Infor Factory Track System Administration Guide

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About this Guide

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The System Administration Guide contains background or supplemental information to answer questions you may encounter as you manage and maintain Factory Track. Infor Factory Track offers you, as System Administrator, considerable power to manage the system and its users in accordance with good business practices and company policy. While this guide assists users of both cloud and on-premise versions of Factory Track, cloud users can not perform all tasks. Any task that involves access to the utility server or the database server must be performed by a cloud administrator.

This manual is intended as a reference. For instructions on how to install the Factory Track system, see the Infor Factory Track Installation Guide. For information about using the Factory Track system, see the Factory Track online help. Consult this manual when you have questions about Factory Track design or architecture.

Additional Infor Factory Track Documentation

The most current version of all documentation is available on the Infor support web pages (see “Contacting Infor Support" below).

Online Help

Factory Track online help gives you instant access to procedures and information about forms and fields. You can access Help from Infor Factory Track forms, from other topics within Help, or from the search (index) function. Select **Help > Contents and Index** from the Infor Factory Track title bar to open the Help, or use the **F1** key to get help on any form or field.

Developer-Level Help

To access the help for developers, select **Help > Customizing Forms**.

System Requirements and Prerequisite Knowledge

For the most up-to-date list of software and hardware requirements for Infor products, see the Guide to Technology. This document also lists typical system administration tasks you should be familiar with before attempting to install and administer Infor products.

Contacting Infor

If you have questions about Infor products, go to the Infor Xtreme Support portal at http:// www.infor.com/inforxtreme.

If we update this document after the product release, we will post the new version on this Web site. We recommend that you check this Web site periodically for updated documentation.

If you have comments about Infor documentation, contact documentation@infor.com.

Planning Your Communication

To make sure the correct analyst is assigned to your case and to expedite the resolution of your questions, please have the following information available when you call us:

- Your company name and phone number
- Factory Track version release and point release
- Database software version and release, if applicable
- Platform or environment (Example: Windows 2008)
- Functional area (Examples: Production, Administration, etc.)
- What you were doing (Example: Printing a report)
- What type of data you were accessing or trying to access (Example: Customer data)
- If you received an error message, the full message text and error number
- If you are calling back on an existing case, the case number

Signing Up for Support

To make sure the correct analyst is assigned to your case and to expedite the resolution of your questions, please have the following information available when you call us:

- Your company name and phone number
- Factory Track version release and point release

- Database software version and release, if applicable
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- If you received an error message, the full message text and error number
- If you are calling back on an existing case, the case number

System Architecture

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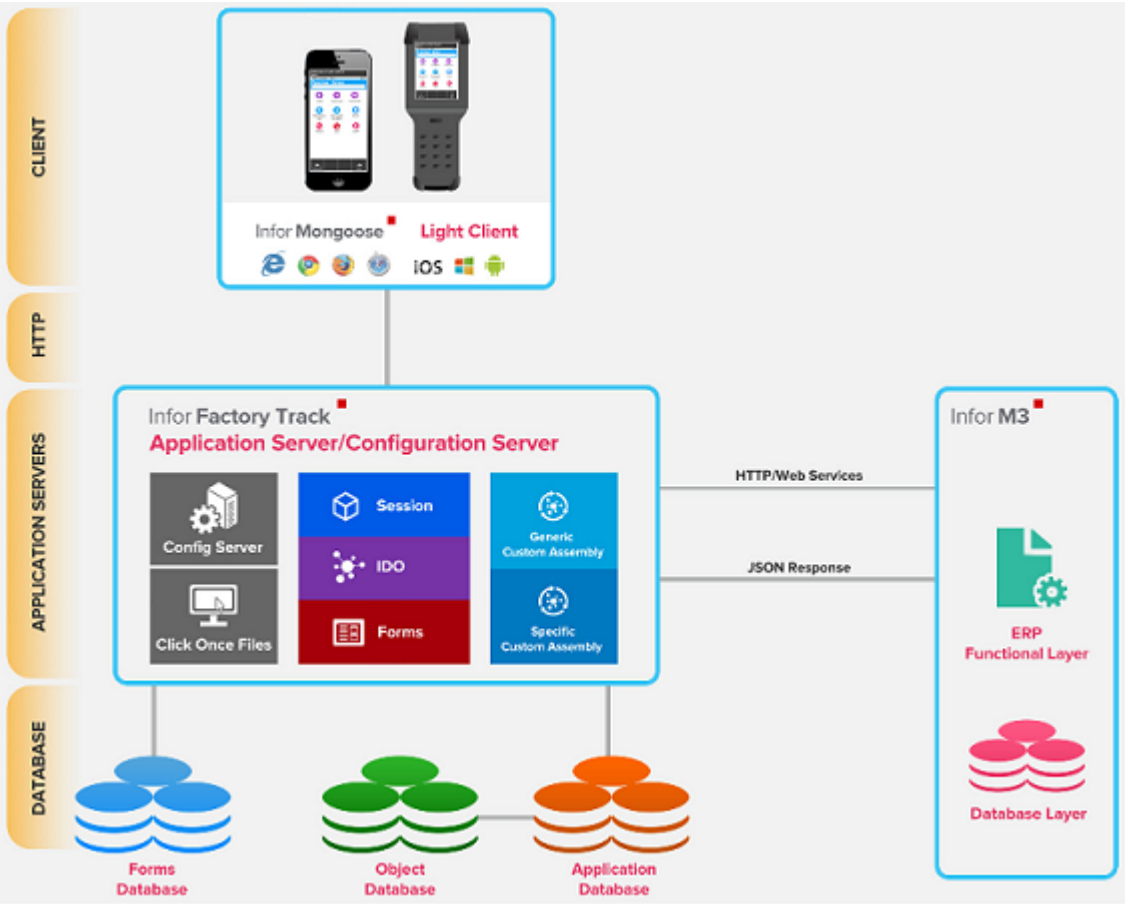
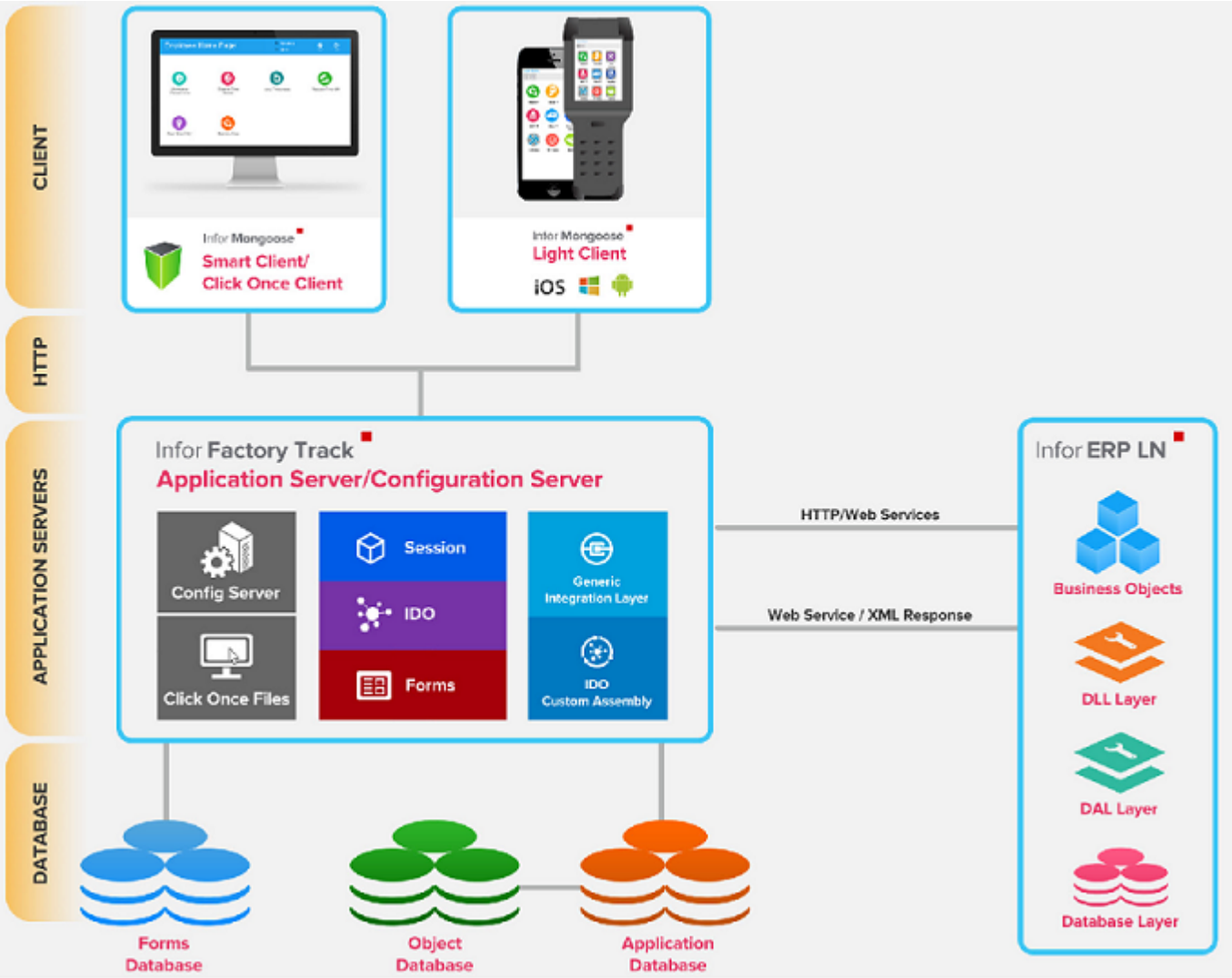
This chapter provides an overview of the Factory Track architecture and tells you where specific pieces of the system are located.

Below is a diagram of the architecture when Factory Track is integrated to M3.



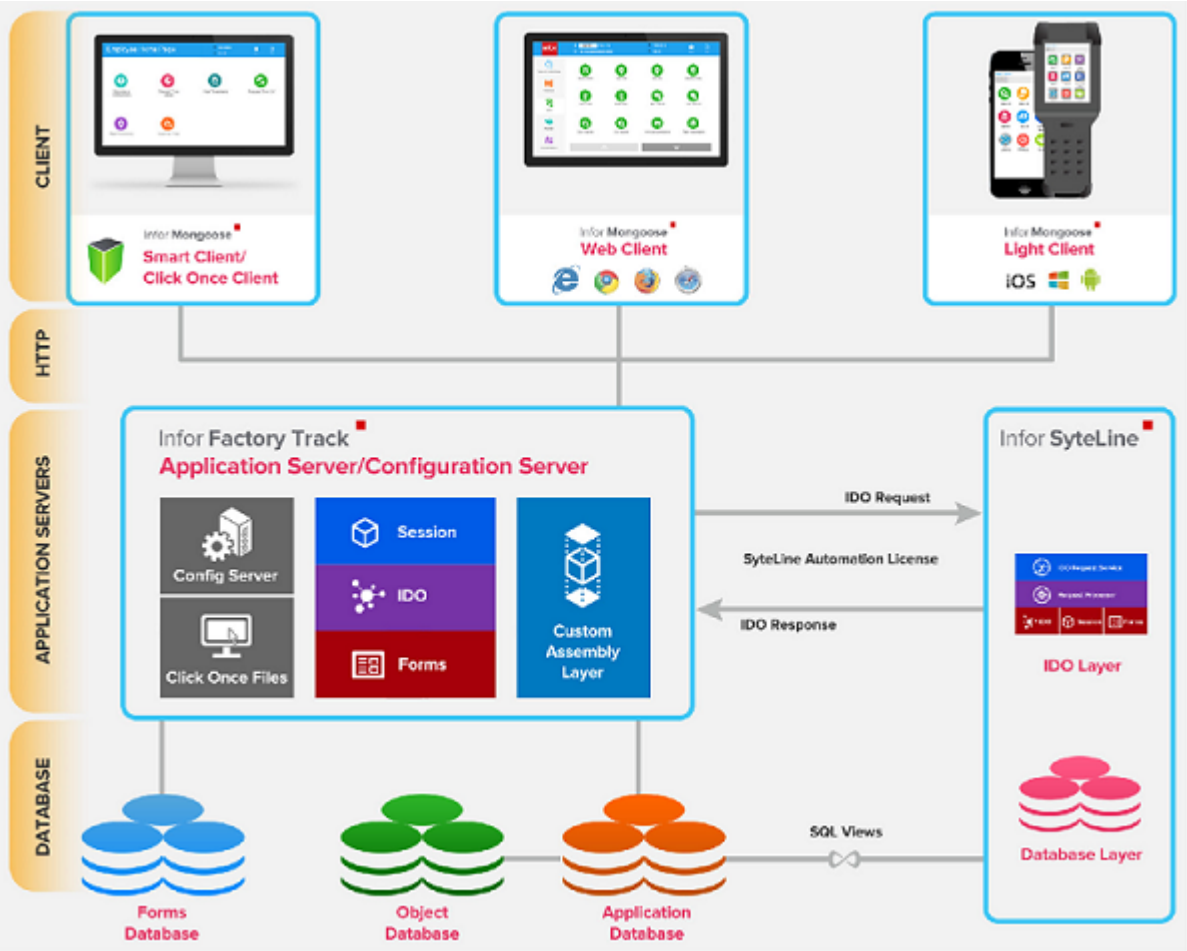
The integration between Factory Track and M3 is based on Web services connections. All updates are performed by the M3 API on the M3 server. An IDO custom assembly enables Factory Track to transmit information to M3 via a Web services connection.

Below is a diagram of the architecture when Factory Track is integrated to LN.



The integration between Factory Track and LN is based on Web services connections, which manage the information flow between Factory Track and the ERP system. All ERP updates and validations are performed by BDE components on the server. An IDO custom assembly enables Factory Track to transmit information to LN via the Web services connection.

Below is a diagram of the architecture when Factory Track is integrated to SyteLine.



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The integration between Factory Track and SyteLine uses an IDO connection, which manage the information flow between Factory Track and the ERP system. IDO custom assemblies enables Factory Track to transmit information to and receive responses from SyteLine using a SyteLine automation license. All ERP validations and lookups are performed using SQL views that are created on SyteLine tables in the Factory Track database.

SQL Server

Microsoft SQL Server is responsible for things such as:

- Maintaining the relationships between data in the database
- Ensuring that data is stored correctly and that the rules defining data relationships are not violated
- Managing data and user security
- Optimizing server function performance

- Recovering all data to a point of known consistency in case of system failures

SQL Server is primarily responsible for managing databases that interact with enterprise business systems. Some of the components that make up these databases are:

- Tables
- Views
- Stored Procedures
- Triggers
- Constraints
- Indexes
- Keys
- User Defined Data Types

Syteline Data Views

When Factory Track is integrated to SyteLine, a link is established between the Factory Track and SyteLine databases. Using this link, you can generate SyteLine data views in Factory Track, which allow SyteLine data to be read by Factory Track.

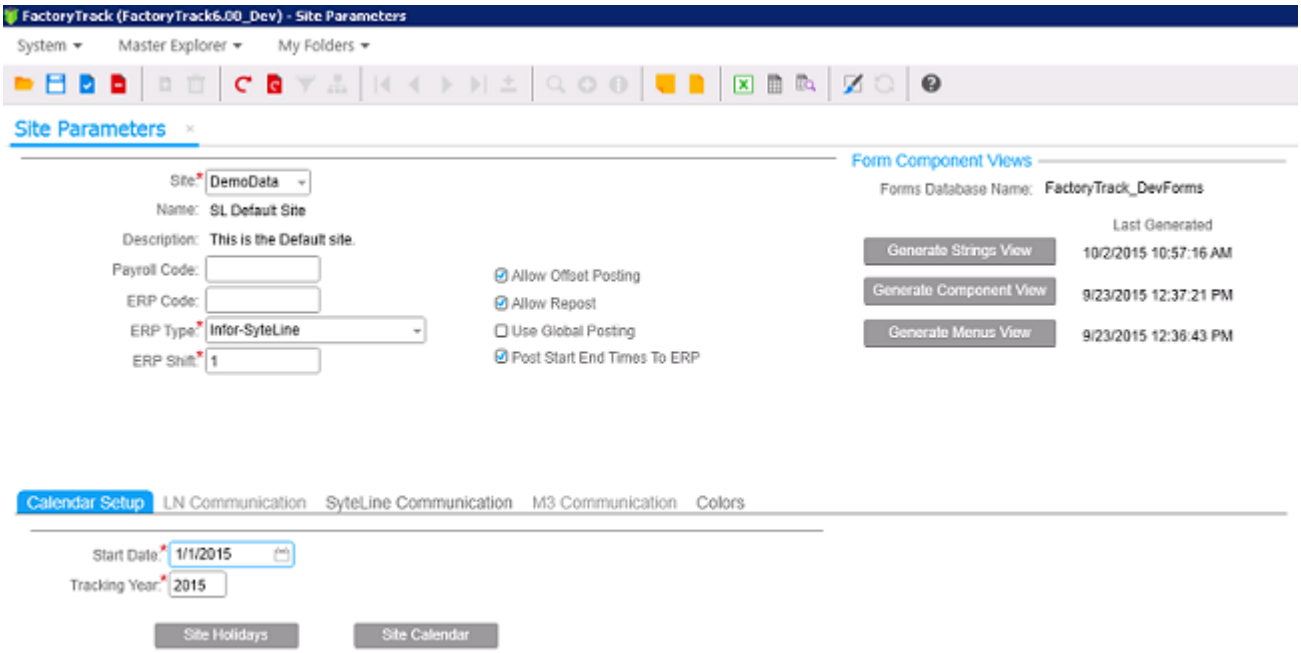
Application Database

The application database is one of the three main databases (the forms database and the objects database are the others) that comprise the “back-end” of Factory Track. The application database holds all of the application data for Factory Track, such as customer, item, customer order, and so on. It is made up of hundreds of tables, stored procedures, triggers, user defined data types, and indexes. This information is stored on the database server.

Forms Database

The forms database holds all of the information about each form in Factory Track. This information is stored on the database server.

For example, in the Site Parameters form shown below, components such as text boxes, labels, tabs, buttons, and all of the associated properties (such as size, color, validation, events) are kept in the forms database in a multitude of tables.



Objects Database

The objects database stores the IDO metadata.

DMZ Server

The use of a DMZ server is optional.

On the DMZ server, the IDO Request Service and WSWebClient web applications are installed on a machine without the full utility server components (IDORuntime, TaskMan, etc). You would choose to set up a DMZ server if you do not want to expose your utility server directly to the internet and do not want to place a load balancer or other hardware between the utility server and the internet.

Clients

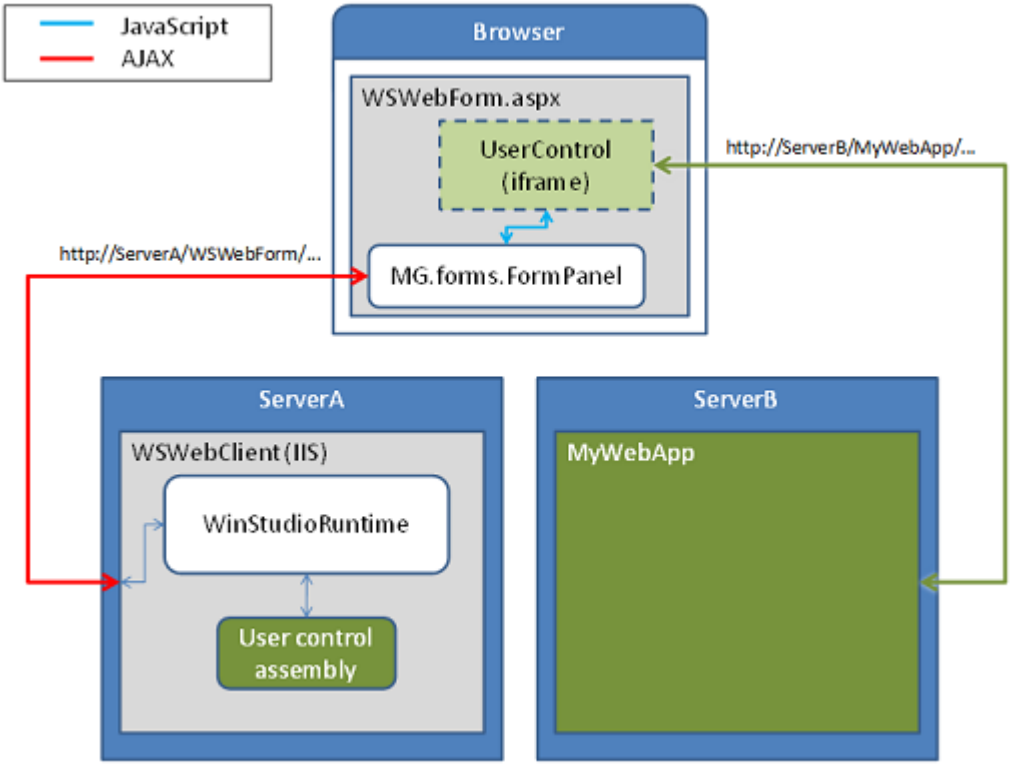
The client is where the user interacts with the application data and can customize forms.

End-User, Smart Client, or Admin Client

Clients connect to the utility server.

Web Client

The diagram below shows how data flows to and from the UI and the server-side user control assembly. The green elements represent the content that you, as a developer, are responsible for creating. This diagram shows the user control UI content coming from a different server than where the web client is deployed, but it may also be deployed to the same server.



Light Client

The light client is a stripped down version of the web client that is optimized for use on mobile scanner devices.

Intelligent Data Objects (IDOs)

Intelligent Data Objects are one of the key pieces of technology that bring the client layer and the data layer together. They are components of code that represent associated units of information and logic that are called from the client layer and interact with the data on the database.

Within the system's architecture, the client application never talks directly to the database. The client forms communicate to the Application Database through a "middle-layer" in which it calls an IDO to do the querying, saving or changing of data. Each form has an associated IDO behind the scenes to work with the application database.

Windows Terminal Server

The optional Terminal Server is a multi-user Windows application server. Terminal Server supports enterprise wide application deployment using a thin client architecture. It gives multiple users access to the system through an emulation interface between the server and a network client.

Terminal Server is a multi-user Windows operating system. Once a connection is made between Terminal Server and the client, all processing is performed by the server. The client acts as a remote picture tube and keyboard/mouse.

In many companies, clients cannot access applications across the WAN or through dial-up, because of cost, administration, and performance problems. If your Factory Track servers are in a remote location, this might be a problem. You could use Terminal Server instead. Terminal Server is kept at the central site, so its administration is handled centrally. Performance is improved because network traffic consists of screen shots, keyboard strokes, and mouse movements.

Note: Special consideration should be taken when installing to Terminal Server or Citrix Metaframe to ensure the Factory Track client will be available to all users. Please contact your Terminal Server administrator for assistance.

Parameter Extensions

This section explains the parameter changes performed on the parameter groups and in the Global parameter form.

Parameter Groups

Parameter Groups are created to avoid the repeated use of the same set of parameters, applied in the same order, for the same parent or child relationships across multiple transactions in FT.

This functionality helps to define a Parameter Group at one point of time with a defined parameter structure. The Parameter Group can be assigned as part of any Parameter structure that includes a User, Transaction, Order Type or Profile Parameters. This is not required to be applied in the Global Parameters form. Based on the criteria, the profile structure inherits the Parameter Group's parameter structure.

The administrator can use the values of the inherited parameters that are applied to the Group or is allowed to override the values of the parameters at a specific level.

Child Group Indicators

This functionality helps the user to understand that there are child parameters attached to the parent parameter. The character '*' is added to the parameter to indicate that the parent has one or more dependant (child) parameters.

Option Groups

The Option Group parameter helps the user to view all the options but select the required value. This new parameter type helps to select only one of the value and the others are disabled.

Module for Global parameters

In the Global parameter form, the Module option indicates which particular module of FT is assigned to a parameter. The **All** option is added to indicate the parameters that do not belong to one module only.

Infor Framework TaskMan and Background Tasks

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This chapter describes the Infor Framework TaskMan: how it works, how to set it up after installation, how to control tasks and reports from within Factory Track forms, and how to troubleshoot problems with task management, report previews, or printing.

Overview

TaskMan (which is different from the Windows Task Manager) is a Windows service that:

- Polls the application database
- Executes SQL stored procedures
- Processes and generates reports (for more information about TaskMan specific to reports, see the Creating and Customizing Reports guide)
- Runs IDO methods

Setup During Installation

TaskMan is installed and configured as part of the Factory Track installation. We recommend that you install TaskMan on the utility server. Much of the TaskMan setup is done behind the scenes. For more information, see the *Infor Factory Track Installation Guide*.

The installation process:

- Installs TaskMan on the utility server, which places the RunReport.exe program, the TaskMan.exeprogram, and other necessary files in the correct installation folder.
- Sets up the following subfolders within the installationFolder\Report folder:
    - **Errors** - Errors generated during report processing are written to this directory, under subfolders that match the IDs of the users who submitted the reports (for example, \Report\Errors\johsmi).

- **OutputFiles** - The finished report output files are written to this folder, under subfolders that match the IDs of the users who submitted the reports. File extensions such as .DOC or .HTM indicate the format of the report.
- **ParmFiles** - This folder contains XML files containing report parameter information. These files are written to this directory, under subfolders that match the IDs of the users who submitted the reports (for example, Report\ParmFiles\johsmi).
- **Reports** - All report definitions (.rdl files) are placed here.

Error and output file names include the site name and task number, using the format taskname_site_tasknumber. If TaskMan is configured to run with two or more databases that have the same site specification (for example, test and production databases) and name clashes occur, a single digit is appended to the file name to eliminate the clash. For example: APWirePostingReport_OH_150844_2.

- Creates TaskMan as a Windows service on the utility server, set for automatic startup. If you enter a service logon ID and password during the TaskMan configuration part of the installation, that domain user ID and password are used to determine the Windows user account that controls the service.

  After installation is complete, you can also set the service logon ID and password from the Services dialog box.

- Determines which Strings table in the Forms database to use when displaying report form labels. This is a language-dependent setting that appears in the Sites/Entities form.

Note: In applications other than Factory Track, the Sites/Entities form is called the Sites form.

The Service Configuration Manager utility also allows you to configure additional OLE databases for monitoring by TaskMan. You can use this utility later in most operating systems by selecting **Start > Programs > Infor > Setup > Server Service Configuration**. If using Windows Server 2012 or Windows Server 2014, find Server Service Configuration under Apps. Online help is available.

Setup After Installation

Before users can print or preview reports, or run other tasks as background processes, you need to perform the following setup tasks.

The installation process:

- Configure a printer on the utility server
- Define Report/TaskMan settings on the Intranets form
- Define e-mail addresses if required
- Define report options
- Define any excluded tasks

Configuring Printers

1. Log in to the server where TaskMan is installed (usually the utility server) using the same system administrator account that you used to install and run the Infor Framework TaskMan service.
2. Configure a default printer for the server, plus any other printers that you want TaskMan to print to. Printers must be configured using their UNC name (\\PrintServer\PrinterName).

Defining Report/TaskMan Settings on the Intranets Form

The Intranets form has a Reports/Taskman tab whose fields are used to set default values for TaskMan and for displaying or printing reports. You can leave most of these fields blank and accept the default values, but you must enter a TaskMan path for report previews. Some of these values can also be overridden on other forms. For more information, see the online help.

- **TaskMan Path** - The path to the folder containing the TaskMan utility.
- **Report URL** - The path to the folder or internet area where output files should be placed.
- **Polling Interval** - The interval at which TaskMan queries the databases to see if tasks are waiting to run.
- **Maximum Concurrent Tasks** - The maximum number of tasks that TaskMan can run simultaneously.
- **Max Report Tasks** - The maximum number of report tasks that TaskMan can process simultaneously.
- **Send E-mail Notification** - Enables e-mail notification for all users when reports are printed. For additional requirements, see “Setting up the Utility Server to Send E-mail Notifications."
- **Default output and preview formats** - The default format used when creating reports or previews.

For information about the other fields and options on this tab, see the online help for the Intranets form.

Setting up the Utility Server to Send E-mail Notifications

Configure the system by entering information into these fields on the Intranets form:

- Server
- Server Port
- From Email
- Authentication
- User Name
- Password
- Delivery Method
- Enable SSL
- Pickup Directory

Defining Report Options

You can set these options for specific users and specific reports in the Report Options form:

- **User** - The user ID (if any) to which these report options apply.
- **Task Name** - The name of the task (if any) to which these options apply.
- **Output Format** - The format to use for report outputs for this user/task. This option overrides the format entered in the Intranets form.
- **Printer Name** - The name of the printer to use when the designated user submits the specified report. This printer must be defined as a network printer and must be configured on the server where TaskMan is installed. Also, the user ID set up as the owner of the TaskMan service must have print privileges for each printer defined here.
- **E-mail Notification** - Indicates whether an e-mail notification is sent to this user when this report is processed and generated. For additional requirements, see “Setting up the Utility Server to Send E-mail Notifications” on page 22.
- **Attach Report** - Indicates whether the report is attached to the e-mail (assuming that **E-mail Notification** is set to **Yes**).

For more information on these and other fields on the Report Options form, see the online help for that form.

Defining Excluded Tasks

If there are tasks which should not run at the same time in your system:

1. From the Background Task Definitions form, select a task and then click **Excluded Tasks**.
2. On the Excluded Tasks form, define the tasks that should not run at the same time as this task you are defining.

Creating Background Task Definitions

Note: It is necessary to create a background task only for your company's custom forms and reports. Background task definitions are already set up where needed for standard Factory Track forms, and those background task definitions are listed on the Background Task Definitions form. For more detail about defining background tasks, see the online help.

Use the Background Task Definitions form to create a record that identifies the background task to TaskMan.

Every report and every utility or activity that can be run as a background process must be listed in the Background Task Definitions form.

Background tasks must meet these requirements:

- The task name should match the form name to make it easier to identify.

- Stored procedures must be written in SQL and reside in your SQL application database. Utility and activity forms generally use the Executable Type SP (stored procedure).
- Executable programs must reside in a directory available to the directory where TaskMan resides.
- Reports are processed and generated using the Microsoft SQL Server Reporting Service (SSRS). The report output file must be placed in the Reports folder on the same utility server where TaskMan is installed. Although the report uses a stored procedure or IDO, its **Executable Type** must be set to **RPT**.

Note: Crystal Reports is no longer used as the default report-generating engine. Crystal Reports 2008 and prior versions are still supported for backward compatibility with any custom reports you might have in your system, but SSRS is now the default engine. For information on using Crystal Reports, see the documentation that came with your earlier version of Factory Track and your Crystal Reports documentation.

To create a background task definition:

1. Create a new record on the Background Task Definitions form.
2. Specify a task name (for example, RunCustomerOrderReport) and, optionally, a description.
3. Specify an executable:
   - For a report - Specify the name of the report (for example, CustomerOrder) in the **Executable Name** field and the type of executable (RPT) in the Executable Type field. You must also specify in the **Report Type** field whether it is a SQL Server Reporting Services (SSRS) or Crystal Reports (CR) report.
   - For a stored procedure - Specify the procedure name in the **Executable Name** field and select **SP** in the **Executable Type** field.
   - For an executable program - Specify the program name and path in the **Executable Name** field and select **EXE** in the **Executable Type** field.
   - For an IDO - Specify the name in the **Executable Name** field and select **IDOMTH** in the **Executable Type** field.
4. Click the buttons on the form to specify any report options or excluded tasks.
5. Save the record.

   Your new background task can be called from any form as an event handler.

Running Stored Procedures, Executables, and IDO Methods Using Infor Framework TaskMan

In addition to running reports, you can use TaskMan to run stored procedures, executables, or IDO methods. For information on using TaskMan to run reports, see Creating and Customizing Reports.

Stored Procedures

TaskMan can execute stored procedures directly, without going through the IDO layer. To do this, TaskMan bundles the stored procedure in a transaction.

The following example shows the steps to set up a stored procedure that runs through TaskMan from a form:

1. Use the Background Task Definition form to set up a record of type SP with the name of the stored procedure as the task name.

   For example, create a task called `AddProcessErrorLogSp`, of type **SP**

2. Add a button to a form. Name the button **TestSP** and assign **sTest** as the caption.

   This button will be used to run the stored procedure.

3. On the **Components** property sheet for the button, create an event named **RunSp**:
   a. Click the **Events** button (appears as a yellow lightning bolt on the **Component** properties sheet).
   b. Click **Primary**, and then click the associated ellipses (**...**) button.
   c. In the Event Handlers dialog box, click **New**.
   d. In the Event Handler Properties dialog box, set these values:
      - **Event** - RunSP
      - **Description** - Enter an optional description or leave blank.
      - **Type** - Run Background Task
   e. For the properties:
      - Click **Parms**, and then click the ellipses (**...**) button.
      - In the Event Handler Parms dialog box, for the **Error Message**, specify **mBackendMessage**.
      - For the **Success Message**, specify **sSubmitted**.
      - Click **Type Specific Parameters**.
      - In the Edit Background Task Name and Parms dialog box, for the Task Name, specify **AddProcessErrorLogSp**.
      - For the **Task Parms**, specify **BG~TASKID~,FV(TestMessage)**.

      The FV keyword tells Infor Factory Track to enclose the value of TestMessage in single quotes. The BG~TASKID~ substitution keyword is replaced at run time with the task number.

      For a complete list of keywords, see “Infor Framework TaskMan Substitution Keywords” on page 31.
   f. Click **OK** repeatedly until you return to the form.
   g. Verify that **RunSP** is the primary event for the **TestSP** button.
   h. Save the form.
4. Add an Edit box to the form with a variable called *TestMessage* as the data source.
5. Save the form.
6. Enter a message in the TestMessage edit box, and submit the task.

   The system should display a message box that says: `Submitted`.

7 Open the Background Task History form.

When the task completes, the test message should show up in the event log.

Executables

TaskMan can also be used to execute a command string as an operating system command shell. TaskMan takes the executable name from a Background Task Definitions record, appends the parameters from the Factory Track form, and attempts to execute the line.

The following example shows the steps to set up an executable that runs through TaskMan from a form:

1 Create a file called `DeletePreviewFiles.cmd` in your **TaskMan** folder.

The text of this file should be as follows:

FOR /D %%D IN ("taskman_dir\Report\OutputFiles*") DO del /Q "%%D\Preview*" where taskman_dir is replaced by the name of your TaskMan folder.

2 Set up a Background Task Definition record:

- **Task Name** - `DeletePreviewFiles`
- **Executable Name** - `DeletePreviewFiles.cmd`
- **Executable Type** - **EXE**

If the executable is not in the **TaskMan** folder, include the path to the executable in the **Executable Name** field (for example, `C:\Program Files\MyExecutable.exe`).

3 Add a button to a form, giving it the name **TextEXE** and the caption **sTest**.

This button will be used to run the executable.

4 On the **Components** property sheet for the button, create an event named `RunExe`:

a Click the **Events** button (appears as a yellow lightning bolt on the **Component** properties sheet).

b Click **Primary**, and then click the associated ellipses (**...**) button.

c In the Event Handlers dialog box, click **New**.

d In the Event Handler Properties dialog box, set these values:

- **Event** - `RunEXE`
- **Description** - Enter an optional description or leave blank.
- **Type** - **Run Background Task**

e For the parameters:

- Click **Parms**, and then click the ellipses (**...**) button.
- In the Event Handler Parms dialog box, for the **Error Message**, specify **mBackendMessage**.
- For the **Success Message**, specify **sSuccess**.
- Click **Type Specific Parameters**.
- In the Edit Background Task Name and Parms dialog box, for the **Task Name**, specify **DeletePreviewFiles**.

f Click **OK** repeatedly until you return to the form.

g Verify that **RunExe** is the primary event for the **TestExe** button.

h Save the form.

When you click the button, this batch file will delete all the Print Preview intermediate files.

IDO Methods

This example shows the steps to set up an IDO method that runs usingTaskMan from a form:

The following example shows the steps to set up an executable that runs through TaskMan from a form:

1 Set up a **Background Task Definition** record:

- **Task Name** - Name of IDO method
- **Executable Name** - Enter this using the format IDO.method

  Example: SL.SLExtfinParms.ExtFinExportAP
- **Executable Type** - **IDOMTH**

2 In a form, set up an event whose task parameters match the IDO method's parameters. You can pass bare values (for example, "MyParameter1,MyParameter2"). Note that Infor Factory Track will not allow you to use ~LIT~ syntax as part of a value. If white spaces are significant, use the usual Infor Factory Track keywords such as P(...), V(...), C(...), and FPC(...), FV(...), or FC(...).

3 Save the form and event.

Managing Background Tasks

To get information back to TaskMan from an executable, use any of these methods in the EXE: You might want or need to schedule some processes to run at certain times of day and at regular intervals. Use these forms to manage those processes:

- The Background Queue form
- The Active Background Tasks form
- The Background Task Definitions form
- The Background Task History form

Scheduling Reports and Utilities to Run in the Background

If a report or utility has a **Background** option on its **Actions** menu, you can schedule the report or utility to run at a time you choose. The background task can be run once, or it can be set up as a recurring task that runs at certain times daily, weekly, or monthly.

To schedule a report or utility to run in the background:

1. From the report or utility form, select **Actions > Background**.
2. In the Background Queue form, specify whether you want the task to run once or on a daily, weekly, or monthly basis.
3. Specify the times and dates as described in the online help.

Checking Which Background Tasks Are Running

When the Background Queue form is used to create a job, it creates an **Active Background Task** record with status of WAITING, plus the appropriate task name and parameters. It then creates a SQL Server job using the task name as the job name.

To check which background tasks are running:

1. Open the Active Background Tasks form.
2. Be aware that:
   - Tasks whose status is READY will process right away and cannot be deleted from the queue from within Factory Track.
   - Tasks whose status is RUNNING are currently processing and cannot be deleted from the queue from within Factory Track.
   - Tasks with a WAITING status remain in the queue until their scheduling requirements are met (as set in the Background Queue form). You can delete a WAITING task from the queue.

   Note: Although you can't stop a background task with a status of READY or RUNNING from with Infor Factory Track, you can use the Windows Task Manager to do so if you need to stop a longrunning process. Note that the Windows Task Manager is different from the TaskMan described in this chapter.

Viewing Background Tasks That Have Run

To display information about background tasks that have been run, whether they have completed successfully or not, use the Background Task History form.

Return codes generated by background tasks include these:

- **Stored procedures** - Developers supply the exit status for a stored procedure within the coding of the procedure. Generally, the exit status of the stored procedure functions as its return code, which is returned by TaskMan and displayed on this form.

Note: Task Manager is a Windows service which monitors the application database in order to execute background tasks. See “Overview” on page 19 for more information on Task Manager.

- **Executable programs** - Developers supply the exit status or return code for an executable program within the coding of the program. This return code is returned by TaskMan and displayed on this form.
- **Reports** - Background tasks of the type RPT are reports. The RunReport.exe application returns exit codes to TaskMan that are displayed on this form. If the return code indicates an error, you can also consult the error log for additional information.

Using Store and Get Options with Tasks

Store Options

For any report or utility in Infor Factory Track, you can save the information you’ve entered for later use. To do this, use the Store Options form:

Note: System administrators can store options for any user. Non-administrators can only store options for the current user.

1. After entering the desired information on the report or utility form, select **Actions > Store Options** to save your entries.
2. Provide the appropriate user name.
3. Create an ID in the **ID** field.

   For example, if you are storing options for the SSD Transaction Listing Report, you might create an ID of SSDTLR.
4. Click **OK**.

Get Options

To recall any stored options, use the Get Options form:

1. After storing options for a form, from that report or utility for which you want those options, select **Actions > Get Options** to save your entries.
2. Choose the appropriate user name and ID.

   The **ID** was set on the Store Options form.
3. Click **OK**.

Options Defaults

Once you have stored options for a form, you can view them on the Options Defaults form:

1 Open the Options Defaults form.

2 Enter the user name, form name, and ID.

Note that the form name is not the same as the form title.

3 Click the **Filter-In-Place** button on the toolbar.

Infor Framework TaskMan Substitution Keywords

TaskMan supports the following substitution keywords. Before executing a task, TaskMan replaces these keywords with their appropriate values when creating a string made up of the task executable name (defined on the Background Task Definitions form) plus the task parameters (passed from the Factory Track form).

Generally you specify these keywords when defining task parameters for an event on a form.

Some of these keywords are used to get values from TaskMan settings.

Keyword	Description
BG~TASKID~	Replaced by the task number from the ActiveBG-Tasks and BGTaskHistory tables.
BG~TASKNAME~	Replaced by the task name from the BGTaskDefinitions table.
BG~CONFIG~	Replaced by the Factory Track configuration name.
BG~REQUSER~	Replaced by the user name requesting the task.
BG~SQLLOGIN~	Login associated with the user ID used to connect to a database.
BG~DSN~	Name of the DSN used by TaskMan to connect to a database.
BG~UID~	User ID used by TaskMan to connect to a database.
BG~SERVER~	Server name used by TaskMan to connect to a database.
BG~DB~	Database name used by TaskMan to connect to a database.
BG~TMHOMEDIR~	Directory where TaskMan.exe and RunReport.exe are installed.

Keyword	Description
BG~ERRFILE~	When a task completes, TaskMan copies the contents of this file to BGTaskHistory, and then deletes the file.
BG~OUTDIR~	Path to the output directory under the TaskMan home directory. This allows EXEs run through TaskMan to produce output.
BG~ISOLATIONLEVEL~	The SQL Server isolation level used by TaskMan for reports and stored procedures. The return value is **UNCOMMITTED** or **COMMITTED**. Values are set in the **Isolation Level** field on the Background Task Definitions form and the **Collection Read Mode** field on the Process Defaults form.
BG~FAXNUM~	The telephone number of the fax machine to which the document is to be sent. The keyword is replaced with the number specified in the **Destination** field on the Customer Document Profile form or the Vendor Document Profile form.
BG~FAXSERVER~	The name of the fax server machine. The keyword applies only to Windows Fax and Infor Framework Fax Service. If BG~FAXSERVER~ is omitted from a fax header or if the **Fax Server** field on the Intranets form is blank, then the default fax server name at run time is: • If Windows Fax is configured, then the server name is the name of the TaskMan machine. Windows Fax uses a modem on the TaskMan machine. • If Infor Framework Fax Service is used, the server name is the name of the machine on which the service runs.
BG~FAXTOCOMPANY	The name of the company to which the fax is sent; the name is printed on the fax cover sheet. The keyword is replaced with the name specified in the **Cover Sheet Company** field on the Customer Document Profile form or the Vendor Document Profile form. The keyword does not apply to Windows Fax or Infor Framework Fax Service.
BG~FAXTONAME~	The name of the individual to whom the fax is sent; the name is printed on the fax cover sheet. The keyword is replaced with the name specified in the **Cover Sheet Contact** field on the Customer Document Profile form or the Vendor Document Profile

Keyword	Description
	form. The keyword does not apply to Windows Fax or Infor Framework Fax Service.
BG~OUTPUTFILE~	The report output file created in the directory \<TaskMan_Directory>\Report\Output Files\<user> on the TaskMan machine. With Infor Framework Fax Service, the file is accessed directly from this directory.

TaskMan also supports the following additional keywords used as command line switches. TaskMan deletes these keywords from the task executable and parameter string.

Keyword	Description
BG~LEAVELITS~	Factory Track wraps many literal values in ~LIT~(...). This keyword, which can be specified in an event handler on a form, tells TaskMan to leave these values. For example, you can create an event on a form that runs an EXE through TaskMan. Use this keyword to allow any ~LIT~ keywords in the parameters to be passed through to the EXE.
BG~LEAVETEMPS~	TaskMan normally puts the contents of the BG~ERRFILE~ error file in BGTaskHistory and then deletes the file. This keyword tells TaskMan to leave the error files.

Running TaskMan in Debug Mode

If you are having problems with a background task, you can run TaskMan in debug mode. Doing so generates additional messages for the Microsoft Event Viewer.

Enabling Debug Mode On the Process Defaults Form

By using the Process Defaults form, you do not have to stop and restart the Infor Framework TaskMan service. For more information about the Process Defaults form, see the Infor Factory Track online help.

1. Open the Process Defaults form.
2. In the **Process Name** field, select **TaskMan Options**.
3. In the **Default Value** field, enter **debug**.
4. Save the record and exit the form.

Enabling Debug Mode By Restarting the Service

To enable debug mode by restarting the Infor Framework TaskMan service:

1. On the server where TaskMan resides, open Windows Services.
2. In the list of services, select **Infor Framework TaskMan**.
3. If the Infor Framework TaskMan service is running, stop it.

   When you stop TaskMan, all running tasks are terminated.
4. Right-click on the Infor Framework TaskMan service and select **Properties**.
5. In the Properties dialog box **Start parameters** field, enter **debug**.
6. To restart TaskMan, click the **Start** button.

   When you finish debugging the problem, be sure to stop the TaskMan service, remove the debug parameter, and restart it.

   TaskMan debug mode messages are listed and explained starting on page 33.

   There is also an optional "nowait" parameter for TaskMan. If you are starting TaskMan manually, this

   keyword allows it to start faster.

   RunReport debug mode messages are listed and explained in the *Reporting Guide*.

TaskMan Debug Mode Messages

`<SPname> After Call <Taskman source file>: <Source file line number>`

This message is printed after a stored procedure is called.

`Active Task Set not open: <DatabaseInfo>. <Taskman source file>: <Source file line number>`

TaskMan is trying to clear database connections.

`Cannot find last slash. <Taskman source file>: <Source file line number>`

Error while retrieving information about the home directory from which TaskMan is executing.

`Close process connection completed for Task <n>. <Taskman source file>:<Source file line number>`

Informational message.

`Closing database: <dsn>.<Taskman source file>:<Source file line number>`

Informational message.

`Closing process connection for Task <n>. <Taskman source file>:<Source file line number>`

Informational message.

```
Decrement <taskname> <tasknumber>. <Taskman source file>:<Source file line
number>
```

Informational message - TaskMan is decrementing the Running Tasks list when the task completes.

```
DELETE ActiveBGTasks where TaskNumber = <n>. <Taskman source file>:<Source
file line number>
```

Informational message - the task is deleted from the active tasks table.

```
Deleting TaskInfo handle. <Taskman source file>:<Source file line number>
```

Informational message - TaskMan is cleaning up report (RPT) process handles.

```
Error retrieving TaskMan Module Name. <Taskman source file>:<Source file
line number>
```

TaskMan retrieves its module name in order to get its home directory. There was an error in retrieving the module name, so TaskMan cannot determine its home directory.

```
Increment <taskname> <tasknumber> Total requests <n> Queue size <size>.
<Taskman source file>:<Source file line number>
```

TaskMan is polling the table for active background tasks in the each configured application database.

```
No Intranet records found, using defaults. <Taskman source file>:<Source
file line number>
```

TaskMan is using the default values because it could not find a matching Intranets record.

```
Opening Intranet record set. <Taskman source file>:<Source file line number>
```

Informational message.

```
Pause to ensure SQL Server is completely up. <Taskman source file>:<Source
file line number>
```

TaskMan pauses to make sure that SQL Server has started before trying to access databases.

```
Poll=<n> Connect=<n> Process=<n> MaxNo=<n> NumRec=<n> site = <site> Intranet
= <intranetname> String Table = <stringtable> URL = <URLpath> Format =
<outputformat> ReportPath = <path> Email Notif = <emailnotification>.
<Taskman source file>:<Source file line number>
```

TaskMan successfully queried the Intranet table and retrieved the information listed here.

```
Rpt task failed. <Taskman source file>:<Source file line number>
```

TaskMan failed while trying to run a report task.

```
ServiceMain starting. <Taskman source file>:<Source file line number>
```

Informational message.

```
SQLCancel failed. Deleting TaskInfo handle. <Taskman source file>:<Source
file line number>
```

The SQL Cancel of the process and task was not successful.

```
SQLCancel of Task <tasknumber> completed. Return Code = <n>. <Taskman source
file>:<Source file line number>
```

TaskMan canceled a stored procedure background task.

```
Task <tasknumber> <taskname>. An error occurred while waiting for the process
to finish. Error return = <code> message = <message>. <Taskman source
file>:<Source file line number>
```

A Windows error occurred.

```
Task <tasknumber> <taskname>. Call to AddProcessErrorLogSp failed for user
<userID>. Return code = <code>. <Taskman source file>:<Source file line
number>
```

TaskMan tried and failed to add a task message to Background Task History.

```
Task <tasknumber> <taskname>. Call to CloseSessionSp failed for task
<taskname> user <userID>. Return code = <code>, Error message = <message>.
<Taskman source file>:<Source file line number>
```

TaskMan could not retrieve the Report Options information.

```
Task <tasknumber> <taskname>. Call to GetTaskOptionsSp failed for task
<taskname> user <userID>. Return code = <code>, Error message = <message>.
<Taskman source file>:<Source file line number>
```

Informational message.

```
Task <tasknumber> <taskname>. Call to InitSessionContextSp failed for task
<taskname> user <userId>. Return code = <code>, Error message = <message>.
<Taskman source file>:<Source file line number>
```

Informational message.

```
Task <tasknumber> <taskname>. Calling AddProcessErrorLogSp. <commandline>.
<Taskman source file>:<Source file line number>
```

Informational message.

```
Task <tasknumber> <taskname>. Calling sp.Call <Taskman source file>:<Source
file line number>
```

Informational message.

```
Task <tasknumber> <taskname>. Can transact. <Taskman source file>:<Source
file line number>
```

TaskMan could not start a stored procedure background task.

```
Task <tasknumber> <taskname>. Cannot transact. <Taskman source file>:<Source
file line number>
```

TaskMan cannot start a transaction for a stored procedure task. The stored procedure is not executed.

```
Task <tasknumber> <taskname>. CloseSessionSp called with Input Parameter
<sessionID>. <Taskman source file>:<Source file line number>
```

Informational message.

```
Task <tasknumber> <taskname>. Could not close session <sessionID>. <Taskman
source file>:<Source file line number>
```

Informational message.

```
Task <tasknumber> <taskname>. Creating directory <directory>. Result =
<code>. <Taskman source file>:<Source file line number>
```

Informational message.

```
Task <tasknumber> <taskname>. Database not open. Cannot enter Process Error:
<message>. <Taskman source file>:<Source file line number>
```

Informational message.

```
Task <tasknumber> <taskname>. DELETE ActiveBGTasks where TaskNumber = <n>.
<Taskman source file>:<Source file line number>
```

Informational message - the task is deleted from the active tasks table.

```
Task <tasknumber> <taskname>. Error <code> <message> when starting Command
- <commandline>. <Taskman source file>:<Source file line number>
```

An error occurred when TaskMan was starting the specified command.

```
Task <tasknumber> <taskname>. Error moving file <outputfile> to <new
outputfile>. <Taskman source file>:<Source file line number>
```

TaskMan could not copy the output file to the OutputFile folder. Be sure permissions are set up properly, and the folder exists.

```
Task <tasknumber> <taskname>. Exiting RunTask: Removing Task from List.
<Taskman source file>:<Source file line number>
```

The background task has finished running.

```
Task <tasknumber> <taskname>. Fax=<faxname>, Fax Server = <faxserver>, Output
Format=<outputformat>. <Taskman source file>:<Source file line number>
```

Informational message.

```
Task <tasknumber> <taskname>. GetExitCodeProcess return = <n>. <Taskman
source file>:<Source file line number>
```

This message displays the return code for an executable program background task.

```
Task <tasknumber> <taskname>. GetTaskOptionsSp called with Input Parameters
<taskname>, <userID>, <stringID> returned Output Parameters format = <output
format>, printer = <printer name>, email = <email notification>, attach =
<attach report>, email address = <email address>, Return code = <code>,
Error message = <message>, String Table = <string table>, Fax Server = <fax
server>.<Taskman source file>:<Source file line number>
```

TaskMan is retrieving specific information about the run-time user requesting this report background task. This information is entered in the Report Options and Intranets forms.

```
Task <tasknumber> <taskname>. InitSessionContextSp called with Input
Parameter <taskname>, returned Output Parameter <sessionID>, Return code =
<code>. <Taskman source file>:<Source file line number>
```

Informational message.

```
Task <tasknumber> <taskname>. InitSessionContextSp failed. Could not call
SP. <Taskman source file>:<Source file line number>
```

Informational message.

```
Task <tasknumber> <taskname>. No attachment sent: either the report was sent
to the printer, the Task Type was not RPT, or the report didn't complete
successfully. <Taskman source file>:<Source file line number>
```

Informational message.

```
Task <tasknumber> <taskname>. Opening user names failed. <Taskman source
file>:<Source file line number>
```

TaskMan encountered a problem attempting to open the UserNames database table.

```
Task <tasknumber> <taskname>. Password decrypted. <Taskman source
file>:<Source file line number>
```

Informational message.

```
Task <tasknumber> <taskname>. Profile Values -- String Table: <stringtable>,
String ID: <stringID>, Fax: <fax name>, Email: <email address>, Number of
copies: <n>, Printer: <printer name>. <Taskman source file>:<Source file
line number>
```

Informational message.

```
Task <tasknumber> <taskname>. Return = <code> WaitForSingleObject return =
<code>. <Taskman source file>:<Source file line number>
```

This message is entered immediately after a background task has ended.

```
Task <tasknumber> <taskname>. Running: <stored procedure>.<Taskman source
file>:<Source file line number>
```

Informational message.

```
Task <tasknumber> <taskname>. Running EXE: <command line>. <Taskman source
file>:<Source file line number>
```

Informational message.

```
Task <tasknumber> <taskname>. Running Report: <RunReport.exe command
line>.<Taskman source file>:<Source file line number>
```

This is the command line TaskMan executes to run a report. For debugging purposes, you can paste the following command line into a batch file and execute it:

```
RunReport.exe <Command line>
```

```
Task <tasknumber> <taskname>. Sending Fax: <command line>
```

Informational message.

```
Task <tasknumber> <taskname>. Setting Connection Timeout <n> and opening a
connection for this task. <Taskman source file>:<Source file line number>
```

TaskMan opened a connection for this background task that will be used to update the Task History table and to delete entries from the Active Task table in the application database.

```
Task <tasknumber> <taskname>. Setting Process Timeout <n>. <Taskman source
file>:<Source file line number>
```

Informational message.

```
Task <tasknumber> <taskname>. Stored Procedure call GetSQLServerLoginSp
failed with return code <code> and error message <message>. <Taskman source
file>:<Source file line number>
```

TaskMan could not get the SQL login information needed to process the task.

```
Task <tasknumber> <taskname>. Successful termination of Task. Performing
commit. <Taskman source file>:<Source file line number>
```

A stored procedure background task can be committed.

```
Task <tasknumber> <taskname>. Unable to access <document path>. Fax not
sent. <Taskman source file>:<Source file line number>
```

TaskMan could not access the RTF file using the specified path. Check to see that the file and path exist and that permissions allow TaskMan access to it.

```
Task <tasknumber> <taskname>. Unable to access <SendFax.exe path>. Fax not
sent. <Taskman source file>:<Source file line number>
```

TaskMan could not access the Fax.exe utility using the specified path. Check to see that the file and path exist and that permissions allow TaskMan access to it.

```
Task <tasknumber> <taskname>. UPDATE ActiveBGTasks SET TaskStatusCode =
'RUNNING' where TaskNumber = <n> .<Taskman source file>:<Source file line
number>
```

As TaskMan selects a background task to run, it changes its status to running.

```
Task <tasknumber> <taskname>. UPDATE BGTaskHistory SET CompletionDate =
<date>, CompletionStatus = <status>, TaskErrorMsg = '<message>' where
TaskNumber = <n>. <Taskman source file>:<Source file line number>
```

Informational message.

```
Task <tasknumber> <taskname>. UPDATE BGTaskHistory SET ProcessId = <pid>
WHERE TaskNumber = <n>. <Taskman source file>:<Source file line number>
```

This message displays the process ID (pid) for a background task. You can use the process ID to trace the status of a background task in the Windows TaskMan. This ID is also displayed in the Background Task History form.

```
Task <tasknumber> <taskname>. UserNames.Username = '<userID>'.<Taskman source
file>:<Source file line number>
```

The user ID of the run-time user requesting the current background task.

```
Task <tasknumber> <taskname>. Usernames.Username = <userID> Groupname =
<groupname>.<Taskman source file>:<Source file line number>
```

The user ID and group name of the run-time user requesting the current background task.

```
Taskman Error: TaskCounter is not keeping accurate count of Running Tasks.
<Taskman source file>:<Source file line number>
```

The number of running tasks in the system does not match the task counter value.

```
Taskman home directory: <homedirectory>. <Taskman source file>:<Source file
line number>
```

Informational message.

```
TaskMan Stopping: Clearing database connections. <Taskman source
file>:<Source file line number>
```

Informational message.

```
The maximum number of concurrently running tasks is <n>. <Taskman source
file>:<Source file line number>
```

Informational message.

```
<dsn> UID <userID> PWD **** String Table=<stringtable> Poll=<n> Process
Timeout=<n> Connection Timeout=<n> Max Num Tasks=<n>. <Taskman source
file>:<Source file line number>
```

Informational message.

```
UPDATE BGTaskHistory SET CompletionDate = <date>, CompletionStatus =
<status>, TaskErrorMsg = '<message>' where TaskNumber = <n>. <Taskman source
file>:<Source file line number>
```

Informational message.

Checking Infor Framework TaskMan Events in the Event Log

In addition to the debug messages mentioned above, TaskMan generates event messages during normal processing. You can view these messages in the Microsoft Event Viewer. Some of the more common messages are listed and described in “Event Messages from TaskMan” on page 46.

To access the Event Viewer, follow these steps on the server where TaskMan resides:

1 Open Control Panel.

2 Open Administrative Tools and then Event Viewer.
3 Select **Application Log**.

Troubleshooting

This section describes possible problems with TaskMan, and how to solve them. Additional problems and solutions that are specific to reports are provided in the *Creating and Customizing Reports* guide.

TaskMan Does Not Start

Symptoms

The Infor Framework TaskMan service is not starting, and you see this message in the Application Event log:

No database definitions defined. TaskMan must be configured before starting the service.

Possible Solutions

- Run the Server Service Configuration utility and verify that the correct application databases are configured for TaskMan.
- Infor Framework TaskMan for Factory Track might be running under a user ID that does not have privileges to access the registry. Try restarting the service to run as a local system account. If it starts, then the problem is with the user ID.
- In Windows, restart Infor Framework TaskMan as an active service.

Changes to Intranets Form Settings Are Ignored

Symptoms

Changes are made on the Intranets form, but those changes are not reflected in tasks that subsequently run that should be using those changed values.

Possible Solutions

When the Infor Framework TaskMan service starts, it caches information from the Intranets table. If you then change a setting on the Intranets form, TaskMan does not see this change. Instead, it continues to use the cached setting for the following fields:

- Polling Interval
- Connection Query Timeout
- Process Timeout
- Maximum Concurrent Tasks

For this reason, after changing one of these settings on the Intranets form, you must stop and restart the Infor Framework TaskMan service so the change can take effect.

Background Task Runs But Has No History Record

A background task is submitted from a Factory Track form. It appears to have been submitted without any problems, but no record is created in the Background Task History form. The BGTaskHistory record is created by a trigger on the ActiveBGTasks table. ActiveBGTasks is the queue of tasks submitted to TaskMan. So, if there is no history record, the task never made it to the queue, despite any messages that might have displayed on the Factory Track form.

This is probably a bug in the sequence of form events the Factory Track form used to submit the task.

Labels Not Replaced with String Table Values

Symptoms

Component labels are not being replaced with string table values or are not being translated properly.

Possible Solutions

Use the Site Name from the General Parameters form to select the correct record on the Sites/ Entities form. Make sure that, for this site, there is a value in the Sites/Entities form's **Forms Database Name** field (in some versions, labeled as the **Strings Table Specification** field). If the forms database is on a different server than the application database, the field's value should also indicate the linked server name, in this format:

```
server_name.Forms_database
```

Infor Framework TaskMan then determines the proper strings table name by searching the specified forms database for the strings table associated with the current Infor Factory Track session. If labels are not translated, stop and restart TaskMan. The **Strings Table Specification** field (or **Forms Database**

Name field) might have been modified after TaskMan was last started. TaskMan checks this value only once, when it first starts up.

The Transport Failed to Connect to the Server

Symptoms

When you attempt to send an e-mail with the SMTP protocol, or if you receive a similar error when testing the SMTP protocol using Telnet, TaskMan returns the error:

```
The transport failed to connect to the server.
```

Possible Solutions

The firewall or antivirus software on the mail server might be blocking the e-mail.

For more information on setting up e-mail notifications, see “Setting up the Utility Server to Send Email Notifications” on page 22.

Event Messages from TaskMan

TaskMan runs as a service under Windows, called Infor Framework TaskMan, and generates event messages that you can view in the Microsoft Event Viewer. If you are having problems with a background task, you can run TaskMan in debug mode (see page 32), which generates additional messages for the Microsoft Event Viewer.

The following messages are generated normally and do not require Infor Framework TaskMan to be running in debug mode. If a database exception occurs, TaskMan tries to retrieve and log the error message.

```
<function name> failed with return code <code> in <Taskman source file> at
<Source file line number>.
```

Abnormal termination of Task **<n>** (returncode = **<code>**). Performing rollback.

A stored procedure background task was rolled back due to one of the following circumstances:

- The stored procedure generated a return code less than 0 or greater than 5.
- Executing the stored procedure generated an exception.

```
An unknown exception occurred. <Taskman source file>: <Source file line
number>
```

```
Canceling Process <taskname>, Task <n>
```

If TaskMan is shut down, an event log message will be printed as each running background task that is a stored procedure is canceled.

```
Canceling Report <taskname>, Task <n>
```

If TaskMan is shut down, an event log message will be printed as each running background task that is a report is canceled. Some reports might be left hanging even if TaskMan is shut down.

```
DSN <dsn> Database <db>. Login successful
```

Informational message.

```
Either the DSN or the SQL login was not set. <ReturnMessage>
```

Informational message.

```
RegisterServiceCtrlHandler failed with return code <n> in <Taskman source
file> at <Source file line number>.
```

```
RSTaskMan shutdown: <n> tasks are running and will be canceled.
```

If TaskMan is shut down while tasks are running, these tasks will be canceled.

```
RSTaskMan starting: Version <n>
```

Informational message.

```
RSTaskMan Terminating
```

Informational message.

```
RSTaskMan Terminating - TaskMan Home Directory not properly detected
```

TaskMan could not determine its home directory and will shut down.

```
SetServiceStatus failed in <Taskman source file> at <Source file line
number>.
```

```
StartServiceCtrlDispatcher failed with return code <n> in <Taskman source
file> at <Source file line number>.
```

TaskMan was not able to start the Service Dispatcher.

```
TaskTypeCode not recognized
```

The task type was not EXE, RPT, SP, or IDOMTH.

Using SQL Profiler to Trace TaskMan Instances

To use SQL Profiler to see which instance of TaskMan is monitoring an application database:

1. Start the SQL Server Profiler.
2. In SQL Profiler, select **File > New Trace**.
3. Connect to the application database server you want to trace.

4 On the **Events Selection** tab, remove everything from the Events column except **TSQL -- SQL:Batch completed**.
5 On the **Data Columns** tab, add **Server Name** to the **Selected Data Column**.
6 To start the trace, click **Run**.

Stored Procedures Used for Performance Benefit

These are stored procedures you should run regularly for performance benefits:

- **sp_updatestats** - Run this SQL-supplied stored procedure regularly for statistics updating for all tables in a database. You can get more information about this stored procedure from the SQL online help.
- **SLServerRestartSp** - This stored procedure runs whenever the database server is restarted (since no one is logged in at that time) and performs general cleanup.
- **PurgeNextKeysSp** - Run this stored procedure to clean up the NextKeys table. NextKey records are inserted, never updated to get concurrency. This stored procedure cleans out the extra rows. DO NOT run this utility while others are using the system. The utility will lock users out, but you should log everyone out of the system before running this utility.

License Management

4

As System Administrator, you need to manage your license agreement, and Factory Track allows you to do that. Use the following three forms to manage your license:

- License Management Form
- Licensed Modules Form
- User Modules Form

Types of Users

Infor Factory Track supports single-session users, which includes all users that appear on the Users form.

License Document

You need a license document to apply your licenses. Infor provides this document in the form of a .txt document upon the purchase of an Infor product. If you do not have your license document, contact Infor Customer Service. There are three different kinds of licenses:

- **Production License** - This is the license you use to run your live system. Only one production license key is provided to you at a time. If you require a new production license key, you must sign an affidavit stating you are no longer using an old production key in any manner.
- **Demo Database License** - This license key is provided so that more than one person in your company can have access to the Demo Database for testing purposes. This license is only valid for 90 days. There is a fixed user count of 10 for any module that is user based. The system warns you each time you logon within 30 days of the expiration date that the license is about to expire.
- **Pilot System License** - This license allows you to run a copy of your production environment in a pilot or testing environment. The license is limited to 10 users or 20 percent of the production license count, whichever is greater. The system warns you each time you logon within 30 days of the expiration date that the license is about to expire. Once the license expires, you cannot open forms.

Session Types

Each session is assigned an appropriate Session Type, depending on the context and application (example: WinStudio, WebClient, etc.) from which the session is created. In addition, a Session Type attribute can optionally be associated with each license module. Relevant Session Types for purposes of licensing are the following:

- Full client
- Form only web client
- IDO automation

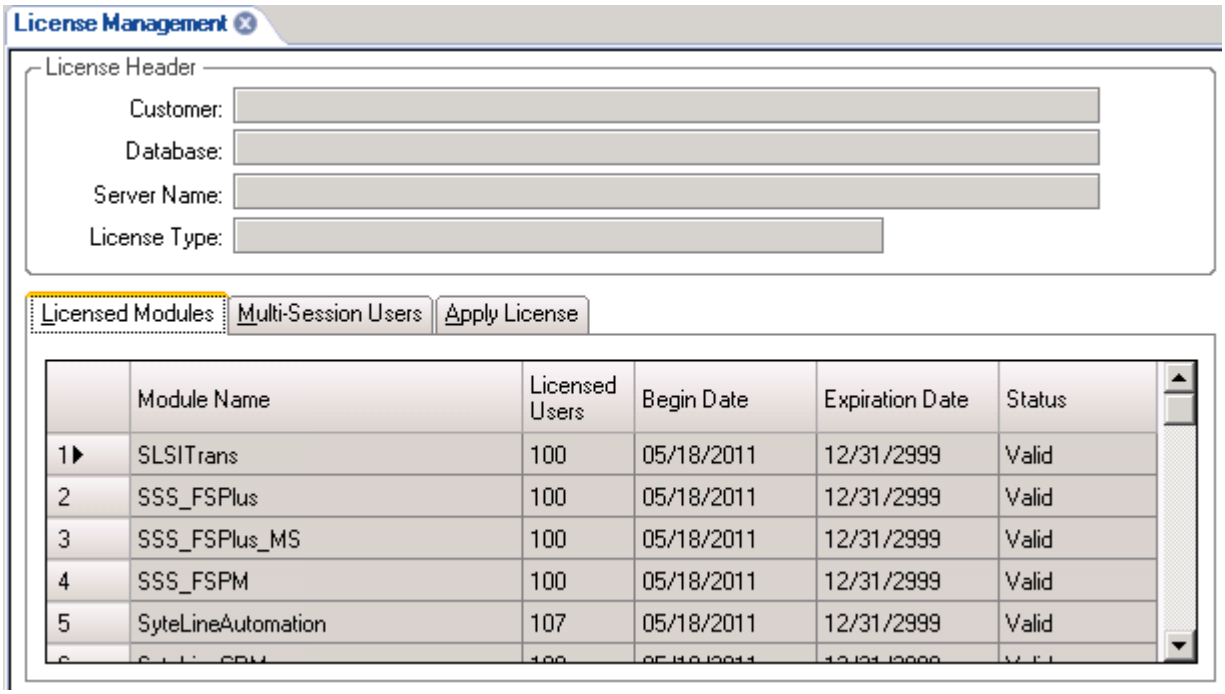
Each license module can be assigned one or more of these three Session Types or a default of "Undefined" (meaning that module is always considered regardless of the current session's Session Type). The Session Type is included during licensing enforcement in the following ways:

- During login using a "concurrent" license, the framework honors the module Session Type by checking and deducting license usage from only the modules that match the current Session Type criteria.
- During login using a "named user" license, the algorithm for calculating the number of permitted sessions for a given user changes to consider Session Type. Only sessions of the same type you are currently attempting to create are considered in that session count.
- During runtime of both license types, only module members associated with the login Session Type are eligible for licensing permission.
- If the framework accesses an application database where the new Session Type schema has not been implemented, all licensing enforcement is done without regard to Session Type using the algorithms in place prior to this enhancement.

The Session Management form includes a column for Session Types. See the online help for information on the types in this column.

License Management Form

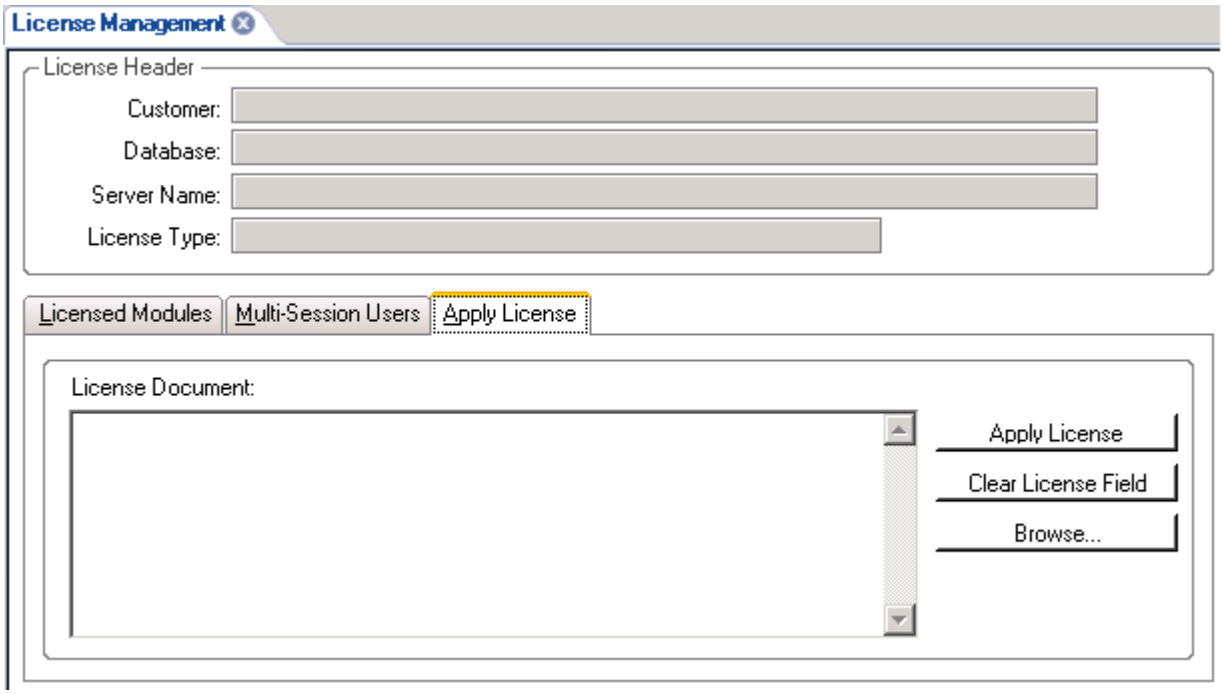
This form allows you to manage your company’s license agreement. The form shows when the license begins and ends, which modules are licensed, and it is where you apply the license to stay current.



Apply a License

Note: Before applying a license, ensure you are logged in as 'sa'. No password is required for this user. Also, do not assign any modules to the 'sa' user. If you do, you will not be able to log in as 'sa' again.

1 On the License Management form, click the **Apply License** tab.



2 Paste your license document into the **License Document** field. You can cut and paste the information from the license document into this field, or you can select the **Browse** button and select the document from your drive. The document is encrypted and every character counts, so if you copy and paste, make sure to copy the entire document.

3 Once you have entered the license document, click the **Apply License** button.

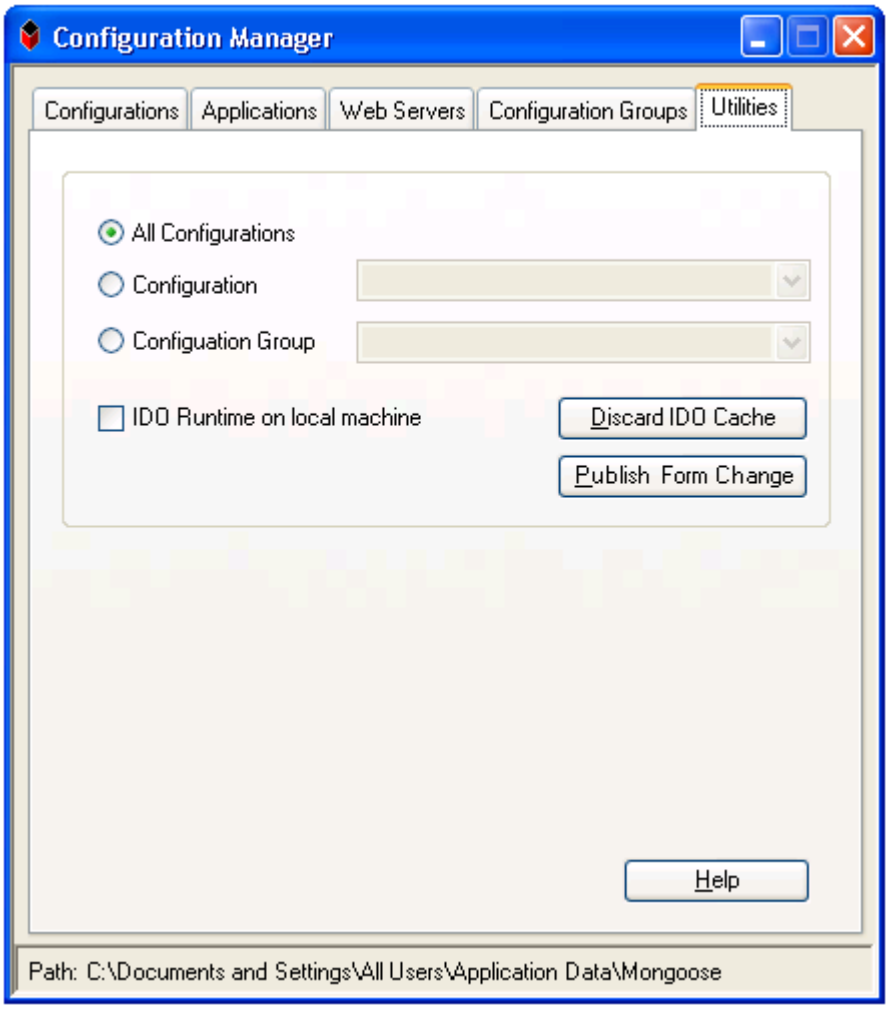
Note: Let's assume you are applying a new license to replace an old one for the FactoryTrackWMTrans Users module. The old license was for 50 users, and the new one is for 40. When you click the **Apply License** button, you get an error message. If the new license is for fewer users than the old license, you need to go to the Users Module form and delete users' association with the FactoryTrackWMTrans Users module until you have the same amount or fewer than the new license allows. If your new license is for the same number of users or more, then you can apply the license and you don't need to do anything else.

Post License Application Steps

Note: You must follow the steps in this section if there were active WinStudio sessions when you applied the license. If there were not any active sessions, you can skip this step. You can perform these steps, however, in either case.

1 On the utility server, open the Configuration Manager.

2 Select the **Utilities** tab.

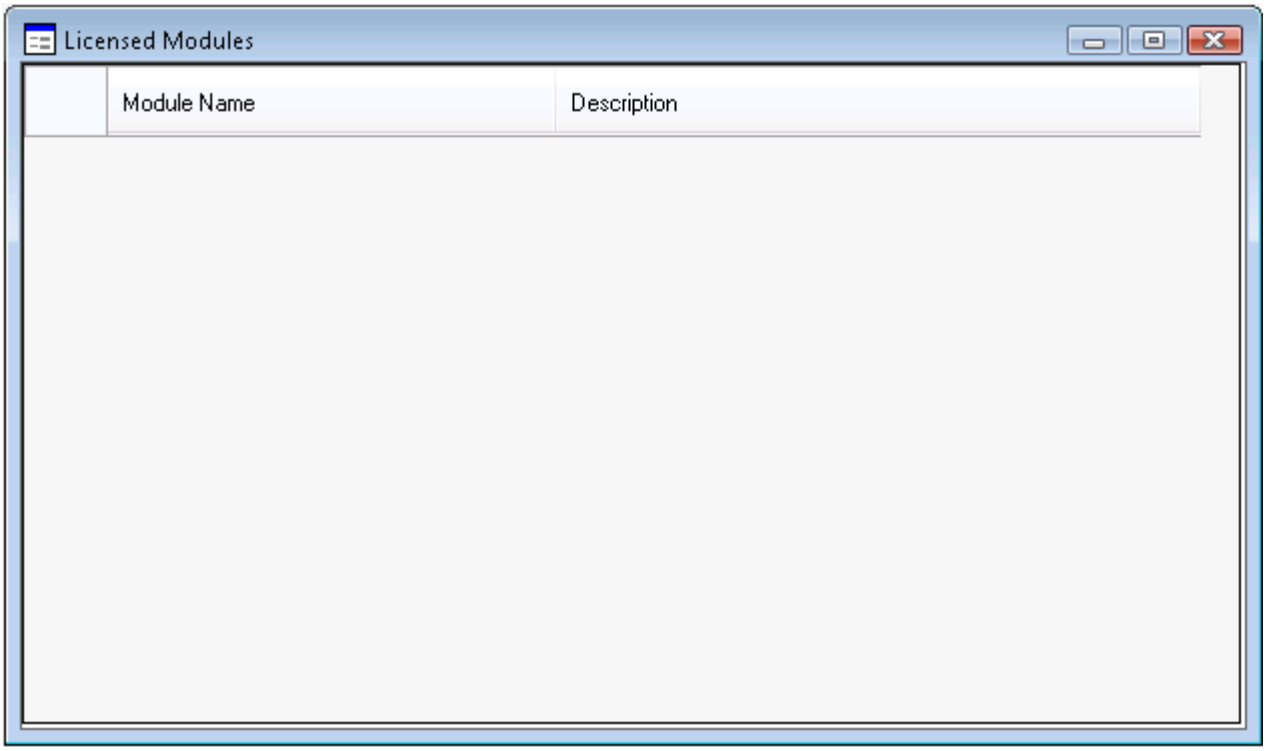


3 Use the **Utilities** tab to discard the Runtime Service Cache for all configurations that reference the application database to which the new license has just been applied.

See the Configuration Manager online help for more information about the options on this tab.

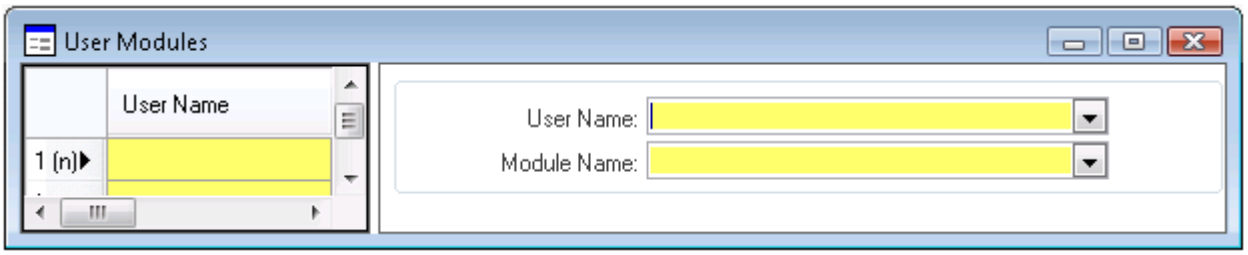
Licensed Modules Form

This form lists the modules for which your company is licensed, and it allows you to add a description for each module. You can also see the modules for which your company is licensed on the **Licensed Modules** tab of the License Management form. The License Management form also shows the number of licensed users, beginning and expiration dates for the license, and whether your license is valid. The License Modules form exists primarily for users who don't have permission to open the License Management form but still need to see which licenses the company has.



User Modules Form

Use this form to associate a named user with a certain module for which your company has a license. For example, user Bob might be associated with the FactoryTrackWMTrans Users module. This means that user Bob is taking one of your company's license tokens for the FactoryTrackWMTrans Users module. A named user can be associated with different modules, but each association takes a token for each licensed module. Tokens are taken when you assign a user to a module, not when theuser logs in.



Possible license modules and their associated access capabilities are:

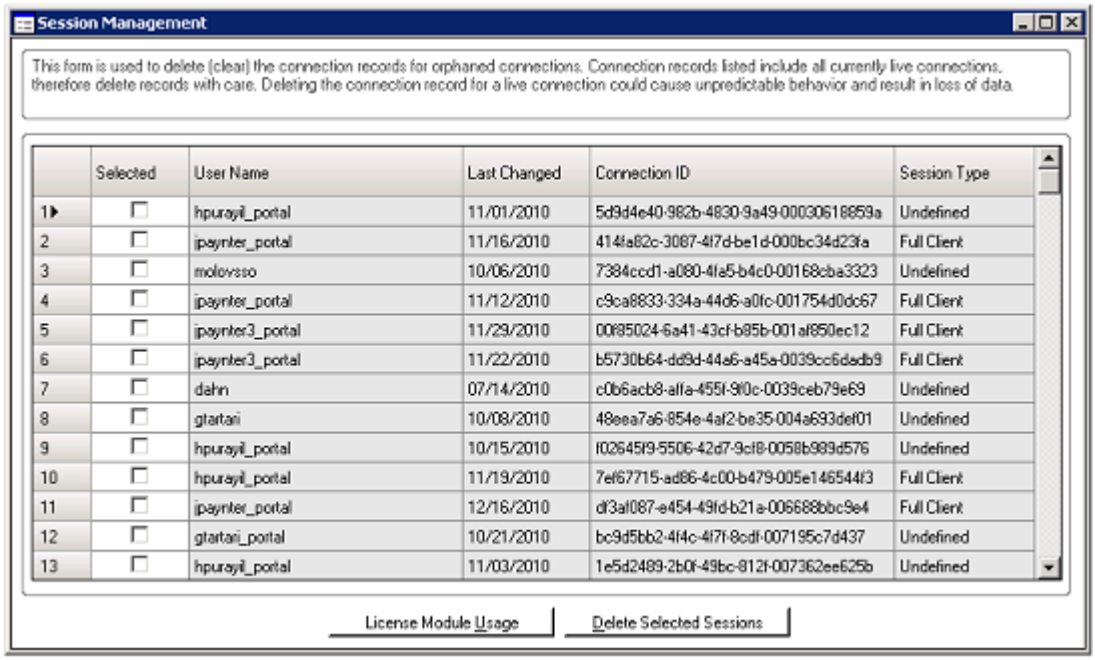
License Module	Access Capabilities
FactoryTrackAuto	Used for IDO Access

License Module	Access Capabilities
FactoryTrackBase	Allows access to administrative Factory Track forms including standard Mongoose forms
FactoryTrackCloud	Cloud license that allows access to all forms that are not development forms
FactoryTrackDev	Allows access to IDO editing forms, SQL Table/Column editing forms, and Factory Track development forms
FactoryTrackMetrics	Allows access to transaction metric forms
FactoryTrackShopFloorTrans	Allows access to forms that are exclusively Shop Floor forms
FactoryTrackShopFloorTTTrans	Allows access to Shop Floor forms that are used with Time Track
FactoryTrackTimeEntry	Allows access to Time Track time sheet forms
FactoryTrackTTTrans	Allows access to forms that are exclusively Time Track forms
FactoryTrackWMLNInv	Allows site access to inventory transactions
FactoryTrackWMLNProd	Allows site access to production transactions
FactoryTrackWMTrans	Allows access to forms that are exclusively Warehouse Mobility forms
FactoryTrackWMTTTrans	Allows access to all Warehouse Mobility forms that are used withTime Track

Note: See https://www.inforxtreme.com/esknowbase/root/DLPublic/46643/Factory%20Track%20Licensing%20Guide.pdf for more M3 License Modules.

Recover Locked Tokens

If Factory Track terminates unexpectedly, it is possible that license tokens in use at the time are locked, thus preventing users from logging in. In this case, use the Session Management form to free up the locked tokens. See the Factory Track online help for more information about the Session Management form.


Session Management
This form is used to delete (clear) the connection records for orphaned connections. Connection records listed include all currently live connections, therefore delete records with care. Deleting the connection record for a live connection could cause unpredictable behavior and result in loss of data.
Selected
User Name
Last Changed
Connection ID
Session Type
1 hpurayil_portal 11/01/2010 5d9d4e40-982b-4830-9a49-00030618859a Undefined
2 jpaynter_portal 11/16/2010 414a82c-3087-4f7d-be1d-000bc34d23fa Full Client
3 molovsso 10/06/2010 7384ccd1-a080-4fa5-b4c0-00168cba3323 Undefined
4 jpaynter_portal 11/12/2010 c9ca8833-334a-44d6-a0fc-001754d0dc67 Full Client
5 jpaynter3_portal 11/29/2010 00f85024-6a41-43cf-b85b-001af850ec12 Full Client
6 jpaynter3_portal 11/22/2010 b5730b64-dd9d-44a6-a45a-0039cc6dadb9 Full Client
7 dahn 07/14/2010 c0b6acb8-affa-455f-9f0c-0039ceb79e69 Undefined
8 gtartari 10/08/2010 48eea7a6-854e-4af2-be35-004a693def01 Undefined
9 hpurayil_portal 10/15/2010 f02645f9-5506-42d7-9cf8-0058b989d576 Undefined
10 hpurayil_portal 11/19/2010 7ef67715-ad86-4c00-b479-005e146544f3 Full Client
11 jpaynter_portal 12/16/2010 df3af087-e454-49fd-b21a-006688bbc9e4 Full Client
12 gtartari_portal 10/21/2010 bc9d5bb2-4f4c-4f7f-8cdf-007195c7d437 Undefined
13 hpurayil_portal 11/03/2010 1e5d2489-2b0f-49bc-812f-007362ee625b Undefined
License Module Usage
Delete Selected Sessions

Authorizations

5

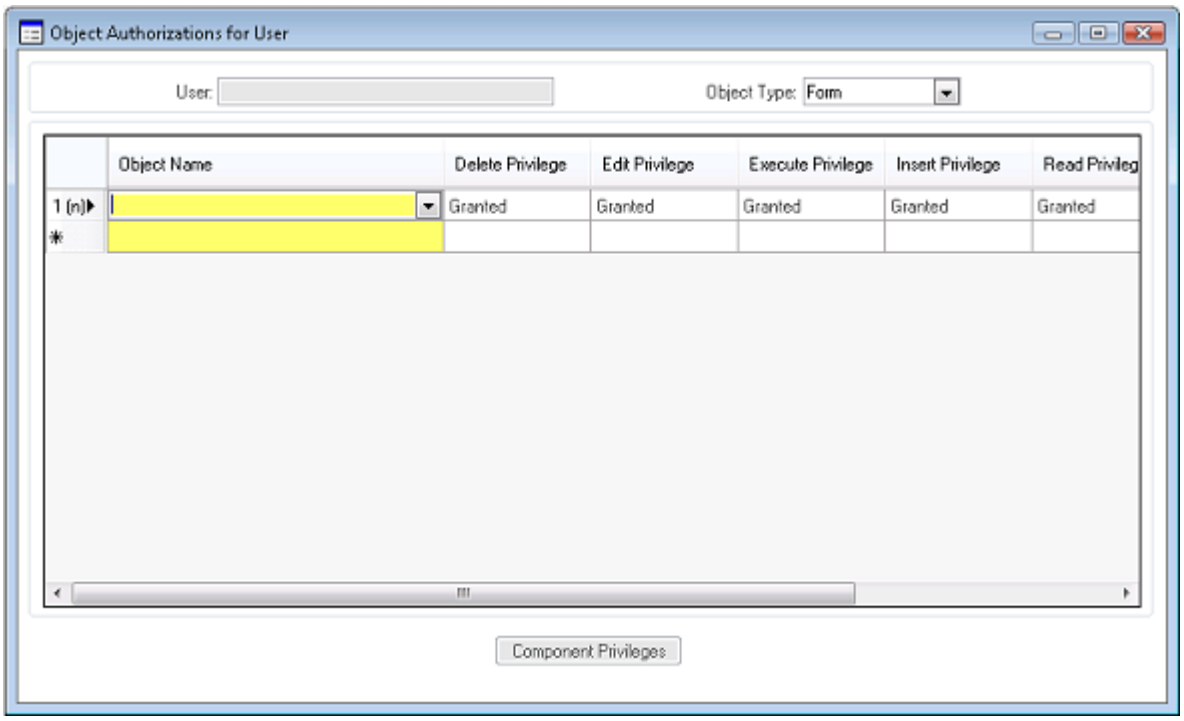
You may limit user access to certain forms or limit what they can do on certain forms by way of authorizations. Use the following four forms to manage these authorizations:

- Object Authorizations for User
- Object Authorization for Group
- Users
- Groups

Object Authorizations For User

Use this form to set up form-level security for a user or to set up security for a user based on a middletier IDO. An object in this case is either the name of the form or the name of the IDO.

If the user specified on this form is part of a group, the user authorizations that you set up on this form override any group authorizations that apply to the same user.



You can open the form right from the Explorer window, or you can click the **User Authorizations** button on the Users form.

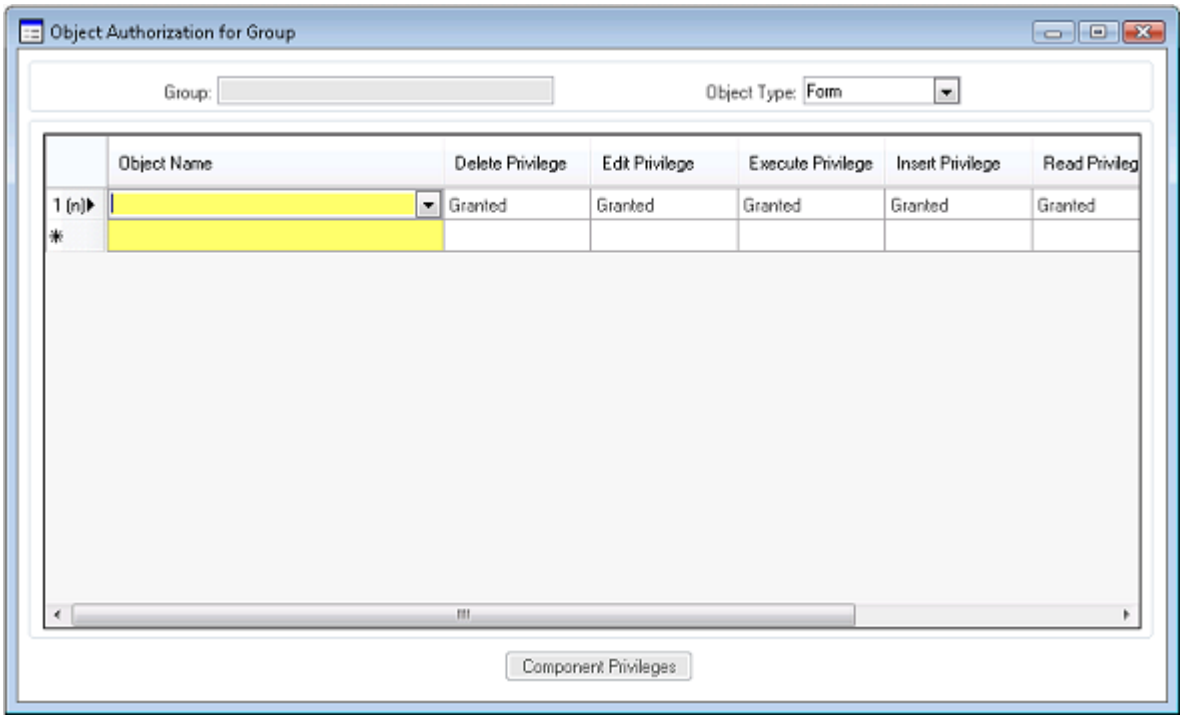
The following privileges can be granted or revoked for the user for a specified form in the Object Authorizations For User form:

- Delete controls whether the user can delete records.
- Edit controls whether the user can edit existing data.
- Execute controls all privileges, including whether the user can open the form. When execute is revoked, all privileges are unavailable.
- Insert controls whether the user can insert records.
- Read controls whether the user can read data.
- Bulk Update controls whether the user can perform a bulk update, such as multiple find and replace operations.
- Update controls whether the user can save changes to existing data.

Object Authorizations For Group

Use this form to set up form-level security for a group of users or to set up security for a group based on a middle-tier IDO.

Any user authorizations for individuals will override the group authorizations defined on this form.

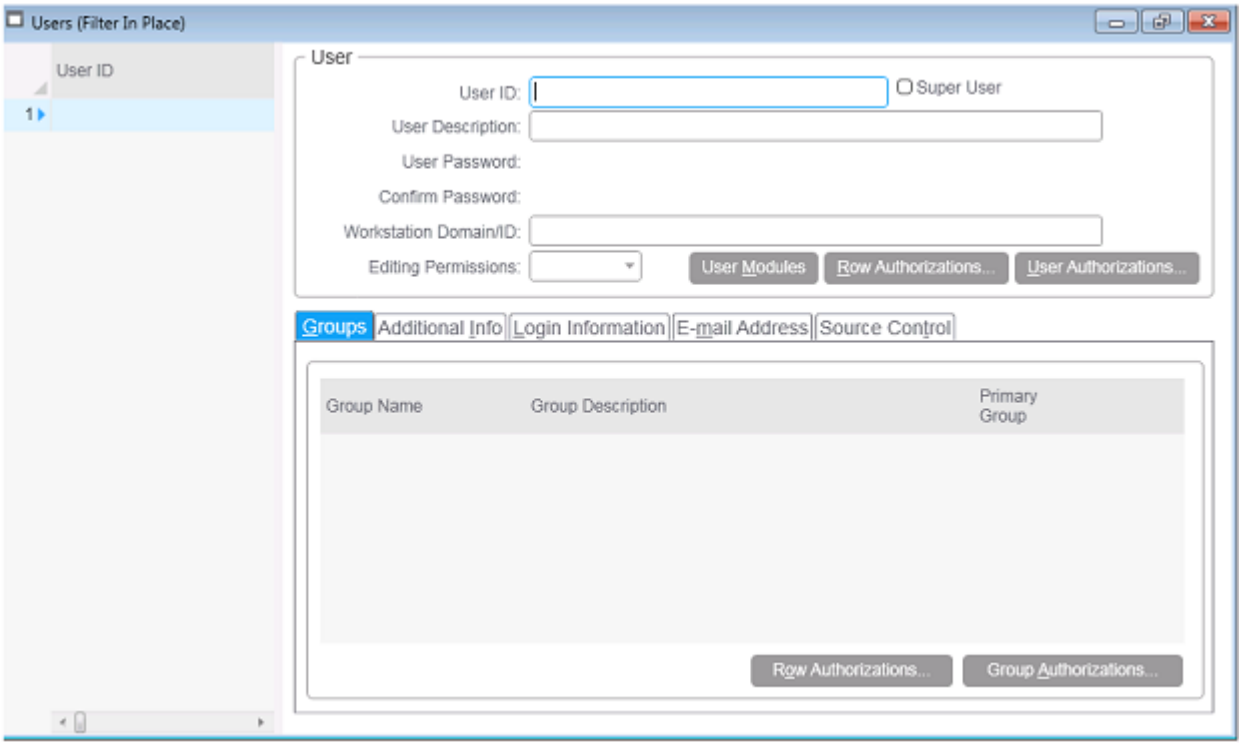


You can open the form right from the Explorer window, or you can click the **Group Authorizations** button on the Groups form.

The following privileges can be granted or not granted for the group in the Object Authorization For Groups form:

- **Delete** controls whether the user can delete records.
- **Edit** controls whether the user can edit existing data.
- **Execute** controls all privileges, including whether the user can open the form. When execute is not granted, all privileges are unavailable.
- **Insert** controls whether the user can insert records.
- **Read** controls whether the user can read data.
- **Update** controls whether the user can save changes to existing data.
- **Bulk Update** controls whether the user can perform a bulk update, such as multiple find and replace operations.

Users



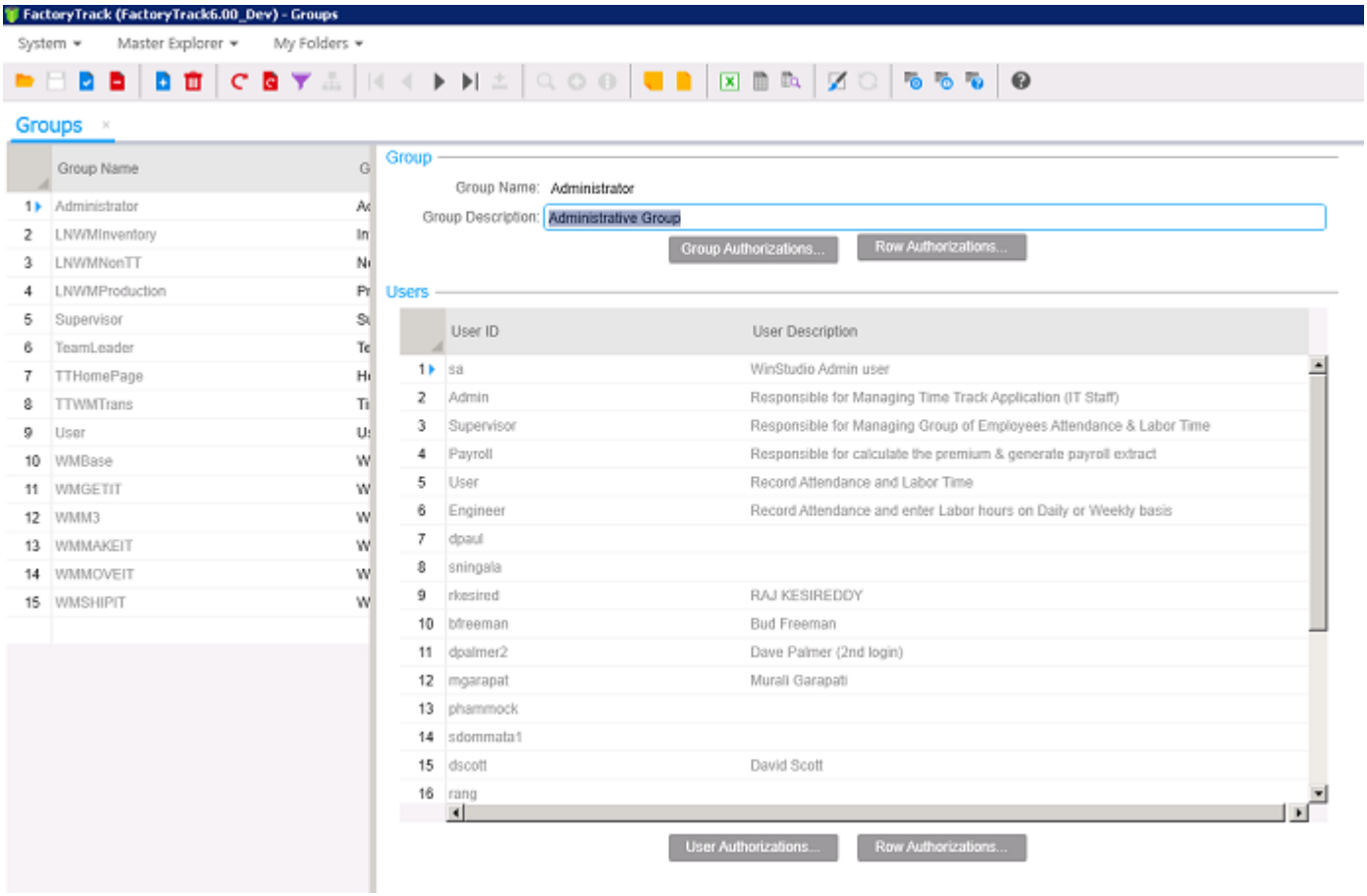
Use this form to register users to the application. A user ID is required for each user who logs on to the application. You can also specify the following:

- Passwords needed to log on to the application
- Workstation IDs so users bypass the logon dialog box
- E-mail addresses so notifications can be sent about automated tasks
- Editing permissions that determine whether users can enter edit mode to create or customize forms
- Security authorizations for this user at a form level or a component level
- Groups to which the user belongs and security authorizations for that group
- Additional information about the user that the application needs

Note: Initially, only the supplied default system administrator user ID can create or delete other user IDs.

Any user who is added to the System Administration group or designated as a super user can access the Users form and change the password for any other user. Users can change their own passwords on the User Information form.

Groups



Use the Groups form to create groups and to assign user IDs to them. These groups can be organized in any way that makes sense for your company or organization -- by location, by organization, by job description, and so on.

Note: Although the system allows you to modify or delete the default groups, doing so may cause future conversion problems while upgrading and other problems. We recommend you copy the records from the default group to a new group name and modify that. Do NOT delete or modify default groups.

Assign users to groups so you can then create group authorizations that apply to every individual/ user ID in the group.

Create a Super User

A Super User can run all forms and perform all actions on all forms for which they hold a license. In some cases, actions may have to be performed by the ’sa’ user account. For example, a user with an Infor Factory Track Entity module license can not access the User Modules form. In this case, you need to access the User Modules form with the ’sa’ user account.

If you create a Super User, you do not need to set any other authorizations for this user. The Super User status overrides all other types of authorizations.

1 Open the Users form.
2 Select the desired **User ID**.
3 Select the **Super User** field.
4 Save the record.

Assign a User to a Group

1 Open the Users form.
2 Select the desired **User ID**.
3 On the **Groups** tab, select the **Group Name** from the drop down list.
4 Save the record.

Note: When you assign a user to a group (for example, user Bob is assigned to the Accounts Payable Group), that user gets access to all the forms associated with that group. If you want user Bob to have most of the access associated with that group but not all, you need to edit the user authorizations for user Bob. See “Edit Authorizations for a User in a Group” on page 62.

Assign a User to a Primary Group

In general, it is easier to first create the group, then assign user authorizations. This allows you to assign each user a Primary Group that specifies authorizations without going through each user's authorizations form by form.

1 Open the Users form, select the desired **User ID**.
2 On the **Groups** tab, select the group name from the **Group Name** drop down list.
3 Select the **Primary Group** field.

When selected, this field indicates that the corresponding user group is a primary group. The system uses the group designated as the Primary Group to load the correct version of customized forms for the selected user.

Users may belong to more than one group, but only one group may be designated as the Primary Group, and only the Primary Group is used for loading group versions of a customized form. For example, suppose user Bob is a member of the Accounts Payable and Accounts Receivable groups with the Accounts Receivable group marked as Bob’s primary group. If the user Bob launches a form, the system looks for a group-level customized version of that form for the Accounts Receivable group, not the Accounts Payable group. If such a customized version exists, and if there isn't also a user-level customized version for user Bob, then that is the form the system will display.

View Group Authorizations

1. Open the Groups form.
2. Select the desired group name.
3. Click the **Group Authorizations** button.

   The Object Authorization for Group form opens.
4. In the **Object Name** field, select an object.

   The privileges are listed in the columns to the right, and those privileges are either granted or not granted.

Edit Authorizations for a User in a Group

User authorizations override group authorizations. So for example, you might want user Bob to have all of the authorizations of the accounts payable group, except for access to the Accounting Periods form.

1. Assign a user to a group on the Users form (See “Assign a User to a Group” on page 61).
2. Open the Users form.
3. Select the user whose authorizations you want to edit.
4. Click the **User Authorizations** button.

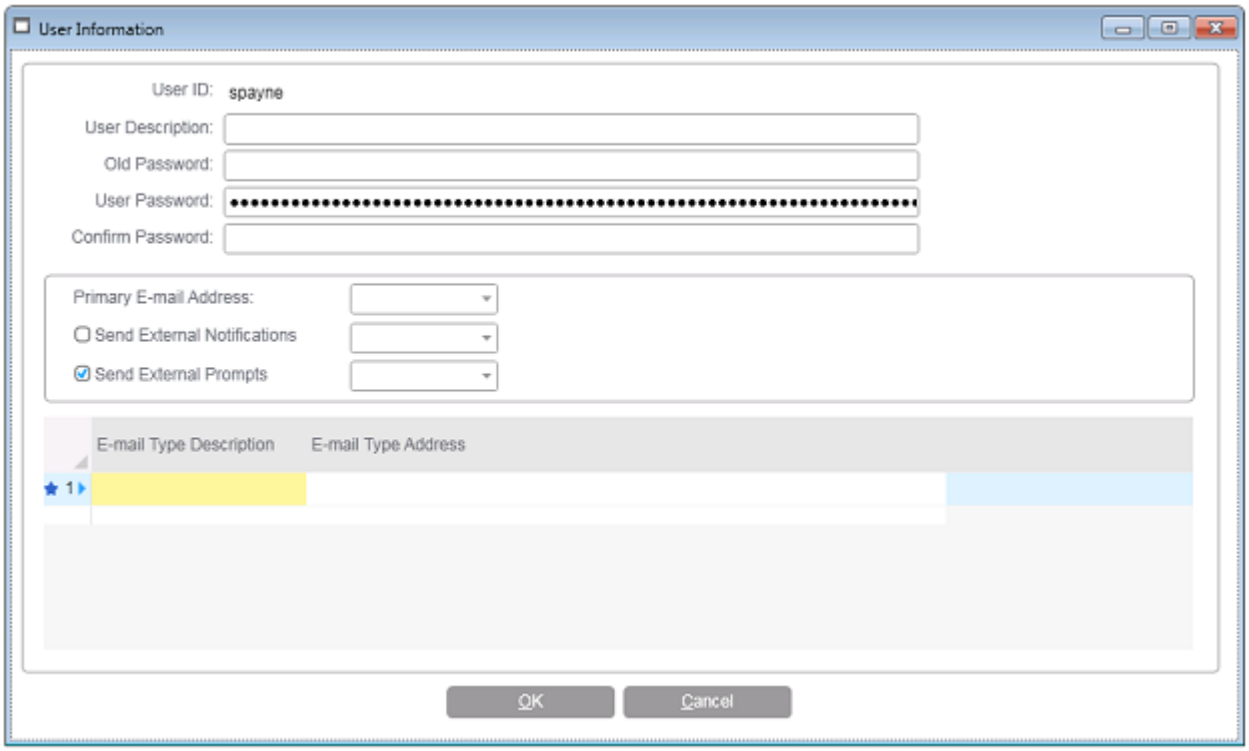
   The Object Authorizations for User form opens.
5. In the **Object Name** field, select the object you wish to edit for this user. In this example, it is AccountingPeriods.
6. Depending on what you want, change the desired privileges either to **Granted** or **Revoked**.

Forms Security

Form level security is checked when a user opens a form. The AccountAuthorizations table is queried to see what privileges have been granted to the user or to the group to which the user belongs.

Change Passwords

Any user who is added to the System Administration group or designated as a super user can access the Users form and change the password there for any other user. Users without such authorization can change their own passwords on the User Information form shown below.


User Information
User ID: spayne
User Description:
Old Password:
User Password:
Confirm Password:
Primary E-mail Address:
Send External Notifications
Send External Prompts
E-mail Type Description
E-mail Type Address
1
OK
Cancel

Setting up an Audit Log

6

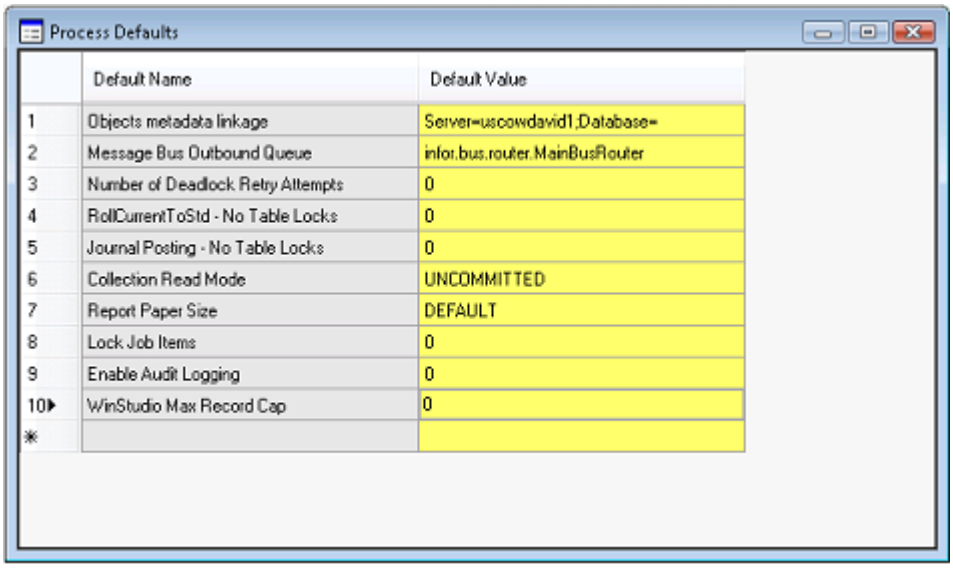
Use the audit log to see which user performed what action at what time and on what form.

Use the following three forms to manage your audit logging:

- Process Defaults
- Audit Log Types
- Audit Log

Process Defaults

Use the Process Defaults form to enable audit logging.

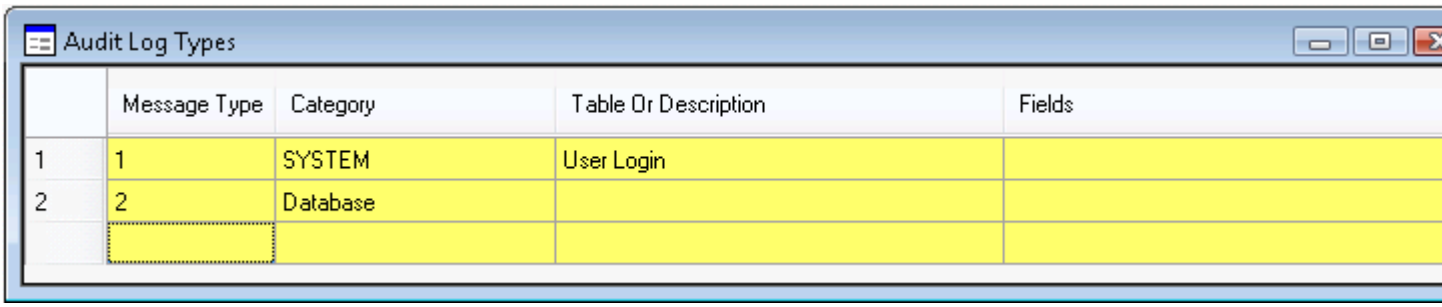


Set the **Default Value** field to 1 for **Enable Audit Logging**. A default value of 0 turns the audit log functionality off.

Audit Log Types

Use the Audit Log Types form to create types of messages to include in the audit log. By default, the system generates messages when users log on (type 1) and when users open a form (type 2). Developers can create other types of messages that are generated by event handlers of the **Add Entry to Audit Log** response type.

The Audit Log Types form displays the following information:

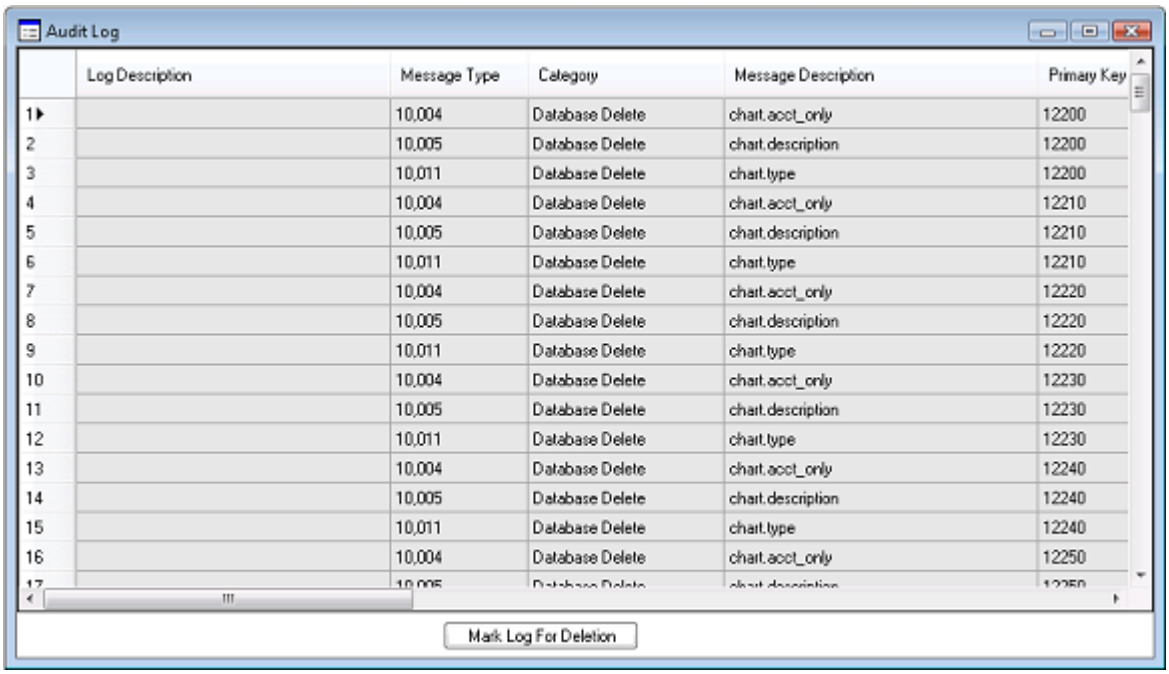


- **Message Type** - The Message Type field indicates the type of message in the audit log. By default, messages about users logging on are 1, messages about users opening forms are 2, and messages about users modifying forms or objects are 3. Custom messages are numbered 10,000 and greater.
- **Category** - Category identifies the type of auditing. Three values can appear in this field:
  - **System** - Types of events are User Login and Open Form. You cannot select a category of System.
  - **Custom Form Event** - Custom Form Event allows programmers to add audit logging to any event handler; for example, when a user selects a tab on a form.
  - **Database** - Database displays when records are added, updated, and deleted, and the message displays 1) Database: Add, 2) Database: Update, or 3) Database: Delete, depending on the action performed.
- **Table or Description** - For System and Custom Form Events, this field describes the event being logged. You can change the contents of this field at any time. The value in this field appears in the Audit Log.

  For Category Database, this field indicates the table that will have an audit log.
- **Fields** - Fields is used only if the category is Database. This can be a specific database field (cust_num, for example) or an asterisk (*). Entry of an asterisk indicates that all fields in the table should be entered in the audit log.

Audit Log

Use the Audit Log form to view and delete messages in the audit log.



The Audit Log form displays the following information:

- **Log Description** - This field describes the type of audit log. For example, if you opened the Purchase Order Lines form, the Log Description lists the form name "PurchaseOrderLines".
- **Message Type** - This field indicates the type of message in the audit log. By default, messages about users logging on are 1, messages about users opening forms are 2, and messages about users modifying forms or objects are 3. Custom messages are numbered 10,000 and greater.
- **Category** - Category identifies the type of auditing. Three values can appear in this field:
  - **System** - Types of events are User Login and Open Form. You cannot select a category of System.
  - **Custom Form Event** - Custom Form Event allows programmers to add audit logging to any event handler; for example, when a user selects a tab on a form.
  - **Database** - Database displays when records are added, updated, and deleted, and the message displays 1) Database: Add, 2) Database: Update, or 3) Database: Delete, depending on the action performed.
- **Message Description** - The message description is a description of the message type. The description will be one of three values:
  - **User Login**
  - **Open Form**
  - **Custom Message**
- **Primary Key** - Primary Key identifies the database record being changed. It contains the fields that make up the primary key. When multiple fields make up a key, the values are concatenated and separated by dashes. For example, Purchase Order P000000001 Line 5 Release 2 appears as P000000001-5-2.

- **Old Value** - Old Value - Old Value is only used for Category Database. Based on the activity - Add, Update, or Delete - the following is displayed:
  - **Add**: Blank
  - **Update**: Value prior to update
  - **Delete**: Value prior to delete
- **New Value** - New Value is only used for Category Database. Based on the activity - Add, Update, or Delete - the following is displayed:
  - **Add**: Blank
  - **Update**: Value prior to update
  - **Delete**: Value prior to delete
- **User Name** - The user ID whose actions generated the audit log message is displayed.
- **Date/Time** - Date/Time displays the system date and time that the audit log entry was made.

About the Privacy Utility

GDPR (General Data Protection Regulation) is a European legal regulation used to secure the personal data and privacy of the native citizens.

The General Data Protection Regulation (GDPR) is a regulation that requires businesses to protect the personal data and privacy of European Union citizens. Effectively, from May 25 2018, the European Union citizens have the ability to control the access of the personal data. This feature must be executed by the company (local and international) that performs any business in Europe or handles the personal data of EU residents. In order to comply with the European Union General Data Protection Regulation (EU GDPR), Data Controllers and Data Processors can use the Data Anonymization by Employee form to find and report on personal data that is held in the application for a particular individual. The individual can review the report and request for removing the data from the application. In that case, after the legal retention period for the data records has passed, the administrator can either manually delete the records from the application.

The process includes data collecting, processing, storing, deleting, transferring, and using the citizens' information effectively.

Employees are provided with information on how the personal data is processed.

- Can transfer personal data between service providers with ease.
- Know when the personal data is hacked. Organizations must notify the national supervisory authority of data breaches as soon as possible so that appropriate measures can be taken.

Note: When an employee no longer wants the personal data to be processed, and if there are no legitimate grounds to retain this, the data is deleted.

Removing personal data for an employee

Employees can raise requests to the company to remove any personal information available in the database. After the legal retention period for preserving the data records is passed, you can manually delete some records from the application and run the Data Anonymization by Employee form to anonymize personal data about the employee.

For example, the person's name and address are replaced by X's in the database. Date fields that contain personal data, such as a birth date, are set to a null value. The key fields in each database table, such as the vendor or customer number, are not X-ed out. To prevent validation errors, on the Customers and Prospects forms, the country is not X-ed out, and the tax code, if originally set to an external tax code, is cleared.

These changes cannot be reversed after the form is run for anonymize action.

To use the Data Anonymization by Employee form for removing employee data:

1 Select **Open > Data Anonymization by Employee**.

Note: The default values that are previously saved must be displayed when the form is accessed.

2 Select the employee number to process the anonymize action.

3 Click **Anonymize**.

The Defaults section on the form populates these details of the selected employee after backend validation:

- Department
- Shift
- Emp Type
- SF Indirect Task
- Work Group
- Facility

The fields such as **Birth date**, **Hire Date** and **Termination Date** available in the Defaults section are optional.

The application initiates the anonymization process for the employee data.

Note:

- The application removes all the records from the ft_message_address table if the fields **Employee User Name** or **Login Employee Number** match the employee that is set to anonymize.
- The application removes all the records from the ic_label_print_dtl table if the field **Employee Number** matches the employee that is set to anonymize.
- The application removes all the employee-related information from the ft_audit_log and ft_audit_log_archive tables.
- The application removes all the employee biometric records, when the Biometric Utility is run.

4 Click **Save Defaults**.

The application saves the changes made to the Default section.

Note:

If you change any of the Defaults on the form and click **Anonymize** prior to saving the Defaults, the values on the form are used for data removal process.

Improving Performance

7

This chapter presents information on how to improve the performance of your system. In general, techniques for improving performance are designed to reduce unnecessary processing, network traffic, and blocking. The techniques minimize:

- The number of unneeded records stored in tables
- The number of records retrieved in queries
- The number of locks on records in queries
- The duration of locks on records
- The size and duration of transactions
- The fragmentation of tables and indexes
- Avoiding timeouts

Hardware

You must have appropriate hardware to meet the demand put on your system. Refer to the *Guide to Technology* for minimum requirements.

- **Server usage** - Our recommended server usage is detailed in the Introduction chapter of the *Infor Factory Track Installation Guide*.
- **Transaction log drives vs. data drives** - Use separate physical drives for the data and log files. Because transaction logs are written sequentially, they require fewer dedicated drives than do data files. The number of physical drives, capacity, and performance are more important for the data drives than for the transaction log drives.

SQL Server Settings

SQL requirements are listed at the beginning of each chapter in this guide where appropriate. This section includes some settings that can be used for a performance improvement. Refer to SQL documentation for more information.

- **Auto Shrink** - On the application database machine, always have Auto shrink disabled for all databases. If it is disabled, your system will not show significant performance loss related to shrinking the database. If it is enabled, SQL Server checks every 30 minutes to see if it needs to shrink the database; this can cause a huge performance hit. You can use the DBCC SHRINKDATABASE or DBCC SHRINKFILE commands when you need to shrink databases, or you can use the SQL Server Agent to schedule regular file-shrinking instead of enabling Auto shrink.
- **Auto update statistics** - We recommend that you enable Auto update statistics for all databases. This feature is enabled by default. With this feature enabled, SQL Server updates the statistics of an index based on the following criteria:
  - If the number of rows in a table is greater than 6, but 500 or less, statistics are updated when there have been 500 modifications made, OR
  - If the number of rows in the table is greater than 500, updates are made when 500 plus 20% of the number of rows in the table have been modified.

    When a SQL Server database is under very heavy load, this feature can update the statistics during busy times, causing a performance issue. If you find that enabling the feature causes more problems than it solves, you can turn it off, and then manually update the statistics when the database is under a less heavy load.

    We recommend that you both enable **Auto update statistics** and update statistics manually. See “Update Statistics” on page 74.

- **Tempdb** - Set the original size of the tempdb database files to a reasonable size (about the size of the ledger table) to prevent the files from automatically expanding as more space is needed. If the tempdb database expands too frequently, performance can be affected. Set the file-growth increment percentage to a reasonable size (10% is a good choice) to avoid the tempdb database files from growing by too small a value. If the file growth is too small compared to the amount of data being written to the tempdb database, then tempdb may need to constantly expand, thereby affecting performance. Place the tempdb database on a fast I/O subsystem to ensure good performance. Stripe the tempdb database across multiple disks for better performance. Use filegroups to place the tempdb database on disks different from those used by user databases.
- **Minimum server memory and Maximum server memory** - Set these values based on the size and activity of your instance of SQL Server.
- **MAXDOP** - Set the max degree of parallelism option to 8 or less by using sp_configure.

Unneeded Data

Unneeded data in tables with a large number of records can increase query time and slow certain processes. Infor Factory Track provides utilities for reducing unneeded data. SQL Server system stored procedures aid in understanding table size.

Purge or Compress Unneeded Data

The following forms allow you to purge or compress data to improve performance. Determining when to use these forms is primarily a business decision you need to make. We've made recommendations for some listed below. Refer to the online Help for information on how to use the forms.

It is important to formulate a data retention plan for each area. You should decide how long to retain data and who will purge or compress records that are older than the planned retention period.

- Compress General Ledger Transactions
- Delete Material Transactions - Do this as part of year-end procedures.
- Delete Job Transactions
- Delete A/P Posted Transactions
- Activate/Deactivate Posted Transactions - A/P
- Delete A/R Posted Transactions
- Activate/Deactivate Posted Transactions - A/R
- Delete Audit Logs
- Audit Log Types - Look at the types you have on this form and verify that you need all the ones you have created. Types 1 and 2 are standard default types, and you cannot delete them. All other types (10,000 and above) are custom types created by you. You can delete these types.

Examine Table Size

The SQL Server system stored procedure sp_spaceused reports information about a table that can be useful in forming and implementing a data retention plan. The stored procedure shows:

- Number of rows in a table
- Space reserved for a table
- Space used by data in a table
- Space used by the index in a table
- Unused space in a table

In SQL Query Analyzer, with the Factory Track application database selected as the current database, use the following syntax to generate a report on a table:

```
EXEC sp_spaceused table_name
```

Example

```
EXEC sp_spaceused ledger
```

To report on tables that are likely to need attention in a data retention plan, you can use the following script:

```
-- Ledger
EXEC sp_spaceused ledger
```

```
EXEC sp_spaceused ledger_all-- Material Transaction
EXEC sp_spaceused matltran
EXEC sp_spaceused matltran_all
EXEC sp_spaceused matltran_amt
EXEC sp_spaceused matltran_amt_all

-- Job Transactions
EXEC sp_spaceused jobtran

-- AR Transactions
EXEC sp_spaceused artran
EXEC sp_spaceused artran_all

-- AP Transactions
EXEC sp_spaceused aptrxp
EXEC sp_spaceused aptrxp_all

-- Audit Logs
EXEC sp_spaceused AuditLog
```

To report on all tables in the database, you can use this script:

```
DECLARE @table_name sysname
DECLARE Tables_Cursor CURSOR FOR
SELECT name
FROM sysobjects
WHERE type = 'U' ORDER BY 1

OPEN Tables_Cursor

FETCH NEXT FROM Tables_Cursor
INTO @table_name
WHILE @@FETCH_STATUS = 0
BEGIN
  EXEC sp_spaceused @table_name
  FETCH NEXT FROM Tables_Cursor
  INTO @table_name
END

CLOSE Tables_Cursor
DEALLOCATE Tables_Cursor
```

To select tables with similar names, modify the WHERE clause in the script. For example, to report on only tables with the _all suffix, replace

```
WHERE type = 'U' ORDER BY 1
```

with

```
WHERE type = 'U' AND name LIKE '%[_]all' ORDER BY 1
```

See the Help for SQL Server for more information about sp_spaceused.

Filter Inactive Records in Data Integration

Data integration between this system and other products may require the transfer of a large number of records with each update. Some records that are maintained in this system are not required in integration with these programs. You can improve performance by excluding them.

You can modify a product to filter out specified customer, vendor, and item records. To specify a record to be filtered, clear the field Active for Data Integration for the record in the Customers, Vendors, or Items form. By default, the field is selected for each record, and the record is replicated and synchronized with the other products.

SQL Server Maintenance

SQL Server statistics that are out of date and tables and indexes that are significantly fragmented adversely affect system performance. You can monitor their condition and take steps to enhance their performance.

Statistical Information

SQL Server uses statistical information about the distribution of values in a column to determine the optimal strategy for evaluating a query. Distribution statistics help the system estimate how efficient an index would be in retrieving data associated with a key value or range specified in the query.

As the data in a column changes, index and column statistics can become out-of-date, affecting query performance. The statistics should be refreshed anytime significant numbers of changes to keys occur in the index.

We recommend that you update statistics nightly or weekly for best performance (see “Update Statistics” on page 74).

You can use the dbcc show_statistics statement to generate a report on the distribution statistics for an index. The statements in this section use the following syntax:

```
dbcc show_statistics (table_name, index_name)
```

In SQL Server Management Studio, with the application database selected as the current database, the following statements show the current statistics and the last time statistics were updated for primary keys in major tables:

```
dbcc show_statistics (item, pk_item)
dbcc show_statistics (customer, pk_customer)
dbcc show_statistics (ledger, pk_ledger)
dbcc show_statistics (matltran, pk_matltran)
dbcc show_statistics (matltran_amt, pk_matltran_amt)
```

```
dbcc show_statistics (journal, pk_journal)
dbcc show_statistics (ledger_all, pk_ledger_all)
```

The results indicate the selectivity of an index (the lower the density returned, the higher the selectivity) and provide the basis for determining whether an index is useful in optimizing queries.

See SQL Server Help for dbcc show_statistics and other DBCC (Database Console Commands) statements.

Update Statistics

Use the Transact-SQL statement UPDATE STATISTICS if:

- A process suddenly takes much longer than usual to run
- There is a significant change in the key values in an index
- A large amount of data in an indexed column has been added, changed, or removed, or the table has been truncated using the TRUNCATE TABLE statement and then repopulated.

We recommend that you update statistics nightly or weekly.

This example updates the statistics for all indexes on the customer table.

```
UPDATE STATISTICS customer
```

To update statistics for all tables in the current database, you can run the SQL Server stored procedure sp_updatestats, which uses UPDATE STATISTICS:

```
EXEC sp_updatestats
```

For more information, see SQL Server Help for UPDATE STATISTICS and sp_updatestats.

Fragmentation Information

Fragmentation occurs through data modifications (INSERT, UPDATE, and DELETE). For queries that scan part or all of a table, this fragmentation can cause additional pages to be read, adversely affecting performance.

You can use the Transact-SQL DBCC SHOWCONTIG statement to display fragmentation information for the data and indexes of a specified table.

To determine whether a table is heavily fragmented, use the following syntax in SQL Query Analyzer, with the application database selected as the current database:

```
DBCC SHOWCONTIG (table_name)
```

In the result set, the value of Logical Scan Fragmentation gives an indication of the table's fragmentation level. The value should be close to zero, although a value from 0% through 10% may be acceptable.

To show in a grid an abbreviated result set for every index on every table, use:

DBCC SHOWCONTIG WITH TABLERESULTS, FAST

To show the full result set for every index on every table, use:

DBCC SHOWCONTIG WITH TABLERESULTS, ALL_INDEXES

For more information, see SQL Server Help for DBCC SHOWCONTIG.

Defragment Indexes

We recommend that you rebuild your table indexes on a weekly basis if possible.

The Transact-SQL DBCC INDEXDEFRAG statement defragments indexes of a specified table, improving index-scanning performance.

```
DBCC INDEXDEFRAG (database_name, table_name, index_name)
```

The script below uses DBCC INDEXDEFRAG and DBCC SHOWCONTIG to defragment all indexes in a database fragmented above a declared threshold of 30 percent. The script is from Microsoft's Transact-SQL Reference, copyright © 2004 Microsoft Corporation, One Microsoft Way, Redmond, Washington 98052-6399 U.S.A.; all rights reserved.

Note that you must specify a database before you run the script.

```
/*Perform a 'USE <database name>' to select the database in which to
run the script.*/
-- Declare variables
SET NOCOUNT ON
DECLARE @tablename VARCHAR (128)
DECLARE @execstr VARCHAR (255)
DECLARE @objectid INT
DECLARE @indexid INT
DECLARE @frag DECIMAL
DECLARE @maxfrag DECIMAL
-- Decide on the maximum fragmentation to allow
SELECT @maxfrag = 30.0
-- Declare cursor
DECLARE tables CURSOR FOR
SELECT TABLE_NAME
FROM INFORMATION_SCHEMA.TABLES
WHERE TABLE_TYPE = 'BASE TABLE'
-- Create the table
CREATE TABLE #fraglist (
ObjectName CHAR (255),
ObjectId INT,
IndexName CHAR (255),
IndexId INT,
Lvl INT,
CountPages INT,
CountRows INT,
```

```
MinRecSize INT,
MaxRecSize INT,
AvgRecSize INT,
ForRecCount INT,
Extents INT,
ExtentSwitches INT,
AvgFreeBytes INT,
AvgPageDensity INT,
ScanDensity DECIMAL,
BestCount INT,
ActualCount INT,
LogicalFrag DECIMAL,
ExtentFrag DECIMAL)

-- Open the cursor
OPEN tables

-- Loop through all the tables in the database
FETCH NEXT
FROM tables
INTO @tablename

WHILE @@FETCH_STATUS = 0
BEGIN
-- Do the showcontig of all indexes of the table
  INSERT INTO #fraglist
  EXEC ('DBCC SHOWCONTIG (''' + @tablename + ''')
      WITH FAST, TABLERESULTS, ALL_INDEXES, NO_INFOMSGS')
  FETCH NEXT
      FROM tables
      INTO @tablename
END

-- Close and deallocate the cursor
CLOSE tables
DEALLOCATE tables

-- Declare cursor for list of indexes to be defragged
DECLARE indexes CURSOR FOR
   SELECT ObjectName, ObjectId, IndexId, LogicalFrag
   FROM #fraglist
   WHERE LogicalFrag >= @maxfrag
     AND INDEXPROPERTY (ObjectId, IndexName, 'IndexDepth') > 0

-- Open the cursor
OPEN indexes


-- loop through the indexes
FETCH NEXT
   FROM indexes
   INTO @tablename, @objectid, @indexid, @frag
```

```
WHILE @@FETCH_STATUS = 0
BEGIN
  PRINT 'Executing DBCC INDEXDEFRAG (0, ' + RTRIM(@tablename) + ',
    ' + RTRIM(@indexid) + ') - fragmentation currently '
     + RTRIM(CONVERT(varchar(15),@frag)) + '%'
SELECT @execstr = 'DBCC INDEXDEFRAG (0, ' + RTRIM(@objectid) + ',
     ' + RTRIM(@indexid) + ')'
EXEC (@execstr)

FETCH NEXT
   FROM indexes
   INTO @tablename, @objectid, @indexid, @frag
END

-- Close and deallocate the cursor
CLOSE indexes
DEALLOCATE indexes

-- Delete the temporary table
DROP TABLE #fraglist
GO
```

Customizations

Customizations to Factory Track should be evaluated for performance along with standard product components. You should ensure that indexes for new tables are designed correctly and maintained adequately. If a custom feature performs slower than when it was first implemented, determine whether unneeded records are causing the performance reduction.

Custom reports and processes should be evaluated to see if they are reading the least number of records. BI queries should be similarly evaluated for efficiency.

User Actions

End users' practices can slow Factory Track performance. Actions such as querying an unlimited number of records into a form, specifying overly broad query criteria in reports, and running unneeded reports increase network traffic and can tax database resources.

Reduce the Number of Rows Returned in Queries

In WinStudio, users can choose to retrieve all rows or any specified maximum number of rows in queries. This option overrides a default limit set on queries that return data records and items in dropdown lists. However, unlimited queries can degrade system performance or exceed the resources of the utility server and the client machine.

The process default WinStudio Max Record Cap allows you to set a systemwide limit on the number of records or drop-down list items that users can query into forms. The limit overrides any setting made by the user in WinStudio. See the Help for the Process Defaults form.

Reduce the Scope of Reports

Report users should be sure to set criteria in a such way that the system returns only the information needed for the purposes of the report. Users should limit the range of time frames and other criteria to prevent needless processing.

Users should avoid running unnecessary reports.

Locking and Blocking

Locking prevents users from reading data being changed by other users, and prevents multiple users from changing the same data at the same time. If locking is not used, data within the database may become logically incorrect, and queries executed against that data may produce unexpected results. SQL Server enforces locking automatically. Locking can occur at record, page, or table level.

Blocking occurs when one user holds a lock and a second user requires a conflicting lock type. This forces the second user to wait, blocked by the first. Typically, the second user sees an hourglass while trying to process or save records. Most blocking problems happen because a single process holds locks for an extended period of time, causing a chain of blocked processes. A design goal is to minimize the amount of time a record is locked to reduce the potential blocking of another user.

A deadlock arises when two processes have data locked, and each process cannot release its lock until the other process has released its lock. SQL Server rolls back one of the transactions and then allows the other transaction to continue.

Monitor Blocking

The utility SyteLine SQL Performance Log allows you to monitor blocking and to log the results. Download the utility from the support site http://www.infor.com/inforxtreme. For more information, see knowledge base numbers 686928 and 669045.

Set the Collection Read Mode (Transaction Isolation Level)

You can specify whether form queries read committed or uncommitted data by setting the Collection Read Mode. The setting applies to queries that load primary collections, secondary collections, and lists, and to in-collection validations. It also applies to background-task queries that generate reports and to background-task stored procedures. The setting does not affect SQL SELECT operations or other processing coded in stored procedure (method) calls. The default Collection Read Mode, UNCOMMITTED, corresponds to the Transact-SQL statement SET TRANSACTION ISOLATION LEVEL READ UNCOMMITTED.

With the UNCOMMITTED setting, which allows the reading of uncommitted data, users do not have to wait for other long-running transactions that access the same dataset to complete before their queries can complete.

With the COMMITTED setting, a query reads committed data and returns only data for which the query can get a shared lock.

The base, systemwide transaction isolation level is set on the Process Defaults form. Note that if this setting is unsuitable for all forms and tasks, you can override it for selected forms and tasks. You can set the isolation level for individual reports and stored procedures on the Background Task Definitions form. You can also override the system setting at the form level in WinStudio edit mode. See "Set the Read Mode for a Collection" in the Help for WinStudio edit mode and "Setting Transaction Isolation Levels" in the Help for Infor Factory Track.

Prevent Locking of the Journal Table During Mass Journal Posting

Posting a large number of transactions with the Mass Journal Posting form can set an exclusive lock on the journal table. This prevents users from inserting data into the table until the posting is complete.

The process default Journal Posting - No Table Locks allows you to override this behavior. The value 1 prevents an exclusive table lock from being taken during mass journal posting. The value 0 does not prevent a lock. The setting applies to both forms and the background task that runs journal posting without middleware. See the Help for the Process Defaults form for more information.

Prevent Blocking of Other Processes When Rolling Current Costs to Standard Costs

Normally, the Roll Current Cost to Standard Cost utility processes all current costing data at one time. When processing large amounts of data, this can block other processes, such as adding jobs, adding CO lines, using the Purchase Order Receiving form, or opening the Customer Order Lines form.

The process default Roll Current to Standard - No Table Locks allows you to override this behavior. Changing this setting from 0 (the default) to 1 can eliminate this blocking. You should understand, however, that selecting this option can also slow down the Roll Current Cost to Standard Cost utility processing.

Prevent Deadlocks on the Item Table During Certain Operations

Deadlocks on the item table can occur during certain operations involving bills of materials that contain many items. The Lock Job Items process default determines whether job items are locked during these operations. With the value 1, operations such as releasing a job, which copies the bill of materials, and posting a job will lock all item records in blocks according to the operation number. The default value, 0, does not lock item records. See the Help for the Process Defaults form.

Avoid Long Delays from Deadlocks

A high value for the process default Number of Deadlock Retry Attempts can cause users to experience excessive delays from deadlocks. The value 3 is a recommended starting point. See the Help for the Process Defaults form.

Windows Tools

Memory - Use Perfmon to determine memory usage and to determine if expansion is needed. If additional memory is used as AWE memory, verify in the SQL Server error log that the statement "Address Windowing Extensions enabled" exists.

SQL Server Stored Procedures and Commands

The items in this section can be used to return information related to performance.

- sp_who and sp_who2 - The stored procedure sp_who shows what SPID is blocked; sp_who2 shows who is blocking.
- sp_helpindex (table_name) - Gives index information on a table.
- DBCC OPENTRAN - Determines whether an open transaction exists within the log.
- DBCC INPUTBUFFER (SPID) - Displays the last statement sent from a client to SQL Server.
- DBCC Trace On - Enables specified trace flags.

Troubleshoot Timeout Errors

If you receive timeout errors when executing long-running processes, use this section as a troubleshooting guide. The items listed are listed in the order you should check them. It’s a good idea to keep track of the original settings so you can change them back if you like.

1. **Configuration Manager** - On the Utility Server select **Start > All Programs > Infor > Tools > Confguration Manager**. Select the configuration and click the **Edit** button. For the application database, ensure **Query Timeout** is set to **0** to make the timeout unlimited.
2. **SQL Server** - On the SQL Server (database server), open SQL Management Studio and log in. Right-click on your SQL Server and select **Properties**. Click **Advanced**. Set the value of **Query Wait** to **0** to make the timeout unlimited..
3. **MSDTC** - On the Utility Server, select **Start > All Programs > Administrative Tools > Component Services**. Expand until you find **My Computer**. Right-click on **My Computer** and select **Properties**. Click the **Options** tab and set **Transaction Timeout** value to **0**.
4. **httpRuntime executionTimeout**. - This setting is located within the web.config file on the utility server where IIS is running. Find web.config here - C:\Inetpub\wwwroot\IDORequestService. This file is delivered with Infor Factory Track. The maximum is 7800. Open the file and look for the following:

   ```
   <httpRuntime executionTimeout="number" maxRequestLength="16384"/>
   ```

   Change number to 7800.
5. **machineSettings maxTimeout** - This setting is located within the machine.config file on the utility server. Find this file here - C:\WINDOWS\Microsoft.NET\Framework\v2.0.50727\CONFIG. Infor does NOT distribute this file as part of Infor Factory Track. Change this setting to 2 hours. To do this, make an entry in the machine.config file.

   In the machine.config file, find: **</**configuration**>** and just inside of it (to the left of it) add the following:

```
<system.transactions>
<defaultSettings distributedTransactionManagerName=""
timeout="02:00:00"/>
<machineSettings maxTimeout="02:00:00"/>
</system.transactions>
```

Database Name Change

8

If for any reason you have changed the name of your application database, you must also change a pointer in the system to that new database name.

- Sites/Entities form - On the System Info tab, change the Database Name field to the new name.

Runtime Options

The following functions in the menus listed below are not available in web client:

From the Form Menu

- Page setup
- Print preview
- Print
- Export to File
- Workspaces

From the View Menu

Some of the items on the view menu listed below are visible, but they behave differently than they do in a Smart Client.

- Explorer
- Diagnostics
- Inbox
- Task List
- Status bar

- System Notes
- Activate Next Collection
- Home Cursor
- Activate Pane 1 (and 2)
- Warnings

Window Menu

There is no window menu.

Non-supported Items

The items in this list are not supported for the web client. Many of these items will be supported in subsequent releases.

- The Communication Wizard (for Customers, Sales Contact Groups, and Campaigns) is not supported.
- The following forms do not display in web client: Web Browser, Export Routing BOM, BOM Import Builder, User Calendar, and Calculator.
- Forms that have "browse" buttons to present an open file dialog have those buttons disabled. On the License Management form for example, you can not browse to a license file. You must paste in the contents of the file.
- Auto-insert (*) row in grids is not supported.
- The following Factory Track forms are not currently supported in the web client: Replication Document Inbox and Replication Document Outbox.
- Because web browsers typically use original defaults for the regional language you are on, if you customize the regional language settings to alter the format of how dates, numbers, and times display, these customized changes show up on the smart client but not in the web client.
- You can not double-click in any browser on a phone.
- Tap-and-Hold on mobile browsers is treated as right-click.
- In some browsers, controls DataView forms might not refresh as expected.
- The right-click menu does not include cut, copy, or paste.

Form Component Types

User Control

The winforms UserControl assemblies currently provided do not run in web client. However, you can make a UserControl component work in both winforms and web client by retaining the winforms assembly and specifying a web assembly and URL. The web assembly contains a non-winforms class derived from our WSUserControlBase class or by implementing the interface. This implements the server-side communications between the WinStudio runtime and your code.

You can write a web page which communicates with our web browser infrastructure via a javascript API which includes the ability to post requests back to WinStudioRuntime as well as to receive messages from the WinStudioRuntime in the browser.

The web assembly gets deployed on the web client web server. The web content can then be deployed wherever you wish.

WinStudio Diagnostics

For web client, there is no client support for WinStudio Diagnostics. However, if you need to use this capability on the web/utility server, follow these steps:

1. On the web/utility server for the Web Client, edit the user preferences .xml file, which is found here - c:\ProgramData\Mongoose. ProgramData is a hidden folder, so you will have to unhide it to see it. The name of the user preferences .xml file follows this naming syntax "<application name>Prefs<Infor Factory Trackusername>.xml".
2. Find the section in the .xml file for diagnostics, and enable the settings you want by changing the value of the tags from a 1 to a 0.Use this form to set up form-level security for a user or to set up security for a user based on a middletier IDO.
3. Run LogMonitor.exe.

   Now if you log in as that user on a configuration for that application, you will see the WinStudio diagnostics in Log Monitor.

Event Handler Response Types

- **Timer** - not supported
- **RunExe** - not supported

Other Non-Supported Items

Doc-Trak Disabled Forms

Users with a Doc-Trak license will not be able to use the following forms when running Web Client:

- LC_DT_ScannersSetup
- LCDTIndentedJobBOMQueryResults
- LCDTPrintBPOPaperwork
- LCDTPrintESTPaperwork
- LCDTPrintJobPaperwork
- LCDTPrintOVPaperwork
- LCDTPrintPOPaperwork
- LCDTPrintRMAPaperwork

Forecasting

- The Forecast Sales Analysis form is not supported.

Workbench Suite

There are a handful of notable differences regarding Workbench Suite behavior when comparing the Web Client to the Smart Client. Critical Number Gauges behave the same in the Web Client as they do on the Smart Client with the exception of right-click display settings support and the thermometer style gauge. While you can drill down into the details of a critical number (assuming it is configured to do so), drilling into the maintenance form from the critical number details (with filtering to a selected record) is not supported in the web client.

The DataView Results Grid have a slightly more noticeable reduction in features as listed in the table below. Over time it is expected that the difference between the two means of access will decrease as the Web Client is enhanced to support more advanced features.

DataView Features	Smart Client	Web Client
Data Grouping	✓	✓
Column Summaries	✓	✓
Simple Filtering	✓	✓
Quick Refresh	✓	✓
Quick Setup	✓	✓
Layout Selection	✓	✓
Right-click Drill-in Details	✓	
Column Management (Scroll Lock, Arrangement, Selection)	✓	
Custom Calculated Column Setup & Access	✓	
Advanced (Excel Style) Filtering	✓	
Layout Maintenance	✓	
Results Printing	✓	
"Send To" Functionality (PDF and Excel)	✓	
Styles	✓	

Command Line Utilities

You can use the command line utilities in this chapter to perform configuration tasks in Mongoose.

InforDBCL.exe

This utility contains all configuration tasks involving databases. The available commands with some examples are:

- createdb - Use this command to create a new database.

  Example: To create a SyteLine Application database while redirecting the log file to the administrator user's desktop

  ```
  infordbcl.exe createdb -databasename:CmdApp -username:sa -password:Sql2012
  -servername:win2012 -dbtype:App -product:SL - log:c:\users\administrator\
  desktop\applog.txt
  ```

- patchdb - Use this command to patch an existing database to the service pack level.

  Example:

  ```
  Infordbcl.exe patchdb -databasename:CmdApp -username:sa -password:Sql2012
  - servername:win2012 -dbtype:App -product:SL -config:test
  ```

- linkmultisite - Use this command to link multisite databases
- applytrans - Use this command to apply a translation to a set of databases

  Example:

  ```
  Infordbcl.exe applytrans -config:SL9 -trans:es-mx -product:SL
  ```

- applypack - Use this command to apply either an Industry Pack or a Localization to a set of databases

  Example (without reloading reports):

  ```
  Infordbcl.exe applypack -config:SL9 -pack:automotive -product:SL
  ```

InforWebCL.exe

This utility contains all configuration tasks associated with IIS and clients. The available commands with some examples are:

- webclient - Use this command to configure the web client

  Example: To create a SyteLine Application database while redirecting the log file to the administrator user's desktop

  ```
  Inforwebcl.exe webclient -product:SL
  ```

- smartclient - Use this command to configure the smart client

  Example:

  ```
  Inforwebcl.exe smartclient -webserver:win2012 -appname:"SL ClickOnce Client" -product:SL -root:SLClientDeploy
  ```

- webapp - Use this command to configure a web application (such as IDORequestService or InboundQueue)

  Example: create IDORequestService web application

  ```
  Inforwebcl.exe webapp -dir:IDORequestService
  ```

- xbap - Use this command to configure the smart client via web (aka XBAP client)

  Example: configure smart client via web with default values

  ```
  Inforwebcl.exe xbap -webserver:win2012 -appname:"SL XBAP Client" - product:SL
  ```

- enduser - Use this command to configure the end user client shortcut

  Example: create a desktop shortcut to Infor CloudSuite

  ```
  Inforwebcl.exe enduser -configserver:http://win2012/IDORequestService/ConfigServer.aspx -product:SyteLine -shortcutname:"Infor CloudSuite"
  ```

InforServiceCL.exe

This utility contains the configuration tasks dealing with Windows services and replication. The available commands with some examples are:

- replication - Use this command to configure Mongoose replication.

  Example: `Inforservicecl.exe replication -server:win2012 - repuser:win2012\administrator -reppassword:test123 - listeneruser:win2012\administrator -listenerpassword:test123`

- taskman - Use this command to set the TaskMan service credentials.

  Example (to set service credentials for TaskMan on local computer):

  ```
  Inforservicecl.exe taskman -LogonAcct:win2012\administrator - LogonPwd:test123
  ```

- reportservices - Use this command to Configure Report Services and deploy reports to the Report Server.

  Example: `Inforservicecl.exe reportservices -url:http://report.server.com/ReportServer -folder:SyteLineReport -dir: "C:\Program Files (x86)\Infor\SyteLine\Report\Reports"`