

Period End Processor

Automated month and year end process

- ◆ Runs millions of calculations
- ◆ Eliminates seven manual tasks
- ◆ Reduces elapsed time by over 50%

A powerful example of a Circatec Process Agent

The Project – Period End Processor

Circatec has built a Process Agent to automate the month/year end process in an existing superannuation administration system.

The current month end process in the administration system has seven manual steps and takes 15-18 hours to run. The impact of this is:

- The person running the process has to be on call and have remote access to check each step and initiate the next step.
- It can only be run on a weekend which impacts the staff member responsible for the process.
- If a step fails often the month end process can't be rerun until the following weekend as there isn't enough time left for the rerun

The Period End Processor automates the period end fee and member update run, as well as extracting all the data required for month and YTD management and trustee reporting.

Build methodology

Circatec worked with its technology partner Idiom to design and build a decision engine to run the period end process and reporting, plus a connector to extract data from the host database and update the host application.

The investigation and modelling phase identified the ability to utilise a host system function for the General Ledger update so this was developed as a separate output file.

The Period End Processor extracts the data and runs the entire period end process and report extract in a single run. Member data is updated directly into the database. General Ledger transactional data is posted to an update file that is returned to the host application. The standard General Ledger update program in the host system is used to update the relevant data files when the period end data has been verified.

There have been no modifications to the host application other than one additional index in one database table. The Period End Processor has been built, tested and deployed without any input from the vendor of the host system.

Outcome

The two key objectives have been met:

- * It is now an overnight process that can be run on demand.
- * There is no manual intervention other than to initiate the update function.

Total time to design, build, test and install the Period End Processor was under 50 days.

Features

The Period End Processor extracts member details from the host database. It:

- ⇒ Calculates member fees and insurance payments.
- ⇒ Checks the member account balance.
- ⇒ Insurance calculations include a check of member's age, insurance cover and risk profile.
- ⇒ Updates member records.
- ⇒ Posts transaction data to a GL update file.
- ⇒ Extracts data for month end reporting.
- ⇒ Outputs reporting data in CSV and XML formats to support month end reporting (Month and Year-to-Date values).

Client Quote:

"One of the greatest benefits is the ability to review the outputs prior to committing the transactions to the General Ledger.

The alternative is a massive reversal process followed by a large number of adjustment journals"

The Period End Processor replaces a number of sequential manual operations with a single, fully automatic process which is initiated from an icon on the administrator's desktop.

Automating these processes has eliminated 6 manual steps and reduced the elapsed time for the month and year end runs by 6–9 hours.

How it works

The period end process is initiated from an icon on the desktop and runs automatically overnight. The GL update is initiated from a menu option in the host application and can be run at any time during the day.

The Connector opens each member record in the host application database, extracting data from specific fields defined in the decision engine.

The Period End Processor applies the fee and insurance calculations and rules, debiting the member accounts and creating the appropriate General Ledger entries. At the same time the Period End Processor checks the member's age, status, account balance and insurance cover against the fund rules. Where applicable, status and insurance cover is changed.

Changes to member records are applied and the General Ledger postings are returned to the host system in an update file which the host application applies using existing update functionality.

The Connector extracts additional information to generate an extensive report output file in two formats, XML and CSV. This supports most reporting and Business Intelligence (BI) tools.

What it does

In the first pass, the Period End Processor opens over 120,000 member records and reads about 23 million transactions to establish the balances.

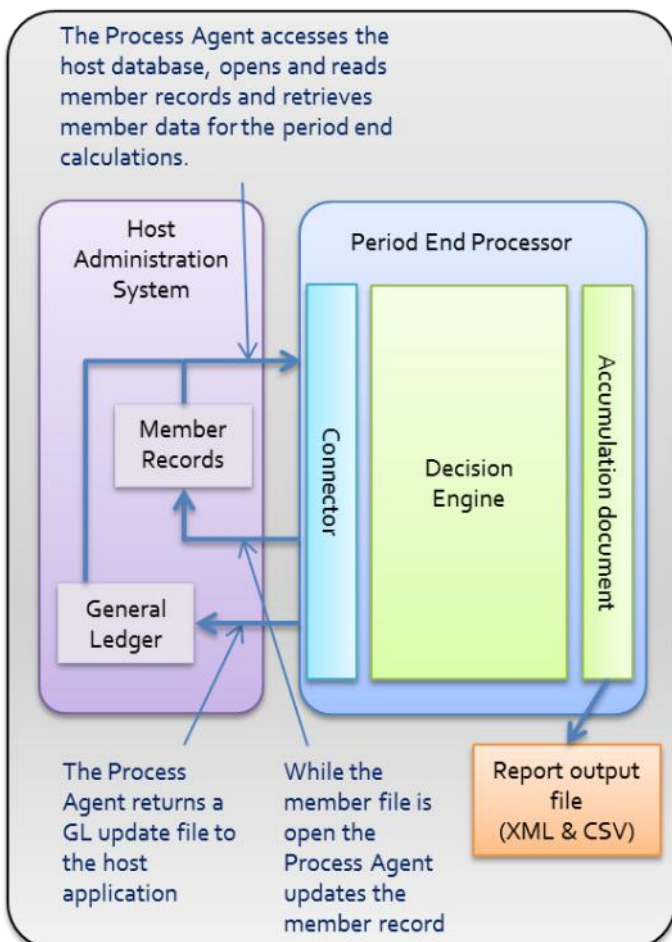
- * Determines member account balances:
 - Opening
 - Year to date
 - Period
- * Checks the member account balance:
 - If there is sufficient funds, it will deduct the total amount.
 - If there is insufficient funds, it applies the low account balance rules for fee deductions and insurance payments:
 - Suspends insurance cover if there is insufficient funds to pay the premiums
 - Adjusts insurance cover by member age
 - Adjusts premiums by period/part period
- * Validates investment profile
- * Creates a new insurance history record
- * Closes or starts insurance, depending on the account balance
- * Charges insurance fees for three different types:
 - Death, TPD, Salary continuance
- * Calculates and debits trustee and administration fees
- * Splits all fees and charges across the member investment profile
- * Validates that the member record entries and the GL entries balance
- * Changes the status of members based on contribution history
- * Fees are adjusted and applied based on the member account balance, which can't be a negative balance
- * Partial monthly fees are applied

The Period End Processor then runs a second pass to use the updated information for the month and year-to-date report extract.

The extract file consists of 67 data fields across the following categories:

- * Member details
- * Ledger movements and splits
- * Investment history
- * Reporting flags derived from member records or transaction runs
- * Member investment profile

The extract file has over 10 million data elements.



Performance statistics

There has been no optimisation of the database.

Activity	Duration	Notes
Database access and logging	4 hours 04 minutes	Accessing the host database. 128,874 member accounts are opened and read. Approximately 80,000 are current. Approximately 200 records per current member are read.
Rules execution	1 hour 30 minutes	165 decision nodes in the decision engine and 177 in the report engine. Approximately 13.4 million decisions in the first pass and 14.2 million in the 2nd pass.
GL update file	16 seconds	80,000 member accounts generate approximately 400,000 GL entries.
Report extract	1 hour 02 minutes	67 fields for approximately 80,000 current members per extract. Month and YTD are separate extracts. Approximately 10.7 million data elements.

These statistics demonstrate the ability of the decision engine to process high volumes of data through a large number of decisions in milliseconds per decision.

Designed to be configurable

The Connector

There will be fund specific data requirements for the:

- Period End Processor
- Report Output file.
- GL update file

Every client installation will include data mapping prior to configuring the Connector.

The Period End Processor

Client specific rules will be configured for:

- Member fees.
- Insurance cover and premiums.
- Insufficient funds.
- Inactive and lapsed members.
- Report output file content.

Ease of configuration

The backbone of the Period End Processor is an Idiom decision engine.

Changes are made quickly and with relative ease by:

- Opening the graphical decision model, and applying the changes
- Testing the changes using the inbuilt test facilities.
- Deploying the model to generate a client specific decision engine.

About Circatec

Formed in 1994 Circatec has been engaged in many complex assignments involving the application of information technology to business process improvement.

Circatec is at the forefront of the application of decision engines with business process automation to deliver significant productivity gains to Superannuation and Wealth Management.

Circatec is committed to the use of Model Based Development and Agile Methodologies to dramatically change the speed and cost of software development.

Decision Engines add a further dimension, enabling Circatec to develop complex financial functions with much greater certainty and provability, than can ever be achieved with manual programming.

We have proven results that demonstrate significant reductions in software development time with extremely high software quality. The more complex the requirement the more effective a Circatec solution will be.

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