in and the *SWDIR* folder.
 - c. Give **Full Control** to Everyone for all files in and the *SWDIR* folder.
 - d. Run the *SWDIR\bin\fixperms* utility.

The system should now be restored to the same state it was in before you attempted to upgrade it.

mscluster Command Reports Error in \etc\services File

Problem Description

When you install the iProcess Engine, the installer writes the port numbers used by the iProcess Engine watcher and worker process sentinels to the %systemroot%\system32\drivers\etc\services file.

The *SWDIR\mscluster\mscluster* utility attempts to replicate these entries to the %systemroot%\system32\drivers\etc\services file on the Windows cluster node. If it encounters an error, the utility displays this message:

```
Checking entries in 'etc\services'
```

followed by one of the errors listed .:

Error	Meaning
Error: watcher port number <i>Number</i> already in use by <i>process</i>	<p><i>mscluster</i> cannot create the required entry for the watcher process because the allocated port <i>Number</i> is already in use on this machine by the indicated <i>process</i>.</p> <p>You will need to either change the port number used by the indicated <i>process</i>, or use a different port number for the watcher process.</p>
Error: port mismatch for watcher entry <i>nodename_watcher</i> - entry currently uses <i>CurrentNumber</i> rather than <i>NewNumber</i>	<p><i>mscluster</i> cannot create the required entry for the watcher process because an entry already exists for it. The current entry uses port <i>CurrentNumber</i> but <i>mscluster</i> needs to allocate port <i>NewNumber</i> to it.</p> <p>You will need to manually update the existing entry.</p>

**Note**

The error messages are shown for the watcher process. The same errors can also occur for the worker process.

What to Do

To resolve this problem:

1. Using a suitable text editor, open the
%systemroot%\system32\drivers\etc\services file.
2. If necessary, change the port number allocated to the other *process* indicated in the error message.
3. Add the required entry for the watcher (or worker) process, in the format:
nodename_SentinelType *Number/tcp* *[# Comment]*
where:
 - *nodename* is the iProcess Engine nodename.
 - *SentinelType* is either watcher or worker, as shown in the error message.

- *Number* is the port number you want to use, either the original number that *mscluster* tried to use (as reported in the error message) or a different number, as required.

**Note**

The port number must be a unique entry in this file (for example, not used by any other entry).

There must be a blank line left at the bottom of the `services` file, otherwise the last line is ignored.

-
- *Comment* (optional) is any descriptive text you want to add.

4. Save the file.

**Note**

If you have used a different port number than the one that *mscluster* tried to use, you must replicate this change to the other machines in the iProcess Engine system. Repeat steps 1 to 4 on the iProcess Engine master server, any iProcess Engine slave servers, and each other machine in the Windows cluster.

Process Sentinels Do Not Start Due to Logon Failure

Problem Description

When you try to start the iProcess Engine for the first time, the iProcess *nodeName* Process Sentinels service fails to start and displays the following error message (system error 1069):

The service did not start due to a logon failure.

**Note**

See *TIBCO iProcess Engine Administrator's Guide* for more information about how to start the iProcess Engine.

When you install the iProcess Engine, the installer assigns the Log on as a service right to the user account you have chosen to use to run the iProcess *nodeName* Process Sentinels service (the [IPESERVICE](#) user). The right is assigned on the computer where you have installed the iProcess Engine.

However, a conflict can occur if:

- you have installed the iProcess Engine in a domain, using domain users, *and*
- the domain uses a group policy for the Log on as a service right, but the policy does not include the [IPESERVICE](#) user.

The domain controller propagates the group policy to the member machines in the domain at regular intervals (by default, every 90 minutes). When this happens, the [IPESERVICE](#) user's locally-assigned right will be overwritten by the group policy. The account therefore loses the Log on as a service right, and so cannot start the iProcess *nodeName* Process Sentinels service.

What to Do

To resolve this problem:

1. Change the group policy on the domain controller for the Log on as a service right to include the [IPESERVICE](#) user.



Warning

You must have access to an account that has Domain Administrator privileges to be able to change the group policy.

2. On the computer running the iProcess Engine, either wait for the domain controller to refresh the group policy, or use the Microsoft gpupdate tool to update the policy immediately.
3. Start the iProcess Engine. The iProcess *nodeName* Process Sentinels service should start correctly.

See Also

See your Microsoft documentation for more information about group policies, how to change them, and the gpupdate tool.

iProcess Engine Processes Do Not Start

Problem Description

When you try to start iProcess Engine for the first time, the iProcess *nodeName* Process Sentinels service starts but the remaining iProcess server processes do not appear.

**Note**

See *TIBCO iProcess Engine Administrator's Guide* for more information about how to start the iProcess Engine and the processes that should appear when you start it.

iProcess Engine processes communicate by publishing and subscribing to events. When the iProcess Engine starts, a START event is issued. The Process Sentinels subscribe to that event, which causes them to start the necessary iProcess Engine server processes.

The iProcess Events64 COM+ application provides event handling functionality for the iProcess Engine. If there is a problem with this application, events cannot be processed, so the Process Sentinels do not receive the START event and therefore do not start the iProcess Engine server processes.

The iProcess Events64 application runs using the [IPESERVICE](#) Windows account. When the application starts up, it authenticates the [IPESERVICE](#) user, either:

- on the local machine, if local accounts are being used, or
- on the appropriate domain controller, if domain or trusted domain accounts are being used, or if the iProcess Engine is installed in an Active Directory environment.

If authentication fails, the iProcess Events64 COM+ application fails to start. Possible reasons for authentication failure are:

- The application cannot contact the domain controller for some reason - for example, transient network problems.
- Incorrect username, the wrong [IPESERVICE](#) user is being used.
- Incorrect password for the [IPESERVICE](#) user. This can occur if the [IPESERVICE](#) user account has been deleted and recreated for any reason. An encrypted identifier is associated with each instance of a username/password combination. Although the recreated username and password are the same, this identifier is different, so authentication fails. The password must be manually re-entered.

What to Do

To try and correct any problems with the iProcess Events64 application:

1. Open the Control Panel window, click **Administrative Tools**, and then click **Component Services**. The Component Services console is displayed.
2. In the left pane, select **Component Services > Computers > My Computer > COM+ Applications**.
3. Right-click **COM+ Applications** and select **View > Status View**. The right-hand pane shows whether or not the iProcess Events64 application is currently running.
4. Right-click iProcess Events64 and select **Properties** from the pop-up menu.
5. On the Identity tab (which specifies the account that the iProcess Events64 application runs under):

Select the This user radio button, and make sure that the specified User is the correct [IPESERVICE](#) user for this installation.

Enter the password for this user again in both the Password and Confirm Password fields.
6. Click the **OK** button.
7. If the iProcess Events64 application is currently running, right-click it and shut it down.
8. Right-click the iProcess Events64 application and start it. Make sure that the application is running.

You should now be able to start iProcess Engine server processes. To do this:

1. Log in as the [IPEADMIN](#) user.
2. Make sure that the iProcess `nodeName` Process Sentinels service is running.
3. Use the command:


```
SWDIR\bin\swstart
```
4. Check that the appropriate server processes start (using either `SWDIR\util\swadm` or Task Manager).

Distributed Transaction Errors Occur When You Start iProcess Engine

Problem Description

When you start the iProcess Engine for the first time, the following error message is repeatedly written to the *SWDIR\logs* error file.

```
2007/01/26 12:02:36(BG:1:6088:1:pro:idl.c:7.148:5826): 1945-Database error:  
idl_SQL_allocate_connection_from_pool() idl_SQL_enlist_connection() Failed
```

This error indicates that the TIBCO iProcess COM Server Plug-in has been registered, but is unable to successfully complete a distributed transaction due to permissions problems.

These problems are most likely caused by using an iProcess environment that does not properly support distributed transactions. See [Is It Necessary to Use TIBCO iProcess COM Server Plug-in](#) for more information.

What to Do

To stop the error being written to the *SWDIR\logs* error file, unregister the iProcess COM Server Plug-in using the following command:

```
SWDIR\util\sweaireg UNREG eaicom
```

The iProcess Engine will not be able to process any EAI COM steps after you have done this.

If you need to be able to process EAI COM steps, you will need to either re-install and/or re-configure the iProcess Engine to use an environment that supports distributed transactions, or investigate the particular permissions problems to see if any workarounds are available. Contact TIBCO Support for further assistance.

Failed to Start TIBCO iProcess Engine Using a Domain User

Problem Description

(Only for Microsoft Windows Server 2012 R2) If you install TIBCO iProcess Engine as Administrator and specify another domain user as the TIBCO iProcess Engine administrator account in the **Group & User Configuration** dialog box, the following error occurred when you run the `swstart -p` command to start TIBCO iProcess Engine:

```
Could Not Find C:\swserver\lipelw1\pmstop
System error 5 has occurred
Access is denied.
```

What to Do

To resolve this problem, perform the following tasks:

- [User Account Control Setting](#)
- [Security Policy Setting](#)

User Account Control Setting

Perform the following steps to change user account control setting:

1. Click or tap **Start** in Microsoft Windows. In the search box, type **Change User Account Control settings**. The **User Account Control Settings** dialog box is displayed.
2. Move the slider to **Never notify**.
3. Click **OK**.

Security Policy Setting

Perform the following steps to set security policy for user account:

1. Open the **Control Panel** window.
2. Double-click the **Administrative Tools** icon.
3. Double-click the **Local Security Policy** icon. The **Local Security Policy** window is

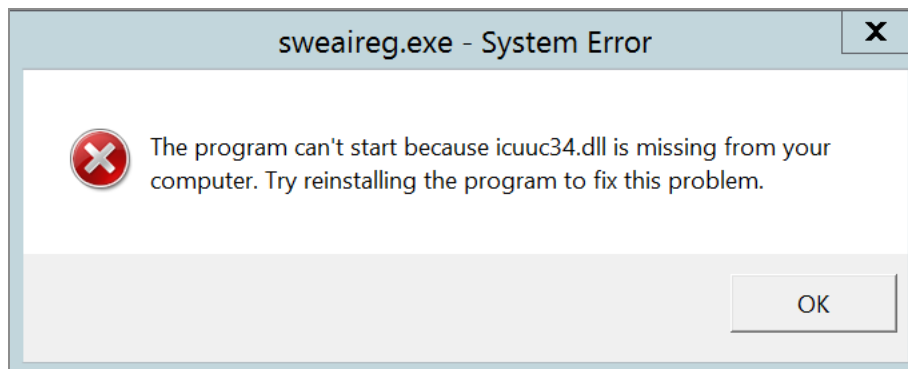
displayed.

4. Expand **Local Policies > Security Options** in the left panel and then double-click the **User Account Control: Run all administrators in Admin Approval Mode** item in the right panel.
5. Select **Disabled** in the **Local Security Setting** tab.
6. Restart your machine.

icuuc34.dll Missing Error while Registering Web Services Plug-in

Problem Description

You see an icuuc34.dll missing error while loading web services EAR file.



What to Do

To resolve this problem:

On installing or upgrading to iProcess Engine 11.8.0, a 64-bit eaiwebsvc.ear file is available in \$SWDIR/web_svc_plugin. Copy it to \$SWDIR/lib and rename as "EAIWEBSVCS_11_3_0.EAR. You must register it using sweareg reg command. Refer [Copying Webservices Server plug-in files](#) for more details.

TIBCO Documentation and Support Services

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

How to Access TIBCO Documentation

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

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

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-windows_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*

How to Contact TIBCO Support

Get an overview of [TIBCO Support](#). You can contact TIBCO Support in the following ways:

- For accessing the Support Knowledge Base and getting personalized content about products you are interested in, visit the [TIBCO Support](#) website.
- For creating a Support case, you must have a valid maintenance or support contract with TIBCO. You also need a user name and password to log in to [TIBCO Support](#) website. If you do not have a user name, you can request one by clicking **Register** on the website.

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