Infor CloudSuite Industrial System Administration Guide

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Infor CloudSuite Industrial Contents

About This Guide

The *System Administration Guide* contains background or supplemental information to answer questions you may encounter as you manage and maintain Infor CloudSuite. Infor CloudSuite 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 Infor CloudSuite, 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 Infor CloudSuite system, see the *Infor CloudSuite Industrial Installation Guide*. For information about using the Infor CloudSuite system, see the Infor CloudSuite online help. Consult this manual when you have questions about Infor CloudSuite design or architecture.

Additional Infor CloudSuite Industrial Documentation

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

Online Help

Infor CloudSuite online help gives you instant access to procedures and information about forms and fields. You can access Help from Infor CloudSuite forms, from other topics within Help, or from the search (index) function. Select **Help > Contents and Index** from the Infor CloudSuite 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.

Scheduling an Installation

To schedule an Infor CloudSuite installation, contact your customer sales representative or district service manager.

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
- Infor CloudSuite 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

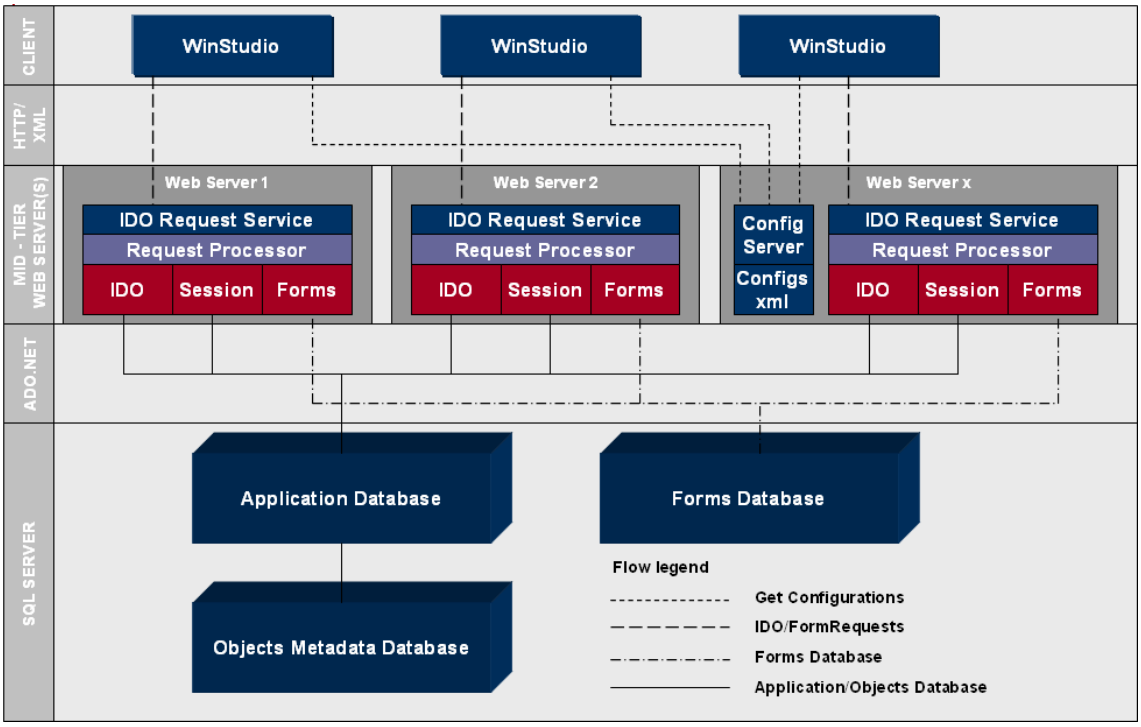
If you are not currently on support and would like more information on your support options, please call your customer account representative. If you are not sure who your account representative is, contact Infor Customer Service.

Chapter 1: System Architecture

1

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

Below is a diagram of the architecture.



Note: The above diagram applies to environments with multiple web servers. In environments with just one web server (the utility server typically serves as a web server), only "Web Server x" would be used.

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.

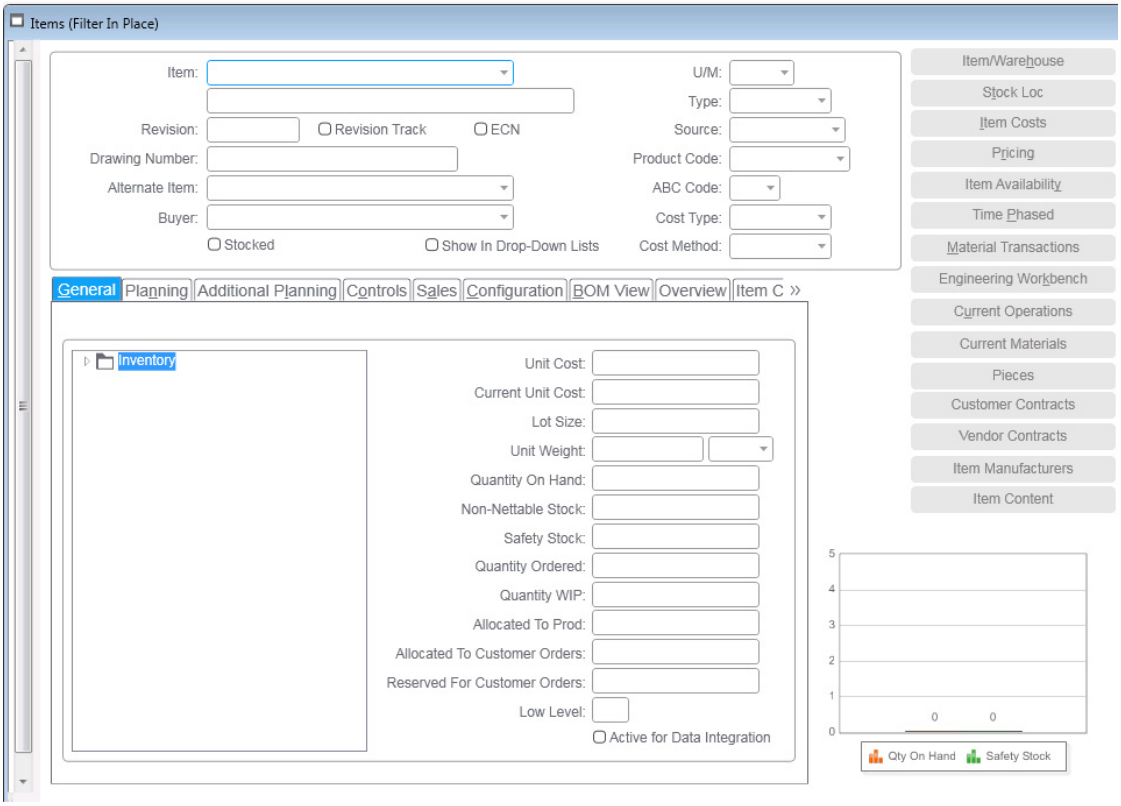
Application Database

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 Infor CloudSuite. The application database holds all of the application data for Infor CloudSuite, such as customer, item, customer order, etc. 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 Infor CloudSuite. This information is stored on the database server.

For example, in the Items form shown below, components such as text boxes, labels, tabs, radio groups, 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

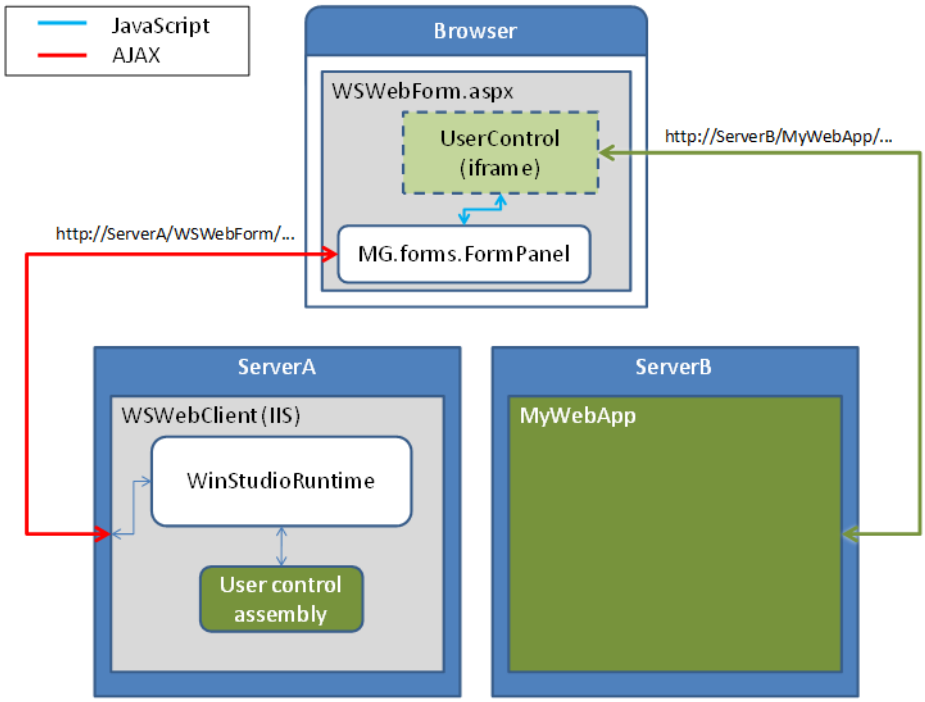
The client is where the user interacts with the application data and can customize forms.

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.



Classic View

When you run the web client, it has a default appearance. If you would like to view the interface in the classic view, add **/classic.aspx** to the end of the standard Web Client URL in the browser. This view persists until you end the session.

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 Infor CloudSuite 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 Infor CloudSuite client will be available to all users. Please contact your Terminal Server administrator for assistance.

Chapter 2: Infor Framework TaskMan and Background Tasks

2

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 Infor CloudSuite 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
- Launches applications such as EDI, MRP, and APS
- Processes and generates reports (for more information about TaskMan specific to reports, see the *Creating and Customizing Reports* guide)
- Runs IDO methods

Polling the Application Database

TaskMan polls the application database to identify new tasks to run. It uses the polling interval defined on the **Intranets** form. On startup it connects to the application database.

When a task is found that is waiting to be run, the task information (including executable, type of task parameters, and user name) is queried and the appropriate processing is performed.

Executing SQL Stored Procedures

For a SQL stored procedure, the TaskMan launches a database process thread. The database process then connects to the application database. It logs in as the Infor CloudSuite user who submitted the task. The stored procedure is then executed using the process connection.

Launching Applications

TaskMan launches a system process to execute any valid Windows application such as EDI (EDIImporter.EXE) and the Infor CloudSuite Scheduler (AIM_BATS.EXE), enabling the application to carry out its processing. The application is executed under the user account used by the Infor CloudSuite TaskMan service.

Setup During Installation

TaskMan is installed and configured as part of the Infor CloudSuite 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 CloudSuite Installation Guide*.

The installation process:

- Installs TaskMan on the utility server, which places the RunReport.exe program, the TaskMan.exe program, 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 Infor CloudSuite, the **Sites/Entities** form is called the **Sites** form.

The Service Configuation 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, 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.

- 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

Enabling E-mail Attachments

To enable e-mail attachments:

1 Open the **Intranets** form.

2 Select the desired site.

3 On the **Reports/TaskMan** tab, make sure that the **Send Email Notification** field is selected.

Activating E-mail Notifications

For each report designed to send e-mail notifications, perform these tasks:

1 Open the **Report Options** form.

2 For each report that will send e-mail notifications, select **Yes** in the **E-mail Notification** field.

Note: Depending on how you have organized your report options, you might have to create new records for the reports that will use e-mail notifications.

Entering User E-mail Addresses

To enter e-mail addresses for users:

1 Open the **Users** form.

2 For each user who is to receive e-mail report notification, ensure that a valid e-mail address has been entered.

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 Infor CloudSuite 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 Infor CloudSuite 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 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 **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 CloudSuite 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 Infor CloudSuite 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.

Database Connections

TaskMan will update ActiveBGTasks and BGTaskHistory for EXE tasks. It is up to the executable to handle all other database connections.

Returning Error Information

To get information back to TaskMan from an executable, use any of these methods in the EXE:

- Put a message in the ProcessErrorLog table. These messages appear in the **Task Messages** tab on the **Background Task History** form.
- Print the error message in a file called

  taskman-install-directory\Output*task-name_task-number*.txt

  (For example, C:\Program Files\Infor\Syteline\TaskMan\Output\APChecks_435.txt) TaskMan uses this as an error message in BGTaskHistory.
- Return an integer error code. TaskMan puts the EXE return code in the BGTaskHistory table, with return code 0 indicating success.

IDO Methods

This example shows the steps to set up an IDO method that runs usingTaskMan 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 CloudSuite will not allow you to use ~LIT~ syntax as part of a value. If white spaces are significant, use the usual Infor CloudSuite keywords such as P(...), V(...), C(...), and FPC(...), FV(...), or FC(...).

3 Save the form and event.

Managing Background Tasks

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 Infor CloudSuite.
- Tasks whose status is RUNNING are currently processing and cannot be deleted from the queue from within Infor CloudSuite.
- 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 within Infor CloudSuite, you can use the Windows Task Manager to do so if you need to stop a long-running process. Note that the Windows Task Manager is different from the TaskMan described in this chapter.

Deleting a Waiting task

When you delete a task on the **Active Background Tasks** form, both the record and the corresponding SQL Server job are deleted.

It is possible to use the **Background Queue** form to add a task several times. This adds job steps to the SQL job. When you delete a task with multiple job steps from the **Active Background Tasks** form, be sure to delete the correct job step.

To delete the task, mark the record for deletion and then save it.

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 CloudSuite, 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**.

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 Infor CloudSuite 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 ActiveBGTasks and BGTaskHistory tables.
BG~TASKNAME~	Replaced by the task name from the BGTaskDefinitions table.
BG~CONFIG~	Replaced by the Infor CloudSuite 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.
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.

Keyword	Description
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** 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\OutputFiles\<*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~	Infor CloudSuite 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 CloudSuite 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.

Caution: 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.

Caution: 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 Infor CloudSuite 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 an Infor CloudSuite 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 Infor CloudSuite form.

This is probably a bug in the sequence of form events the Infor CloudSuite 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 CloudSuite 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 E-mail 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.

Chapter 3: License Management

3

As System Administrator, you need to manage your license agreement, and Infor CloudSuite 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

There are two kinds of users:

- **Multi-session User** - Multi-session users are shown in the Multi-Session Users tab on the **License Managemen**t form. Most installations will have one entry here, where the user name is SL_Internal. See “Multi-Session Users” on page 54 for more information about multi-session users.
- **Single-session User** - Single-session users are all the other users that appear in 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 a 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

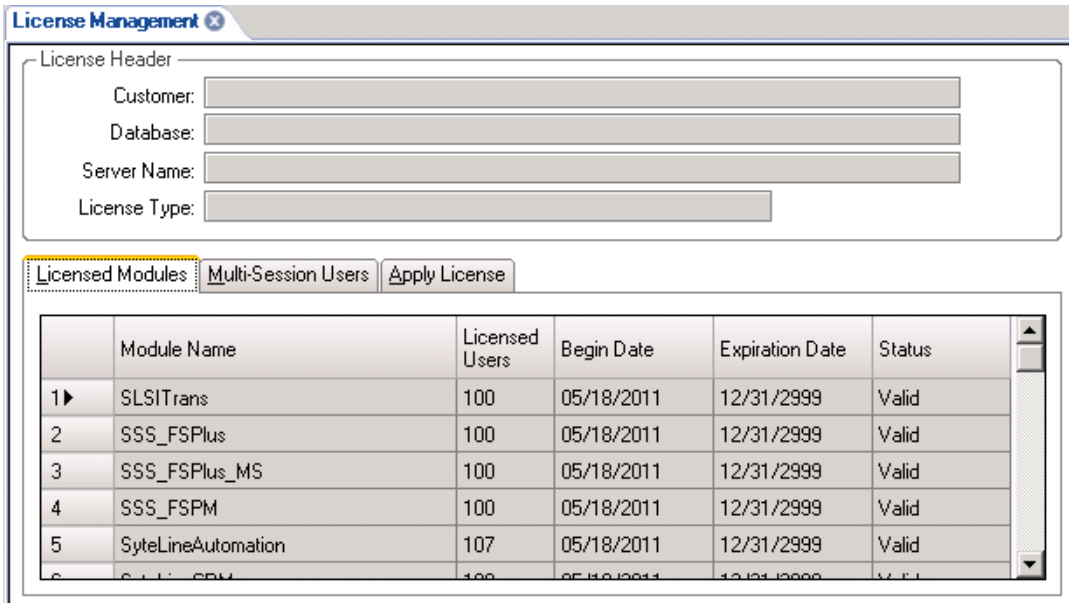
Each license module can be assigned one or more of these three Session Types or a default of "Undefined" (meaning that module is always considered regardless of the current session's Session Type). The Session Type is included during licensing enforcement in the following ways:

- 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 (enhancement was in version 8.02.10).

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

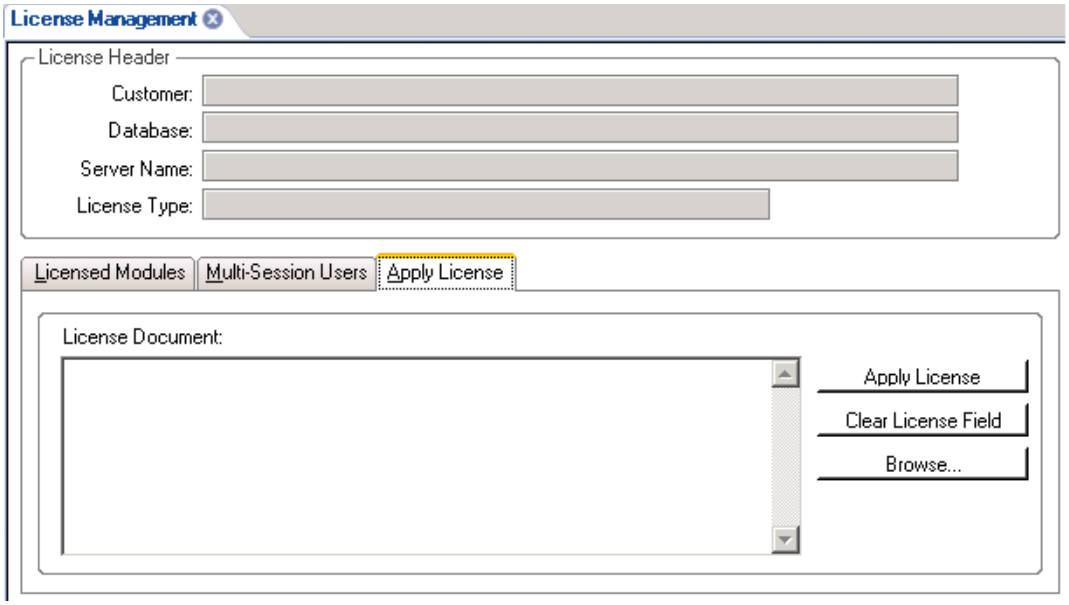
This form allows you to manage your company's license agreement. The form shows when the license begins and ends, which modules are licensed, and it is where you apply the license to stay current.



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. Any previous multi-session users that you had are deleted and replaced with the ones defined in the new license document. See “Multi-Session Users” on page 54 for information about multi-session users.

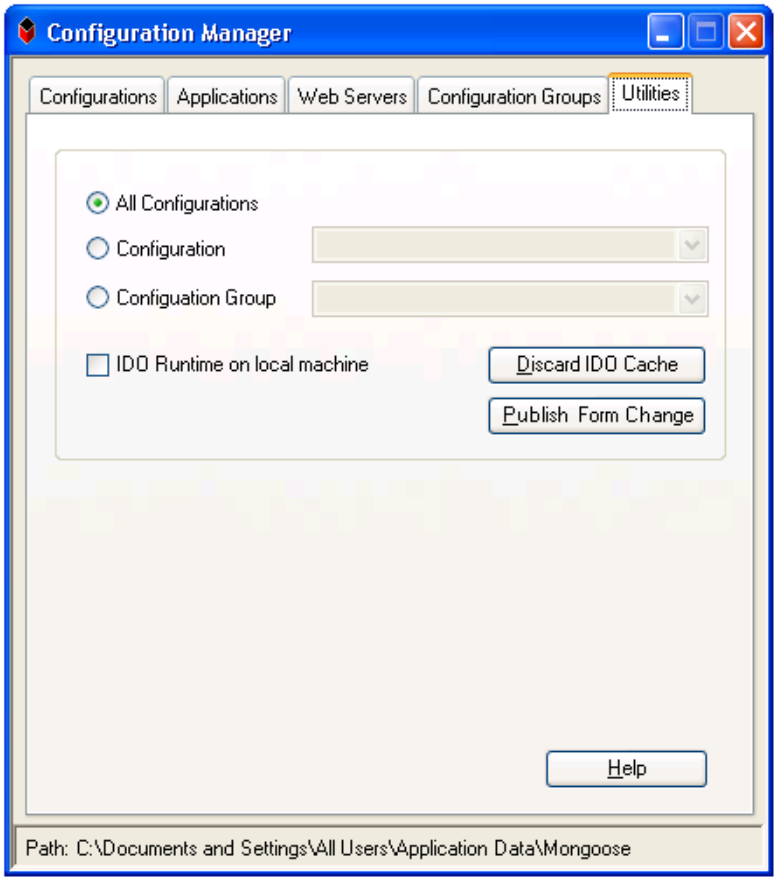
Note: Let's assume you are applying a new license to replace an old one for the SyteLineTrans Users module. The old license was for 50 users, and the new one is for 40. When you click the Apply License button, you get an error message. If the new license is for fewer users than the old license, you need to go to the Users Module form and delete users' association with the SyteLineTrans 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.

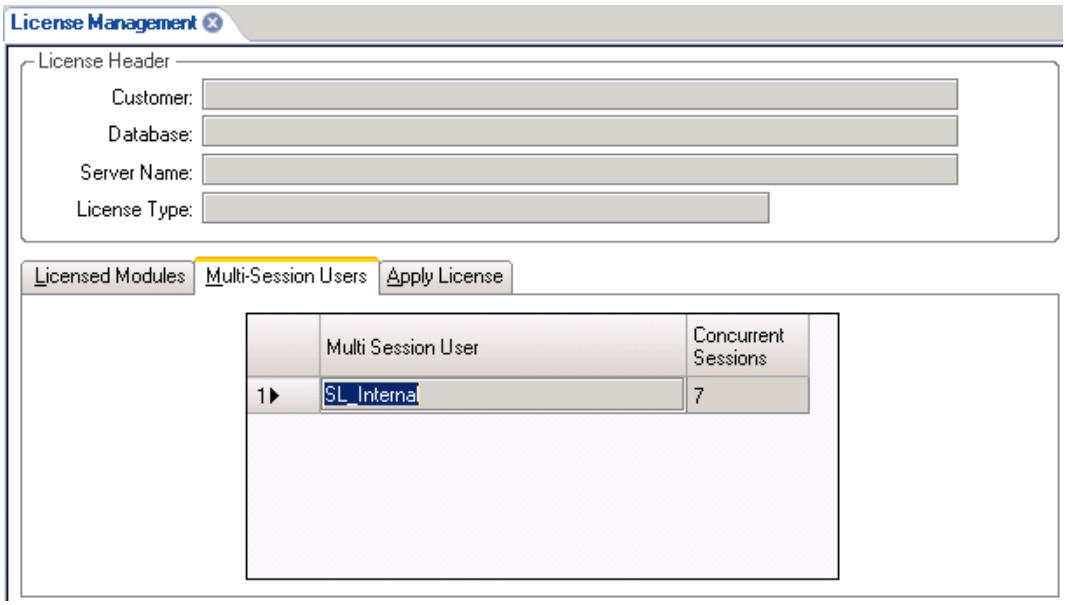
1. On the utility server, open the **Configuration Manager**.

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.

Multi-Session Users



On the **License Management** form, click the **Multi-Session** user tab to see the form as shown above.

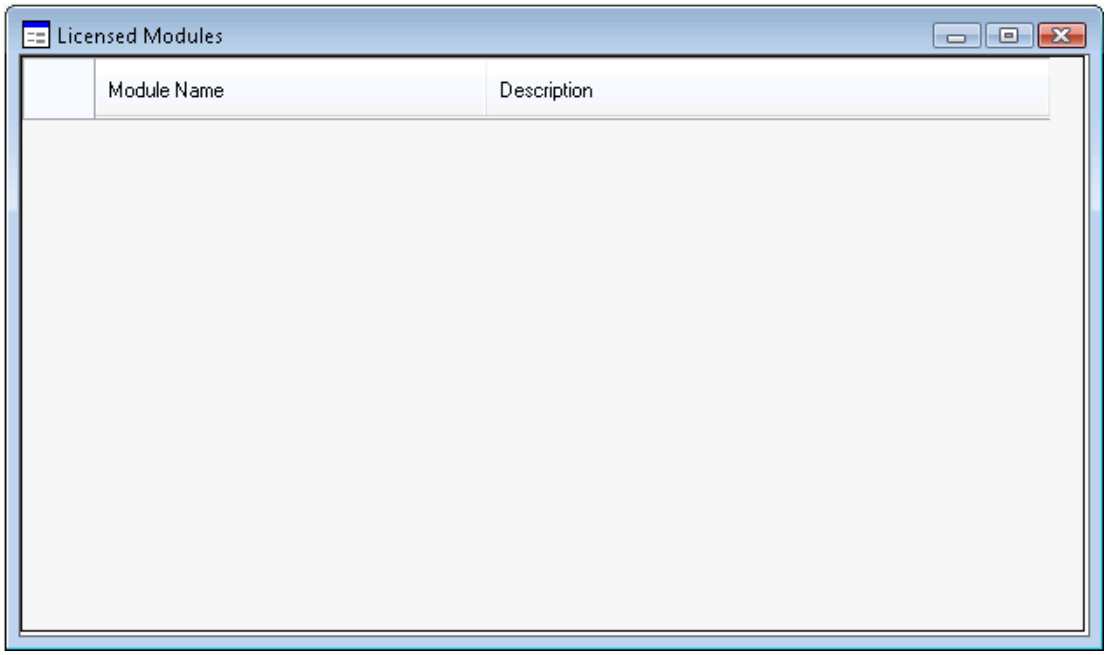
A multi-session user is able to have more than one session open at a time. This is necessary for Data Collection users.

All Infor CloudSuite customers are given one multi-session user named **SL_Internal**. This user can have 5 concurrent sessions. If you are a data collection user, you will get one additional session.

If you are not a multi-session user and you try to login on machine B while you are still logged in on machine A, you get a message asking if you want to end the session on machine A. If you do this, your session on machine A is deleted and you are logged in on machine B. Any unsaved data on machine A is lost, so only end that session if you are sure you have saved all your data.

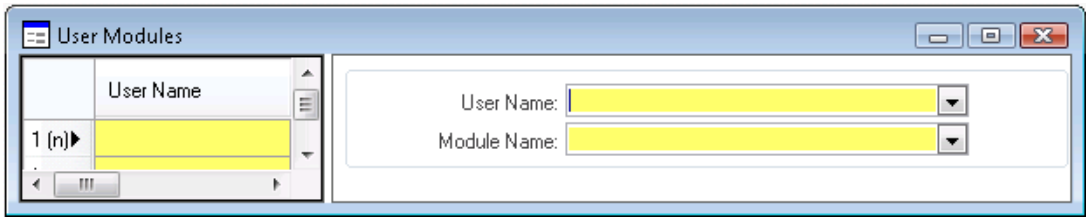
The SL_Internal user needs to have the appropriate permissions set in the Users form. See the *Infor CloudSuite Installation Guide* for information on how to appropriately set those permissions.

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 SyteLineTrans Users module. This means that user Bob is taking one of your company's license tokens for the SyteLineTrans 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 the user logs in.

Possible license modules and their associated access capabilities are:

License Module	Access Capabilities
SyteLine APS	APS Mode form to enable APS
SyteLineATT	Allows you to use FASView and FASMail tools (separately installed).
SyteLineAutomation	IDO Access, Microsoft Outlook integration, Microsoft Project integration
SyteLineCCI	Allows you to access the Credit Card Interface forms, as well as related fields and buttons on other forms
SyteLineCN	Allows access to the China Localization forms
SyteLine Config	Allows you to run BuyDesign and access forms and fields related to that product
SyteLineCRM	Allows Infor CloudSuite customers who also use Epiphany CRM to enter estimates and orders in Infor CloudSuite.
SyteLineDev	Allows access to developer forms.
SyteLineEntity	All GL Entity forms (functions)
SyteLineFSP	Allows access to all Infor CloudSuite Service forms and related fields and buttons on other forms
SyteLineFSP_DC	Allows access to a few forms to allow a user to enter Material and Labor transactions for a Service Order. This license is intended for technicians who need limited access.
SyteLineFSP_MS	Allows a SyteLineFSP_MS user to access most of the forms in an additional site. NOTE: Legally, users with this license must have a matching SyteLineFSP license in their “Home” site.
SyteLineFSPM	Allows access to all Plant Maintenance forms and related fields and buttons on other forms
SyteLineFSPM_MS	Allows a Plant Maintenance user to access Plant Maintenance related forms in an additional site. NOTE: Legally, users with this license must have a matching SyteLineFSPM License in their “Home” site.
SyteLineInquiry	All Query forms, All Report Options forms, Customer Inquiry, Vendor Inquiry, Item Availability
SyteLineIOF	Allows access to Instant Order Fulfillment forms (separately installed)
SyteLineJP	Allows access to all Japan Localization forms
SyteLineMobile	All forms that are accessed by a mobile device
SyteLineMobileMultisite	All forms that are accessed by a mobile device in a multi-site environment
SyteLineMX	Allows access to all Mexico Localization forms
SyteLineOfficeIntegration	Allows you to display custom Infor CloudSuite forms such as the Sales Contacts (Office) form from inside Microsoft Office.
SyteLinePortals	All IDOs that are accessed by your customer or vendor using a portal

License Module	Access Capabilities
SyteLinePortals_MS	Allows your customer or vendor using a portal in a multi-site environment to access IDOs. If the portal allows access to multiple sites, assign the user a SytelinePortals license in the "primary" site and a SytelinePortals_MS license in any other site that is exposed on the portal.
SyteLinePP	Allows access to the Printing Industry Pack forms
SyteLineRFQ	Allows access to the Request for Quote forms (separately installed)
SyteLineTax	Allows access to the Tax Interface forms, as well as related fields and buttons on other forms.
SyteLineTH	Allows access to the Thailand Localization forms
SyteLineTrans	All Infor CloudSuite forms
SyteLineTransMultiSite	All Infor CloudSuite forms. The SytelineTransMultiSite module is for users who require access to multiple sites. Assign a SytelineTrans license in the user's "home" site and a SytelineTransMultiSite license in any other sites where access is required for that user.
SyteLineWB	Allows access to Workbenches, DataViews, DataSearch, and Critical Numbers forms and features.
QCS_Customer	Allows access to QCS forms that let you track quality information for items being shipped to and returned from customers (separately installed).
QCS_Enterprise	Allows access to QCS forms that let you track quality information for business enterprise activities that are not directly linked to an item (separately installed).
QCS_In_Process	Allows access to QCS forms that let you track quality information for manufactured items (separately installed).
QCS_Supplier	Allows access to QCS forms that let you track quality information for purchased items (separately installed).

Multiple Logins

A single-session user (named user) cannot have more than one active session at a time.

Using data collection users as an example, the same user cannot log into Infor CloudSuite and then log into web-based data collection. The user can only log into one at a time. The user can either log out of one before logging into the other, or a separate user can be set up for Infor CloudSuite and web-based data collection.

Note: If you try to use the same userID for more than one session in web-based data collection, you might be able to log on, but errors will occur when you navigate between fields and transactions are committed to the database. Data entered will be lost. Infor only supports single session access to Web Based Data Collection.

When setting up data collection users, assign:

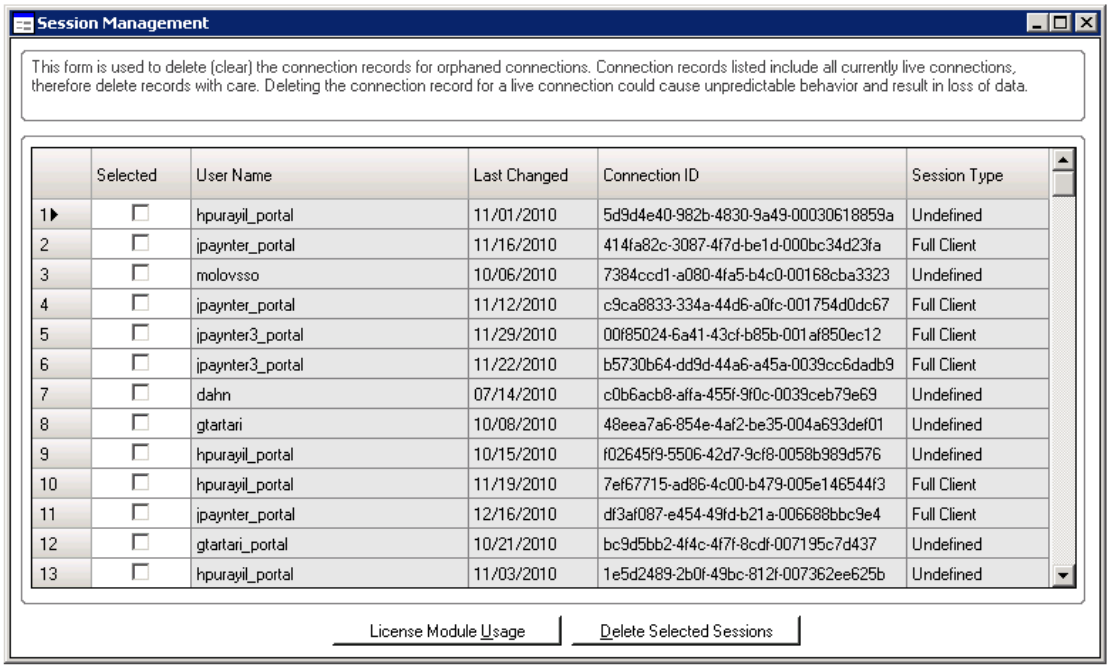
- the SyteLineDC module for web-based data collection.

When setting up Infor CloudSuite users, assign:

- the SyteLineTrans module for Infor CloudSuite (which includes data collection forms).

.Recover Locked Tokens

If Infor CloudSuite 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 Infor CloudSuite online help for more information about the **Session Management** form.



	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	414fa82c-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

Chapter 4: Multi-Site

4

In Infor CloudSuite, each site's database does not have to be connected to any other database in order to function. Data is transferred through a process called replication. The system manages its own replication which is different from SQL's replication. We do not support standard SQL replication as a means to transfer data from one site to another.

The connection between sites can be either:

- **Transactional** - This is a constant live connection from one site to another. Any update is made to the target site immediately. The down side is that if the target site is down for any reason, the transfer of data does not occur;

  Or

- **Non-transactional** - There is no live connection between sites. If using a non-transactional (also referred to as delayed replication or asynchronous replication) setup, data that is shared must be replicated.

For more detailed information on replication and multi-site use, see these documents on www.infor.com/inforxtreme:

- *Infor Mongoose Replication Reference*
- *Infor CloudSuite Industrial Multi-Site Planning Guide*
- *Infor CloudSuite Industrial Multi-Site Implementation Guide*

Chapter 5: Authorizations

5

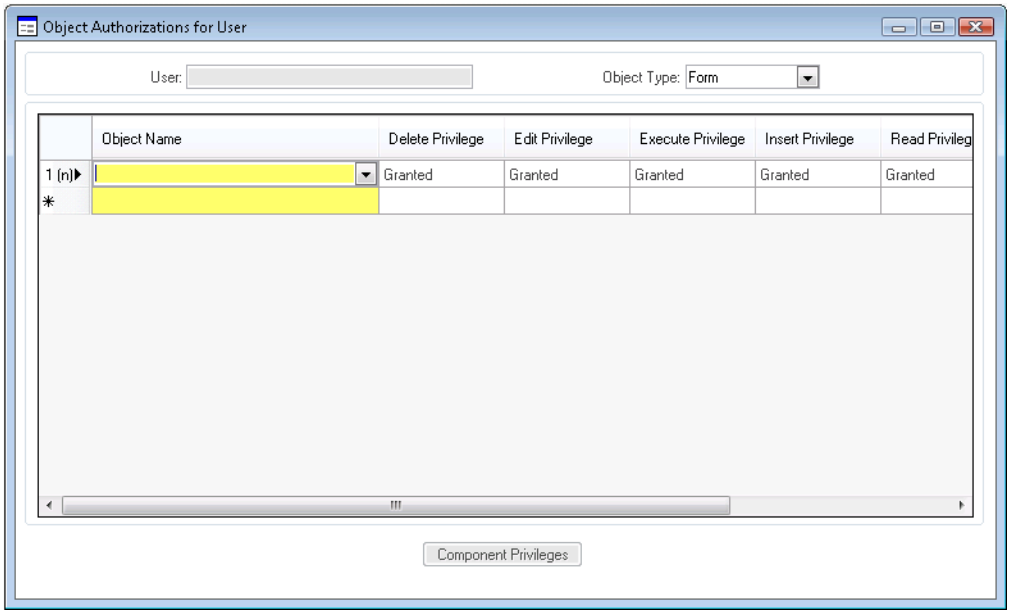
You may limit user access to certain forms or limit what they can do on certain forms by way of authorizations. Use the following four forms to manage these authorizations:

- 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 middle-tier 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.

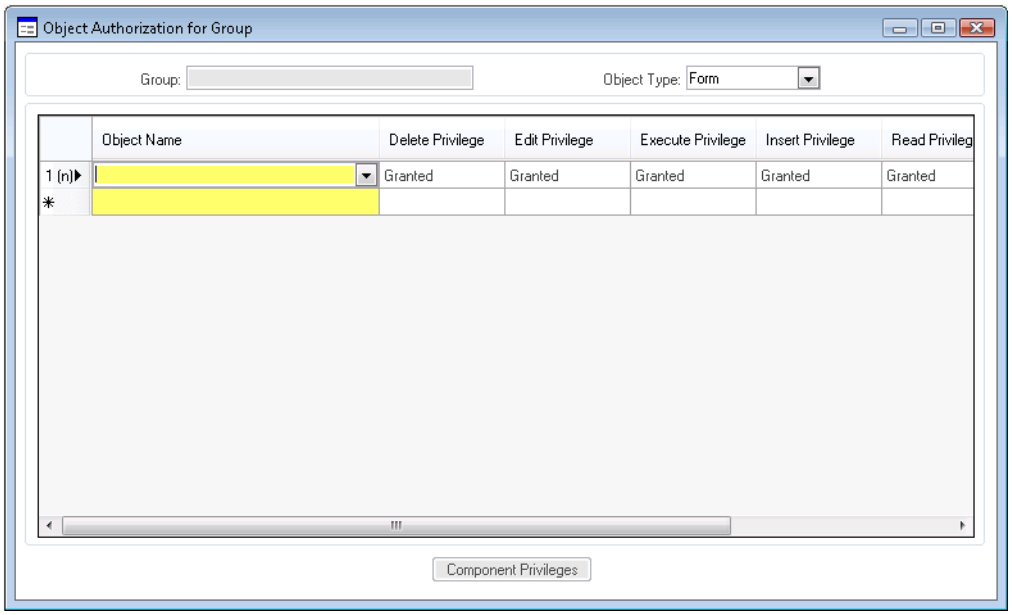
The following privileges can be granted or revoked for the user for a specified form in the Object Authorizations For User form:

- **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 Authorization 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.

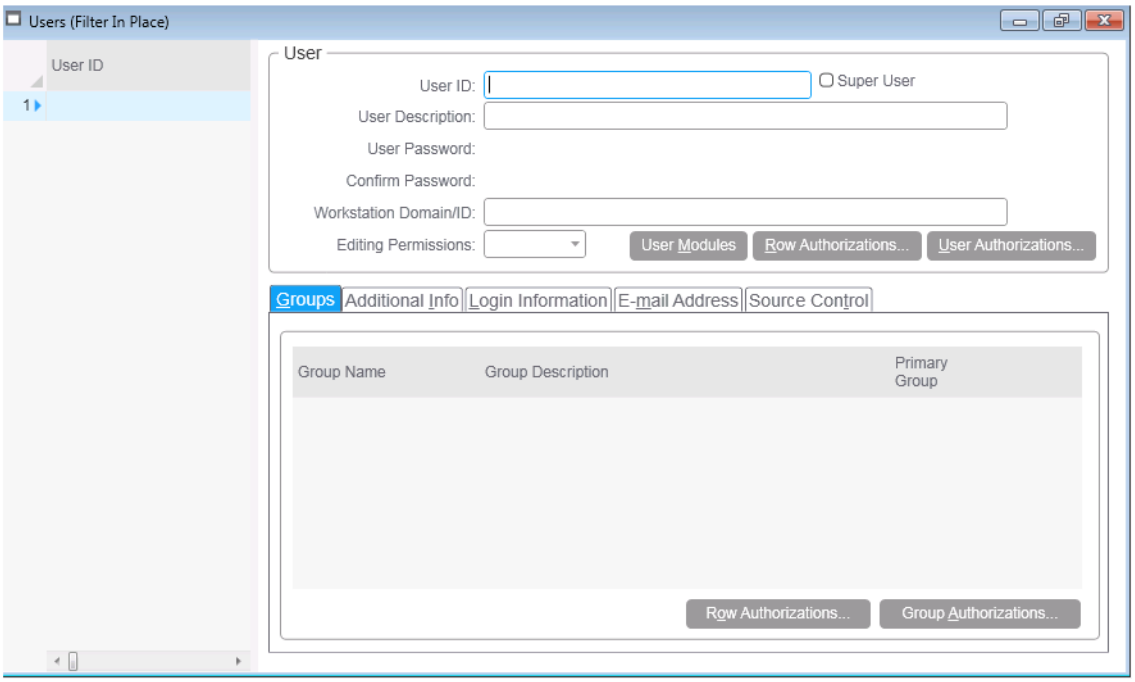


You can open the form right from the Explorer window, or you can click the **Group Authorizations** button on the **Groups** form.

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:

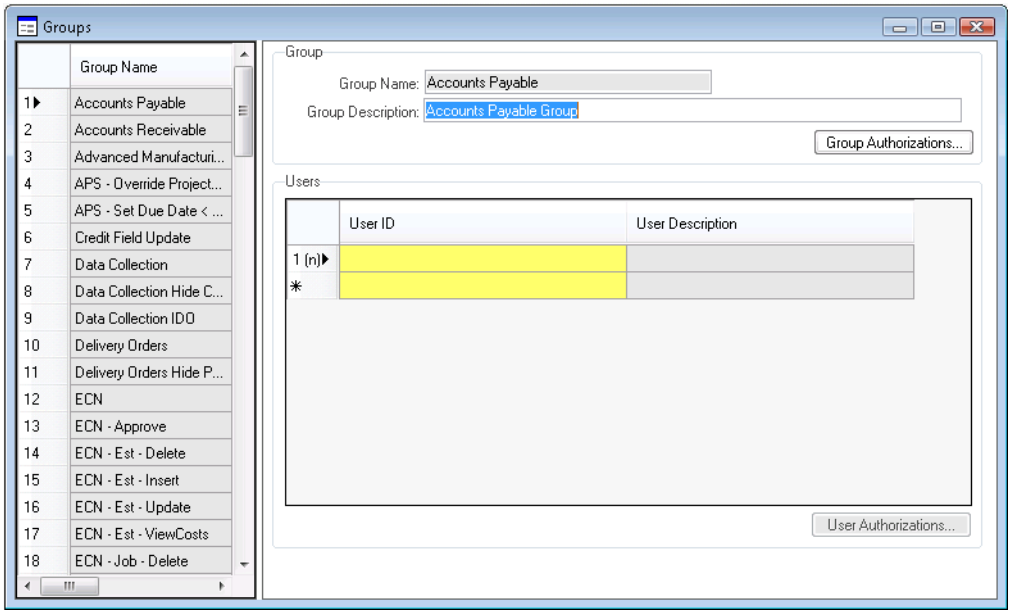
- Passwords needed to log on to the application
- Workstation IDs so users bypass the logon dialog box
- E-mail addresses so notifications can be sent about automated tasks
- Editing permissions that determine whether users can enter edit mode to create or customize forms
- Security authorizations for 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.

Caution: 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 CloudSuite 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 66.

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. On 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.

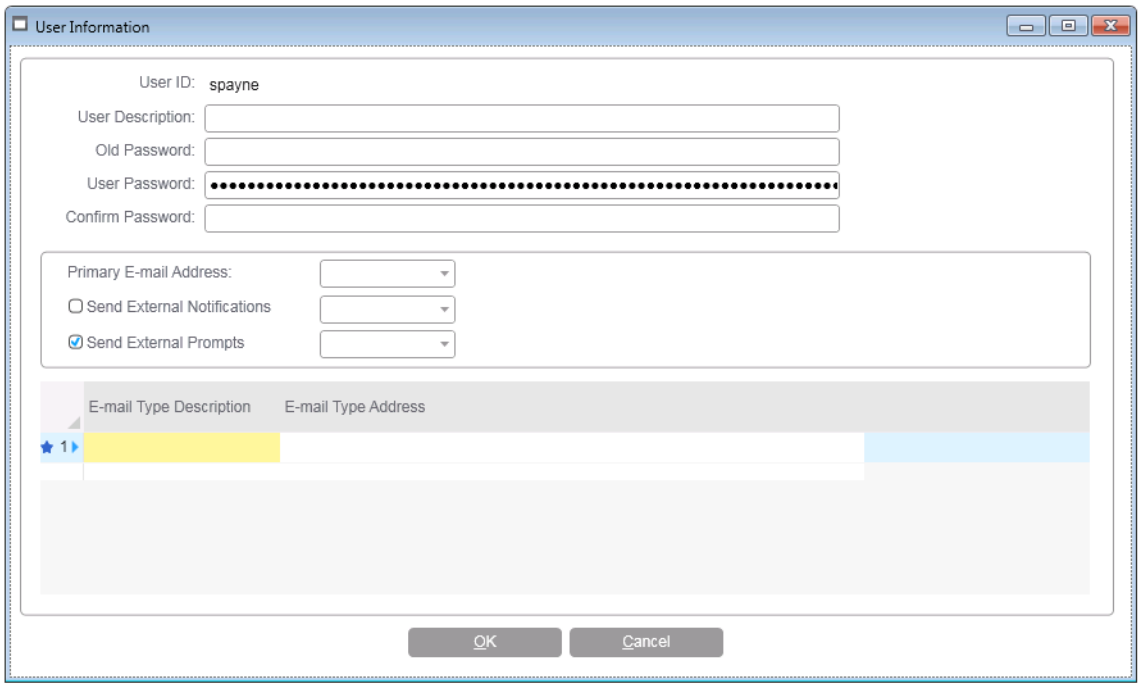
1. Assign a user to a group on the **Users** form (See "Assign a User to a Group" on page 65).
2. Open the **Users** form.
3. Select the user whose authorizations you want to edit.
4. Click the **User Authorizations** button. The **Object Authorizations for User** form opens.
5. In the **Object Name** 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.



Copy User Tables

If you have many common users between sites, in certain cases you can set up the users in one site and then use the Copy User Tables utility to copy them to other sites.

For more information about how the utility works and when you can use it, see the information about the Copy User Tables Utility in the *Multi-Site Implementation Guide*.

Chapter 6: Recovering After a System Crash

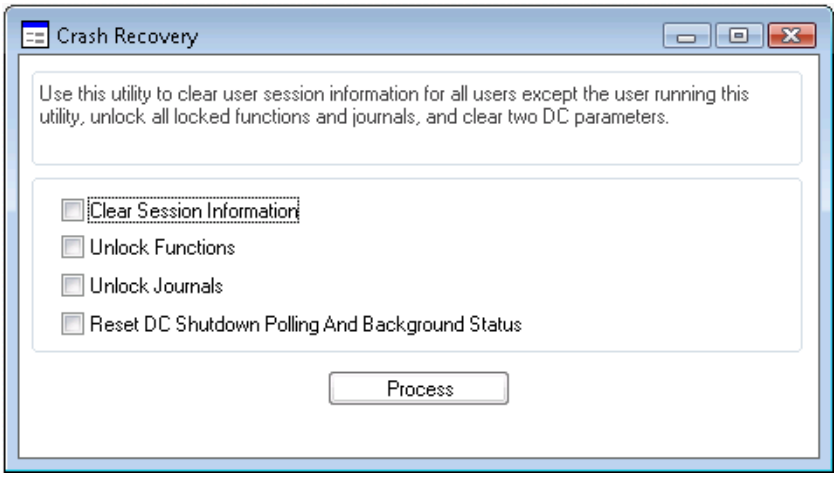
6

To get everything working properly again in the event of a system crash, you may have to do any or all of the following:

- Unlock locked functions
- Unlock locked journals
- Recover locked tokens.

You can go to the individual forms mentioned above or you can run the **Crash Recovery** utility. It is not always necessary to run the **Crash Recovery** utility. Read the following information for details about when to run this utility.

Crash Recovery Utility

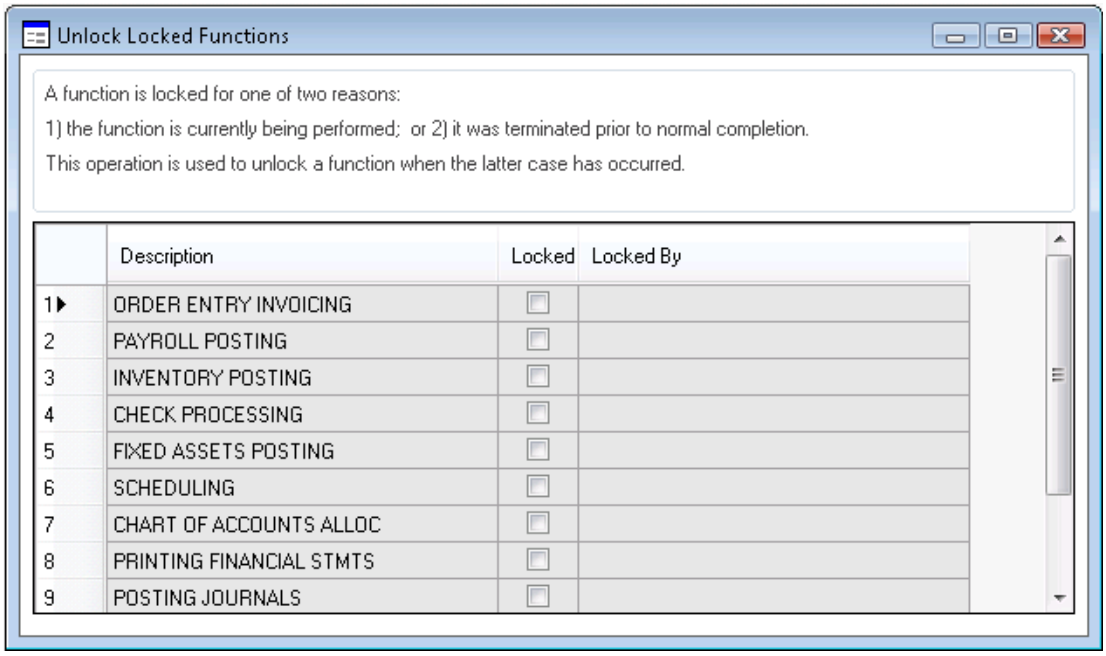


Use this utility to clear user sessions for all users except the user running this utility, unlock all locked functions and journals, and clear two DC parameters. You would most commonly need to run this utility following a crash of the utility server, but you can run it anytime.

You do not need to run this utility following a database server crash. The functions of this utility are performed automatically when the database server is rebooted.

Note: Any users still logged in are kicked out of the system when you run this utility. DO NOT run this utility against a database that is still being accessed by users.

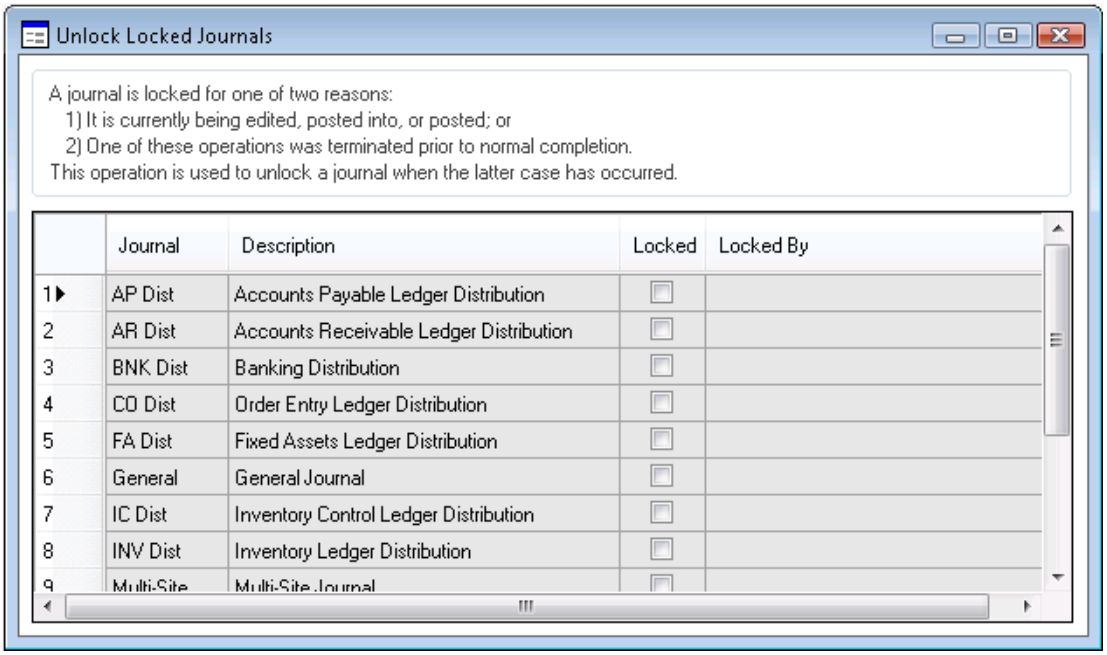
Unlock Locked Functions



If the Locked field is selected next to the function, it is locked. If the Locked field is cleared next to the function, it is unlocked.

Use the **Unlock Locked Functions** utility to unlock functions that were somehow aborted prior to normal termination. If a Locked message displays when you enter certain processes, use this utility to unlock it.

Unlock Locked Journals



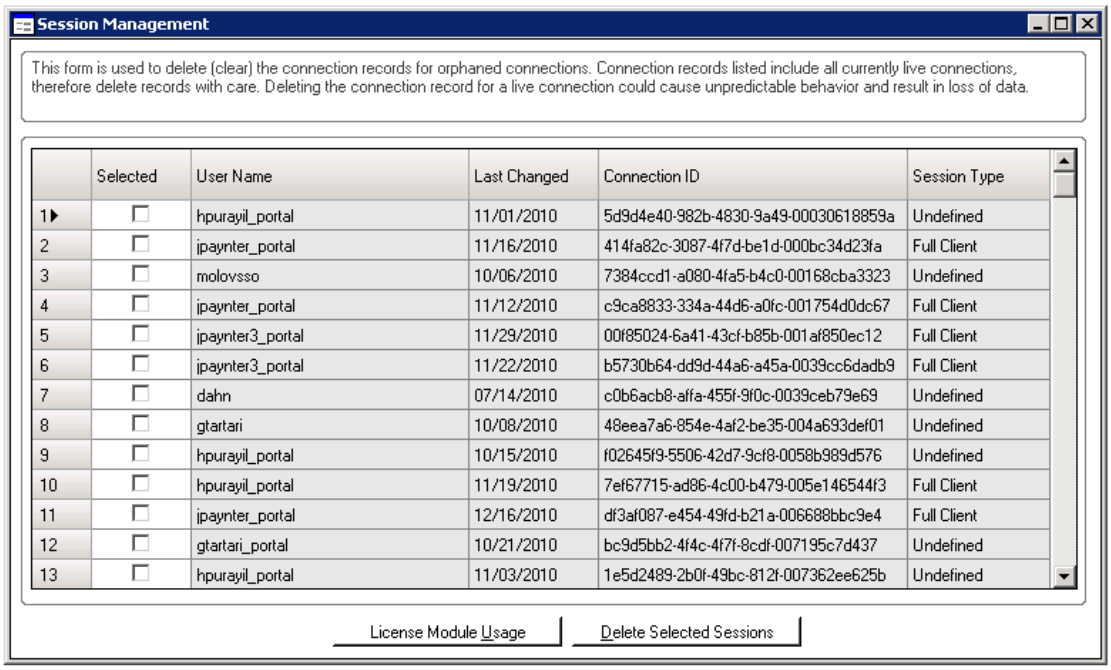
If the Locked field is selected next to the journal, it is locked. If the Locked field is cleared next to the journal, it is unlocked.

Use the Unlock Locked Journals utility to unlock journals that are locked as a result of one of the following operations being terminated prior to normal completion:

- editing a journal
- posting information into a journal
- posting a journal

Recover Locked Tokens

If Infor CloudSuite 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 online help for more information about the Session Management form.



	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	414fa82c-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

Chapter 7: Setting up an Audit Log

7

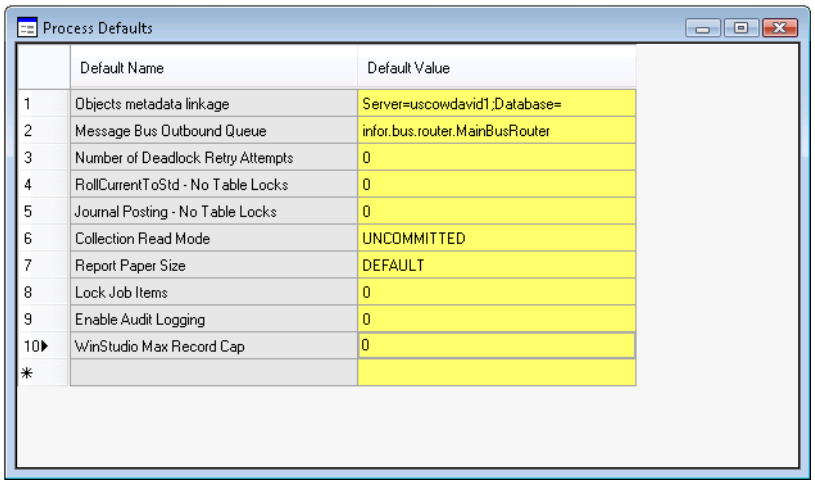
Use the audit log to see which user performed what action at what time and on what form.

Use the following three forms to manage your audit logging:

- Process Defaults
- Audit Log Types
- Audit Log.

Process Defaults

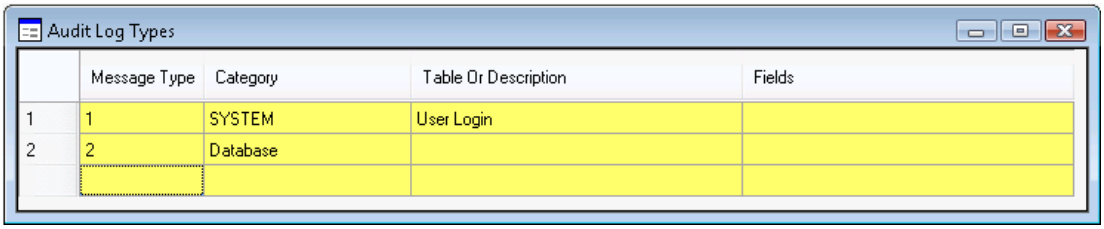
Use the **Process Defaults** form to enable audit logging.



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.



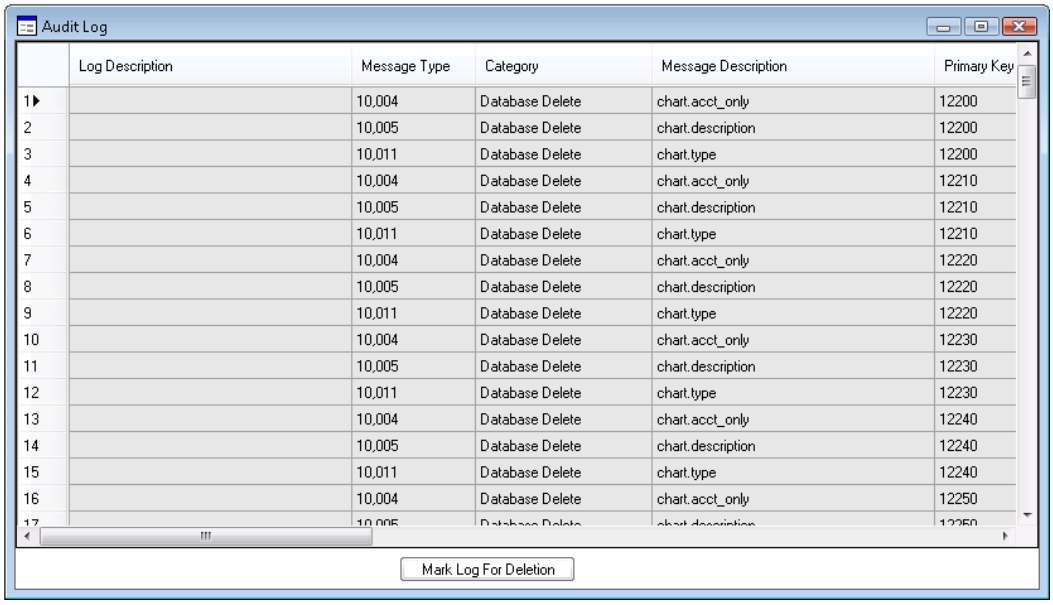
The **Audit Log Types** form displays the following information:

- **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 vales:
  - **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 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**: *Value after the add*
  - **Update**: *Value after the update*
  - **Delete**: *Blank.*
- **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.

Chapter 8: Improving Performance

8

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 CloudSuite 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 82.

- **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 CloudSuite 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 Infor CloudSuite 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 82).

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 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,*

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 Infor CloudSuite 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 Infor CloudSuite 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 drop-down 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.

Replication

Configure Multi-site Replication with a Master Site and Shared Tables

Set up an intranet with a master site and share certain _all tables. This allows other sites to use views into shared _all tables on the master site, reducing replication traffic between the sites. Advantages and requirements are described in the *Multi-Site Planning Guide*. The process is described in the *Multi-Site Implementation Guide*.

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.

Save Each Modified Row in a Separate Transaction

You can specify that WinStudio save each modified row in a separate transaction. By default, without this setting, all modified rows are sent to the mid-tier to be processed within a single transaction.

Saving one row per transaction can alleviate blocking problems in some forms. Whether the setting enhances performance depends on the complexity of a form's save operation and the speed of the network connection. Forms that require highly complex saves may benefit from the setting, especially if connection speed is adequate. Forms that require simple save operations are less likely to benefit, especially if the additional network traffic required in saving one row at a time slows the system.

In default WinStudio behavior, if one row fails, the entire transaction is rolled back. When you save each row in a separate transaction and a row fails, all previous rows remain committed.

Note: If your form design requires that all modified rows be committed as a unit, with processing on the unit before and/or after a save operation, saving rows in separate transactions may not be appropriate. If an error occurs on a row, some rows may be committed and others not committed.

The following forms save rows in separate transactions:

- Job Orders
- Customer
- Vendor
- Item
- Job Operations
- Job Materials
- Current Operations

- Current Materials
- Purchase Orders
- Purchase Order Lines
- Customer Orders
- Customer Order Lines

For instructions on setting this feature, see "Save One Row Per Transaction" in the Help for WinStudio edit mode.

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 CloudSuite.

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.

Print Barcode Reports in PDF Format

After you install barcode fonts on the utility server, restart the server so that the fonts appear properly in PDF format on barcode reports.

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>Configuration 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 CloudSuite. 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 CloudSuite. 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>
```

Chapter 9: Populating An Empty Database

9

Note: For more information about the forms listed in this section, refer to the online help.

When populating an empty database, it is recommended that you enter the following information on the following forms in the following order:

Step 1: Users

Use this form to register users to the application. A user ID is required for each user who logs on to the application.

Step 2: 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 middle-tier IDO.

Step 3: Chart of Accounts

Use the Chart of Accounts form to define account numbers which will be used throughout the system to record, track, and report costs. The General Ledger is tied to other parts of the system through the Chart of Accounts and the journals.

Step 4: Accounting Periods

Use the Accounting Periods form to maintain the accounting periods used by General Ledger.

Step 5: Bank Reconciliations

Infor CloudSuite maintains a transaction history of all activity against the bank checking accounts your company uses. You can view this information through the Bank Reconciliations form, and also prepare bank reconciliations by tracking what has been recorded by the bank.

Step 6: Financial Statement Definition

You can define your own financial statements that best suit your reporting needs. Using the Financial Statement Definition form, you can add new financial statements. You then use the Financial Statement Definition Columns and Financial Statement Line Definition forms to define the content and format of a given statement.

Step 7: Financial Statement Definition - Columns

See “Financial Statement Definitionin the previous step.

Step 8: Financial Statement Line Definition:

See “Financial Statement Definitiontwo steps prior to this one.

Step 9: General Parameters

Use the General Parameters form to set the parameters used throughout the system.

Step 10: Shop Floor Control Parameters

Use the Shop Floor Control Parameters form to set up default settings for shop floor data and for running the Scheduler.

Step 11: Order Entry Parameters

Use the Order Entry Parameters form to set default values for customer order entry.

Step 12: Inventory Parameters

Use the Inventory Parameters form to set parameters in your inventory system for use throughout the entire system. Changing these parameters can affect the way the system is run and how it handles inventory.

Step 13: Planning Parameters

Use the Planning Parameters form to enable features and options used throughout the MRP and APS planning functions.

Step 14: Purchasing Parameters

Use the Purchasing Parameters form to enter default values for use throughout Purchasing.

Step 15: Accounts Payable Parameters

Use the Accounts Payable Parameters form to specify the accounts to use in the General Ledger. These accounts are used throughout A/P for distributions to the G/L.

Step 16: Accounts Receivable Parameters

Use the Accounts Receivable Parameters form to enter the default parameter values the system applies throughout Accounts Receivable.

Step 17: Departments

Use the Departments form to maintain a list of all departments referenced by work center and employee records. The Department field also appears on the Fixed Assets Class Codes form. You use departments to group work centers for application of overhead rates and direct labor cost. To report departmental shop floor capacity, combine all work centers of the department.

Step 18: Product Codes

Use product codes to group similar types of items and assign each group an identifying code. Product codes can override system-wide parameters for a subset of items.

Step 19: Distribution Accounts

Distribution accounts are a set of accounts grouped by Warehouse and Product Code.

Step 20: Tax Codes

Use the Tax Codes form to specify the percentage of tax to charge to a customer and the G/L Account to which the sales tax is to be posted.

Step 21: Tax Systems

Use the Tax Systems form to establish the tax system and Tax Codes used in processing Value Added Tax or sales tax related information. The Value Added Tax function processes items in Customer Order Entry, Purchasing, Accounts Receivable, and Accounts Payable.

Step 22: Tax Parameters

Use the Tax Parameters form to define global (applying to both tax systems) switches and dates, and to set optional tax data printing options.

Step 23: Prov/States

Use the Prov/States form to enter state or province abbreviations.

Step 24: Billing Terms

Use the Billing Terms form to identify and maintain billing terms to be applied to customers. The Billing Terms code displays on the Customers and Vendors forms. You can identify default billing terms for each customer or vendor.

Step 25: Miscellaneous Receipt Reason Codes

Use the Miscellaneous Receipt Reason Codes form to track the entry of Miscellaneous Receipt transactions. For example, you could use the code RTS to indicate a return to stock.

Step 26: Miscellaneous Issues Reason Codes

Use the Miscellaneous Issues Reason Codes form to track the entry of Miscellaneous Issue transactions. For example, you could use the code TES to indicate the material was issued for testing.

Step 27: Locations

Use the Locations form to maintain the list of valid places for inventory. These locations are used when establishing inventory balances and processing inventory transactions. The system initially creates a location of Stock and strongly recommends that you not delete this record, since several Infor CloudSuite programs assume that Stock exists as a default.

Step 28: Unit of Measure Codes

Use the Unit of Measure Codes form to maintain all units of measure that can be associated with an item. Transactions can then be tracked in various units. A base unit of measure is assigned to each item on the Items form.

Step 29: Shift Codes

Use the Shift Codes form to maintain codes that identify particular shifts for use in payroll administration. You can create as many shifts as needed based on the starting and ending times for a flex-time work schedule. Use the Scheduling Shifts form to define shifts to schedule resources for working on operations.

Chapter 10: Database Name Change

10

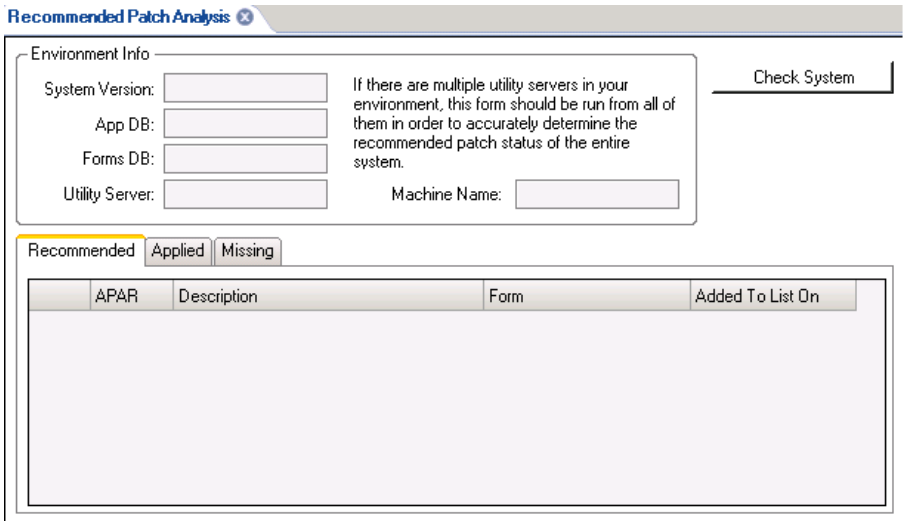
If for any reason you have changed the name of your application database, you must also change a pointer in the system to that new database name.

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

Chapter 11: Recommended Patch Analysis

11

Use the **Recommended Patch Analysis** form to display the recommended updates. You can open the form and populate the fields on a client, but you will not receive all of the information available. To see all of the recommended updates, open the form and populate the fields on the utility server.



Appendix A: Web Client Differences

A

This appendix lists the differences in behavior between the standard WinStudio Smart Client and the Web Client. Subsequent releases will reduce this list.

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 Infor CloudSuite 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.
- Header Configurations are not supported with Infor CPQ.

Form Component Types

UserControl

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 CloudSuiteusername*>.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.
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

SytePlan

- S&OP Workbench is not supported.
- S&OP Margin Analysis form is not supported.

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	✓	

Appendix B: Partner Products Integration Notes

B

This appendix displays information provided by our partners regarding Infor CloudSuite enhancements that they may or may not have integrated into their products.

The Lake Companies Products

The table below details each Infor CloudSuite functional enhancement which could affect a Lake Companies Product. A "Y" in the "Integrated" column signifies that product(s) listed have been redesigned to take advantage of the functional and architectural enhancements. Those not integrated will be addressed in an upcoming release.

Enhancement	Integrated	Lake Companies Products Affected Notes
Customer Maintenance - Multisite Basis (2777)	Y	Doc-Trak
Item Maintenance - Multisite Basis (2778)	Y	Doc-Trak
Dimensional Inventory (4410)	Y	Shop-Trak, Doc-Trak
Utility to Move Estimate to History (4428)	Y	Doc-Trak
Add Mfg Part Number (4581)	Y	Doc-Trak
Add Backflush for Lot & Serial # (4586)	Not in initial release	Shop-Trak
Add Remittance Advice (4846)	Y	Doc-Trak

Enhancement	Integrated	Lake Companies Products Affected Notes
Serial/Lot # Assignment, Auto Gen, and Trace		Shop-Trak
- S/N by Item & S/N Configuration	Y	
- Preassigned Lot/Serial Numbers	Y	
- Lot/Serial Traceability (4854)	Not in initial release	Not in initial release.
MSRS - Reporting Services (4856)	Y	Shop-Trak, Doc-Trak
Container Inventory (4892)	Doc-Trak - Yes Shop-Trak – Not fully in initial release	Shop-Trak, Doc-Trak Shop-Trak addresses moving Items into Containers for Inventory, but does not address issuing Containers out of inventory.
Windows Mobile Solutions (4947)	Y	Doc-Trak
Support vs2010 and .net4 (5056)	Y	Shop-Trak, Doc-Trak
Customer Doc Profile Invoicing Changes - Consolidated Invoicing (5172)	Y	Doc-Trak

RSVP Products

The table below details each Infor CloudSuite functional enhancement which could affect QCS from RSVP Business Systems. A "Y" in the “Integrated” column signifies that product(s) listed have been

redesigned to take advantage of the functional and architectural enhancements. Those not integrated will be evaluated in a future release for integration based on customer demand.

Enhancement	No Impact	Integrated	RSVP QCS Comments
Multiple Email Addresses (5007)	Y		
Inventory Changes (4854)		Y	
FOB Invoicing Restriction (5156)	Y		
Non-Inventory Item on CO (3639)		Y	Not specifically tested but is no impact as the item will not be in the item master and therefore cannot be used. Same as non-inventory on a PO
Planning by Warehouse (4589)	Y		
Set GL Acct Control (4634)	Y		
Designate Default Ship-To (5121)	Y		
Support vs2010 and .net4 (5056)	Y		This is no impact as RSVP has no specific .net components
Web Assembly Path (5090)	Y		No impact as QCS does not use custom libraries.
Consignment Warehouse Inventory (4771)	Y		No impact as this is just a location to receive into and QCS works with qty only.
Multi-lingual Support of Customer Documents (5123)	Y		
Manufacturer Part Number (4581)		Y	QCS was changed to deal with MFG Part number entry. No issues found to date.
Dimensional Inventory (4410)	Y		QCS inspects the quantity not each dimension.
Container Inventory (4892)		Y	Have additional testing planned has full integration through all testing to date.
Improved Priority Control (1838)	Y		

Enhancement	No Impact	Integrated	RSVP QCS Comments
Multi-currency Payment (4979)	Y		
DIFOT (Delivered In Full On Time) Reporting (4735)	Y		
Option to Print Lot Numbers on Invoices (4768)	Y		
Electronic Signature		Y	QCS utilizes electronic signatures for disposition and test results.

Infor CloudSuite Industrial Add-On Products

The table below details each Infor CloudSuite functional enhancement which could affect a Single Source System Productivity Product. A "Y" in the “Integrated” column signifies that the product(s) listed have been redesigned to take advantage of the functional and architectural enhancements. Those not integrated will be evaluated in a future release for integration based on customer demand.

Enhancement	Integrated	Infor CloudSuite Industrial Add-On Products Affected
Consignment Warehouse Inventory (4771)		Infor CloudSuite Service / Plant Maintenance, and Instant Order Fulfillment
Multi-lingual Support of Customer Documents (5123)		Instant Order Fulfillment
Manufacturer Part Number (4581)		Infor CloudSuite Service / Plant Maintenance, Mobile, and Instant Order Fulfillment
Dimensional Inventory (4410)		Infor CloudSuite Service / Plant Maintenance, Mobile, and Instant Order Fulfillment
Container Inventory (4892)		Infor CloudSuite Service / Plant Maintenance, and Instant Order Fulfillment
Improved Priority Control (1838)		Infor CloudSuite Service / Plant Maintenance
Multi-currency Payment (4979)		Infor CloudSuite Service / Plant Maintenance

Enhancement	Integrated	Infor CloudSuite Industrial Add-On Products Affected
DIFOT Reporting (4735)		Infor CloudSuite Service / Plant Maintenance
Option to Print Lot Numbers on Invoices (4768)		Infor CloudSuite Service / Plant Maintenance

Appendix C: Performing Configuration Tasks in a Command Line

C

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

Command Line Utilities

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 commans with some examples are:

- webclient - Use this command to configure the web client
  Example:
  ```
  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"
  ```

Index