

**META OFFICE**

**MERCURY**

**AN INTRODUCTION**



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Version 1 (web)

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## INTRODUCTION

Meta Office has been active in the student management system (SMS) market for a number of years. During that time we have developed various data exchange mechanisms, many of which are common across our products.

In broad terms there are three main types of data exchange:

1. The passing of data from one student management system to another. Usually in one direction but sometimes in both directions.
2. The acquisition of register and reference data from various tertiary agencies by a tertiary education organisation (TEO) for import into its SMS. Register data is defined as client specific lookup data such as a Course Register or Accreds file. Reference data consists of classifications such as ethnicities, lists of secondary schools, etc. Reference data is common across all clients.
3. The compilation and export of data from a TEO's SMS to tertiary agencies, e.g. the Single Data Return.

There is a compliance aspect to all three of these data exchanges which has its root in section 159YC of the Education Act 1989.<sup>1</sup>

In 2010 the Tertiary Education Commission (TEC) launched a project to replace the Single Data Return (SDR) with the Tertiary Learner Event Collection (TLEC). The SDR is a type 3 data exchange whereby TEOs report demographic, funding, enrolment, and outcome data to TEC and the Ministry of Education.

Experience tells us that however TLEC is implemented it is unlikely to be an all-encompassing return which makes other returns redundant. It is also highly likely that TLEC will change over time and probably quite quickly in the first few years.

The Mercury project has been set up to develop a generic software tool that facilitates the validation and transfer of specified data from any given source to any given destination. It will handle the movement of data in both directions and, therefore, will meet the requirements of the three data exchanges described above.

Because of its generic nature Mercury will ultimately also be capable of enabling data exchanges in other education sectors and, indeed, in other fields such as health.

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<sup>1</sup> "It is a condition of an organisation receiving funding under section 159YA that the organisation will supply to the Commission or Ministry, from time to time as required by the Commission or Ministry, and in a form specified by the Commission or Ministry, any financial, statistical, or other information that the Commission or Ministry requires the organisation to supply."

## THE BENEFITS OF MERCURY

We have identified a range of benefits that will result from the Mercury project.

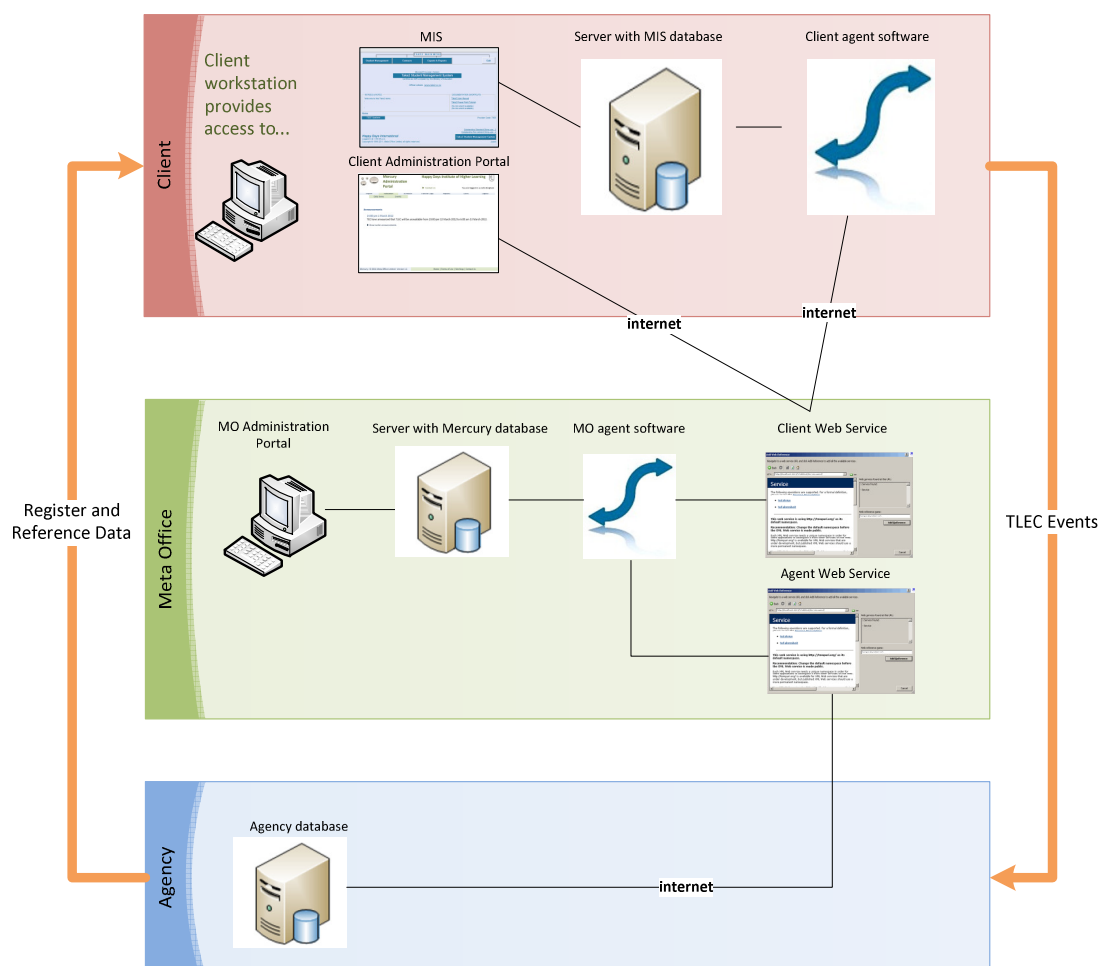
The benefits can be described as follows.

- By abstracting the data exchange function out of the SMS itself we are able to use a single mechanism alongside the three SMS products that Meta Office supplies. After the initial development costs this will prove to be cheaper to maintain than having to re-work the functionality embedded in each SMS. There will therefore be cost savings to our clients.
- Those components of Mercury that reside in the client's IT environment will require no maintenance on the part of the client. They will not require any third party software. They will not require updates to be installed. They will require no data storage in the client's environment. This alleviates some of the issues associated with returns currently and will make compliance easier and more reliable for clients.
  - For instance currently clients have to have installed the correct version of their student management system in order for SDR files to be created in the correct format. With Mercury this will not be a requirement. Mercury will be updated by Meta Office as required based on the rules and conditions of the tertiary agencies and, therefore, data to be sent to the agencies will always be correctly formatted without any need for the client to run updates.
  - Up-to-date register and reference data will always be available. For example, when reporting Unit Standard outcomes to NZQA the validation process requires that the client has a current version of the Units.txt file and the relevant Accreds.txt file. This is sometimes a problem that causes validation to fail or batches to be rejected. With Mercury the files will be automatically updated by the system immediately prior to validation.
  - Another NZQA-related benefit is illustrated by the proposed change from the current simple txt file format to an XML-based return for the four electronic return types. For a Mercury user the change will simply happen, requiring no action on the part of the client (or their SMS supplier).
- It has become evident to Meta Office that the cost and effort of ensuring ongoing data exchange compliance is incurred by other organisations in the tertiary sector and – presumably – elsewhere. We already have indications from several sources which do not use our products that they are open to the idea of using Mercury. This includes several TEOs and a SMS supplier. The cost savings mentioned above can therefore be more widely shared through the sector.
- Tertiary agencies should be happy because it will improve the timeliness and quality of data received.

## OVERVIEW OF MERCURY

Mercury comprises a number of components. The components manage data exchanges between entities. The diagram below illustrates Mercury working in a Client to Agent relationship.

### Mercury Generic Data Exchange Agent – Client to Agency



The various components can be briefly described as follows.

#### CLIENT AGENT SOFTWARE

The Client Agent is normally installed on the client system on the server used by the management information system with which Mercury is to work. In the case of a TEO this would be on the student management system server.

The Agent stores no data but periodically runs a set of tasks that moves formatted data back and forth between the Mercury database and the MIS database or, possibly, to another location on the client server. The Agent may also update data in the MIS database to tag the status of data with respect to whether it has already been passed to the Mercury database.

The Agent is not in any way client-specific. It will run automatically and as it does so will acquire client configuration information from the Mercury database. Some client configuration data will be set by the client themselves via the Client Administration Portal (see below) but the key configuration data will be that set-up by Meta Office and which defines the client's MIS, data validations, and the data mappings that are required in each data exchange.

#### CLIENT ADMINISTRATION PORTAL

The Client Administration Portal is a browser-based interface used by the client to supply some configuration data, to request register and reference data, and to produce key management and performance reports based on the client's data held in the Mercury database. All data displayed, entered and updated via the Client Administration Portal is stored in the Meta Office database.

Configuration data includes the specification of what data is to be validated, the frequency of data transfers, how event-based data is to be recognised, etc.

The screenshot displays the Mercury Administration Portal interface. At the top left, there are three circular icons and the text "Mercury Administration Portal". To the right, it says "Happy Days Institute of Higher Learning" with a logo. Below this, there is a "Contact Us" link and a user status indicator: "You are logged in as John Bingham". A horizontal navigation bar contains tabs for "Import", "Validation", "Schedule", "Transfer Logs", "Reports", "Users", and "Logout". Under the "Validation" tab, there are sub-tabs for "Data Items" and "Events". Below the navigation bar, there is an "Announcements" section with a date "14:00 pm 1 March 2012" and a message: "TEC have announced that TLEC will be unavailable from 23:00 pm 12 March 2012 to 6:00 am 13 March 2012." A link "Show earlier announcements" is provided. At the bottom, a footer bar contains the text "Mercury : © 2011 Meta Office Limited: Version 1.1" and links for "Home | Terms of Use | Site Map | Contact Us".

The reason for producing management and performance reports from the Mercury database rather than the MIS database is important. The issue is that the Mercury database is perfectly synched with the destination database whereas the MIS database may not be, depending on the frequency of data transfer.

Thus reports created from the Mercury database will produce exactly the same results as those produced at the destination. In the case of a TEO the set of available reports will include items such as Education Performance Indicator (EPI) reports and audits, EFTS usage reports, enrolment counts, student demographics, etc.

#### CLIENT/AGENT WEB SERVICES

A web service is a standardised way of integrating web-based application over the internet. Web services are used as a means for organisations to communicate with each other. They allow organisations to communicate data without intimate knowledge of each other's IT systems behind a firewall.

The Client Web Service runs at Meta Office and provides the link between the Client Administration Portal and the Meta Office Agent on the one hand, and between the Client Agent software and the Meta Office Agent on the other hand.

The Agent Web Service performs a similar service linking the Meta Office Agent and the Agency Database.

#### META OFFICE AGENT SOFTWARE

The Meta Office Agent runs on the Meta Office server. It runs a set of tasks that move data between the client and the agency via the Web Services. The Agent validates data coming from the client and it also updates data stored in the Mercury database

#### MERCURY DATABASE

The Mercury database stores various types of data.

- Client and client configuration data.
- User profiles.
- Billing data.
- Client data in transit and client data lodged with the agency.
- Reference and register data.

#### META OFFICE ADMINISTRATION PORTAL

The Meta Office Administration Portal is the tool used by Meta Office to manage Mercury. This involves setting up MIS specific data mappings, adding and managing clients, billing clients, monitoring data exchanges and handling exceptions, ensuring the availability and accuracy of register and reference data, etc.

## FUTURE DEVELOPMENTS

Given the track record of Governments and Government agencies Mercury will continue to evolve but, in a sense, that is the whole point. Mercury does the evolving and its users (and their software suppliers) don't have to.

However there is scope for other development even just in the tertiary sector. Here are some examples:

- The long yearned for method of exchanging academic transcripts between TEOs.
- Potentially the exchange mechanism could be based on the Bologna standard.
- The acquisition of NZQA record of learning data by TEOs.
- Facilitating co-operation and mergers between TEOs.