

## Issue of Duplicate Settlements found at Derby

Ref: r:\hng plan x\architecture\end to end assurance\0129.dupsettle.doc

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### 1. Introduction

The purpose of this note is to describe the issues found at Derby this week with Duplicate settlements and present options for fixing the defect.

### 2. The Problem

There have been two cases in Derby Post Office of a Basket being recorded twice in the accounts. This is tracked via PEAK 193787.

The two cases occurred on different days (26/1 and 27/1) and at different counters and with different Clerks. As in both cases the Baskets involved Banking transactions, the issue was detected by the DRS Reconciliation reports. A check was carried out on 28/1 and at that time there were no other occurrences of the problem in Derby or any of the other HNG-X Branches.

### 3. The Cause

The cause of the problem is down to a bug at the counter. What happened was the following:

- 1) The Clerk Selected Fast Cash to Settle a Basket
- 2) The corresponding Cash Transaction was added to the Basket, and since this resulted in a Balanced Basket, the Basket was sent to the Data Centre for Settlement.
- 3) The BAL successfully stored the transactions associated with the Basket and returned a response to the counter
- 4) The User pressed the Settlement Button (erroneously).
- 5) The Settlement component at the counter then called the Printer subsystem to see if a receipt required to be printed.

The issue is down to steps 4) and 5). There is a small gap while one subsystem calls another during which user interaction may be picked up, and the Settle Button was pressed in this period. The Settlement function was then re-invoked and saw that there was a Basket in existence and as there was and it was balanced, it sent it to the BAL again.

The original Basket cannot be destroyed until after the Receipts have been printed and so the basket had not yet been cleared down.

## 4. Solution Options

A fix for the issue can be delivered two parts:

- Tactical solution implemented in the BAL
- Strategic fix implemented at the counter

These are detailed below.

### 4.1 Tactical solution

Three changes have been proposed for fixing this particular issue and it is recommended that all 3 are implemented:

A check is put into the BAL that no records with the current basket's SSN are held in BRDB\_RX\_REP\_SESSION\_DATA for this counter and Branch. This will protect against the current problem or any other related issues.

This does have a performance impact, although the current view is that until we hit a significant number of branches [>2000] this will not cause any issues due to the current performance of the system. As such it is recommended that this change is removed before rollout. The fix has been designed so that it is controlled by an Application.properties file and so removing the change can be done by OCP.

A plan for implementing this fix is being worked on and the team are looking to understand whether this can be implemented into Live by 4<sup>th</sup> February.

### 4.2 Strategic solution

The strategic fix is to make a change to the main BLO Class from which many business subsystems are derived. This change would ensure that whenever the asynchronous call mechanisms are used between BLOs, then a block is put on any user input between the calling BLO making the call and the receiving BLO receiving the call.

The change is a straightforward code change to make. However, full regression testing of the counter is recommended. The change will be available tomorrow for testing in the development environment, running the automated regression test suite.

Confirmation of how this will be intercepted in a counter drop is currently being considered, as is the suite of regression tests to be run in CIT and then the full test environment. As part of this exercise we would also identify exactly which Business Systems are affected to aid targeted testing. A full plan for deploying this into live will be produced by COP 1<sup>st</sup> February.