Time Tracker Report 1.0 Requirements Specification

1. Scope

1.1 Overview

The Time Tracker Report custom component is part of the Time Tracker application. It provides the ability to create time and expense reports for employees, projects, and clients. This component handles the necessary database queries that make up the various reports.

This component will make use of the Report Tags component to generate the actual reports as tables embedded in a web page. Designers should familiarize themselves with the overall design and API of that component.

1.2 Logic Requirements

1.2.1 Time Tracker Reports

1.2.1.1 Overview

The Time Tracker application will produce various reports based on the combination of the category and the type. Together, there will be nine different reports to be generated. They are described in the following sections in terms of the filters expected from the application and the column headers to display when the reports are rendered.

Note: This component will be heavily based on SQL queries.

1.2.1.2 Report Filters

A particular filter may or may not be specified for a given report. The filters are to be combined to narrow down the search space.

1.2.1.3 Report Columns

The column headers for each report are considered to be the default. Different client environments may require different sets of columns to be displayed. The columns will be configurable options.

1.2.1.4 Report Categories

There are three general categories of reports:

- Time Report – this report consists of information gathered from time entries such as hours spent for an employee, a client, or a project
- Expense Report – this report consists of information gathered from expense entries such as money spent by an employee, a client, or a project
- Time and Expense Report – this report is a combination of Time Report and Expense Report

1.2.1.5 Report Types

There are three general types of reports:

- Employee Report – this report is tailored for a single employee, detailing the time and expenses spent for various clients and projects that were worked on
- Project Report – this report is tailored for projects, detailing the time and expenses spent for

various workers who worked on the projects
- Client Report – this report is tailored for clients, detailing the time and expenses spent for various projects that belong to the clients

1.2.2 Report Descriptions

1.2.2.1 Employee Time Reports

The Employee Time Report details the time entered by a single employee over a given period of time, and certain clients and projects.

Filters:

- Employee – the user name of the employee (this filter is mandatory)
- Date (Start/End) – includes only entries within the (inclusive) date range
- Client – includes only entries for the selected clients
- Project – includes only entries for the selected projects
- Billable? – includes only billable or non-billable entries

Columns:

- Date – the date of the entry
- Client – the client that the entry belongs to
- Project – the project that the entry belongs to
- Task – the type of task performed
- Hours – the amount of hours worked
- Pay Rate (for Contractors) – the hourly pay rate
- Billable? – indicates whether the entry is billable

In addition, there will be a row of “Totals” at the bottom of the report to show the total amount of hours worked in the report.

1.2.2.2 Project Time Reports

The Project Time Report details the time entered for certain projects over a given period of time.

Filters:

- Project – includes only entries for the selected projects (this filter is mandatory)
- Date (Start/End) – includes only entries within the (inclusive) date range
- Billable? – includes only billable or non-billable entries

Columns:

- Date – the date of the entry
- Employee – the name of the employee who entered the entry
- Client – the client that the entry belongs to
- Project – the project the entry belongs to
- Task – the type of task performed
- Hours – the amount of hours worked
- Billable? – indicates whether the entry is billable

In addition, there will be a row of “Totals” at the bottom of the report to show the total amount of hours worked in the report.

1.2.2.3 Client Time Reports

The Client Time Report details the time entered for certain clients over a given period of time.

Filters:

- Client – includes only entries for the selected clients (this filter is mandatory)
- Date (Start/End) – includes only entries within the (inclusive) date range
- Billable? – includes only billable or non-billable entries

Columns:

- Date – the date of the entry
- Employee – the name of the employee who entered the entry
- Client – the client that the entry belongs to
- Project – the project that the entry belongs to
- Task – the type of task performed
- Hours – the amount of hours worked
- Billable? – indicates whether the entry is billable

In addition, there will be a row of “Totals” at the bottom of the report to show the total amount of hours worked in the report.

1.2.2.4 Employee Expense Reports

The Employee Expense Report details the expenses entered by a single employee over a given period of time, and certain clients and projects.

Filters:

- Employee – the user name of the employee (this filter is mandatory)
- Date (Start/End) – includes only entries within the (inclusive) date range
- Client – includes only entries for the selected clients
- Project – includes only entries for the selected projects
- Billable? – includes only billable or non-billable entries

Columns:

- Date – the date of the entry
- Client – the client that the entry belongs to
- Project – the project that the entry belongs to
- Type – the type of expense
- Description – a brief description of the expense
- Amount – the amount of money spent
- Billable? – indicates whether the entry is billable

In addition, there will be a row of “Totals” at the bottom of the report to show the total amount of money spent in the report.

1.2.2.5 Project Expense Reports

The Project Expense Report details the expenses entered for certain projects over a given period of time.

Filters:

- Project – includes only entries for the selected projects (this filter is mandatory)
- Date (Start/End) – includes only entries within the (inclusive) date range
- Billable? – includes only billable or non-billable entries

Columns:

- Date – the date of the entry
- Employee – the employee who entered the entry
- Client – the client that the entry belongs to
- Project – the project that the entry belongs to
- Type – the type of expense
- Description – a brief description of the expense
- Amount – the amount of money spent
- Billable? – indicates whether the entry is billable

In addition, there will be a row of “Totals” at the bottom of the report to show the total amount of money spent in the report.

1.2.2.6 Client Expense Reports

The Client Expense Report details the expenses entered for certain clients over a given period of time.

Filters:

- Client – includes only entries for the selected clients (this filter is mandatory)
- Date (Start/End) – includes only entries within the (inclusive) date range
- Billable? – includes only billable or non-billable entries

Columns:

- Date – the date of the entry
- Employee – the employee who entered the entry
- Client – the client that the entry belongs to
- Project – the project that the entry belongs to
- Type – the type of expense
- Description – a brief description of the expense
- Amount – the amount of money spent
- Billable? – indicates whether the entry is billable

In addition, there will be a row of “Totals” at the bottom of the report to show the total amount of money spent in the report.

1.2.2.7 Employee Time and Expense Reports

The Employee Time and Expense Report details the time and expenses entered by a single employee over a given period of time, and certain clients and projects.

Filters:

- Employee – the user name of the employee (this filter is mandatory)
- Date (Start/End) – includes only entries within the (inclusive) date range
- Client – includes only entries for the selected clients
- Project – includes only entries for the selected projects
- Billable? – includes only billable or non-billable entries

Columns:

- Date – the date of the entry
- Client – the client that the entry belongs to
- Project – the project that the entry belongs to
- Hours – the amount of hours worked (for time entries)
- Amount – the amount of money spent (for expense entries)
- Billable? – indicates whether the entry is billable

In addition, there will be a row of "Totals" at the bottom of the report to show the total amount of hours and money spent in the report.

1.2.2.8 Project Time and Expense Reports

The Project Time and Expense Report details the time and expenses entered for certain projects over a given period of time.

Filters:

- Project – includes only entries for the selected projects (this filter is mandatory)
- Date (Start/End) – includes only entries within the (inclusive) date range
- Billable? – includes only billable or non-billable entries

Columns:

- Date – the date of the entry
- Client
- Project
- Hours
- Expenses Amount
- Billable?

In addition, there will be a row of "Totals" at the bottom of the report to show the total amount of hours and money spent in the report.

1.2.2.9 Client Time and Expense Reports

The Client Time and Expense report details the time and expenses entered for certain clients for a given period of time.

Filters:

- Client – includes only entries for the selected clients (this filter is mandatory)
- Date (Start/End) – includes only entries within the (inclusive) date range

- Billable? – includes only billable or non-billable entries

Columns:

- Date – the date of the entry
- Client – the client that the entry belongs to
- Project – the project that the entry belongs to
- Hours – the amount of hours worked (for time entries)
- Amount – the amount of money spent (for expense entries)
- Billable? – indicates whether the entry is billable

In addition, there will be a row of “Totals” at the bottom of the report to show the total amount of hours and money spent in the report.

1.2.3 Database Schemas

The database schemas necessary to generate the various reports are included in the form of DDL scripts and Entity Relationship Diagrams. Also, refer to the Time Entry, Expense Entry, Time Tracker User, and Time Tracker Project components for descriptions of the fields in the database tables.

1.2.4 Pluggable Persistence

For the initial version, the Informix database system will be used as persistence storage for this component and the Time Tracker application. Other database systems should be pluggable into the framework.

1.2.5 CSS Support

The output format will support the use of CSS. The design will define the necessary CSS elements to be used. The CSS will be configurable. Refer to the example output images.

1.2.6 Custom JSP Tags

The reports described in previous sections will be embedded, in the form of JSP tags, as part of a web page for presentation. The design will show how this can be accomplished.

1.3 Required Algorithms

None.

1.4 Example of the Software Usage

The Time Tracker application will use this component to generate various time and expense reports for employees, projects, and clients.

1.5 Future Component Direction

Other database systems maybe plugged in for some client environments.

2. Interface Requirements

2.1.1 Graphical User Interface Requirement

None.

2.1.2 External Interfaces

None.

2.1.3 Environment Requirements

- Development language: Java 1.4
- Compile target: Java 1.3, Java 1.4

2.1.4 Package Structure

com.topcoder.timetracker.report

3. Software Requirements

3.1 Administration Requirements

3.1.1 What elements of the application need to be configurable?

The column headers for each report need to be configurable.

3.2 Technical Constraints

3.2.1 Are there particular frameworks or standards that are required?

None.

3.2.2 TopCoder Software Component Dependencies:

- Configuration Manager
- DB Connection Factory
- Report Tags

**Please review the TopCoder Software component catalog for existing components that can be used in the design.

3.2.3 Third Party Component, Library, or Product Dependencies:

Informix Database.

3.2.4 QA Environment:

- Solaris 7
- RedHat Linux 7.1
- Windows 2000
- Windows Server 2003
- Informix

3.3 Design Constraints

The component design and development solutions must adhere to the guidelines as outlined in the TopCoder Software Component Guidelines. Modifications to these guidelines for this component should be detailed below.

3.4 Required Documentation

3.4.1 Design Documentation

- Use-Case Diagram
- Class Diagram
- Sequence Diagram
- Component Specification

3.4.2 Help / User Documentation

- Design documents must clearly define intended component usage in the ‘Documentation’ tab of Poseidon.

