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## Initial Complaint Review and Mediation Scheme

### Horizon Data

#### Issue

Second Sight has asked:

*"Can Post Office or Fujitsu edit transaction data without the knowledge of a Subpostmaster?"*

**WORDING OF QUESTION TO BE CONFIRMED WITH SS BUT THIS WOULD BE A PREFERRED FORMULATION**

This question is often phrased by Applicants as:

*"Can Post Office remotely access Horizon?"*

Phrasing the question in this way does not address the issue that is of concern to Second Sight and Applicants. It refers generically to "Horizon" but more particularly is about the transaction data recorded by Horizon. Also, the word "access" means the ability to read transaction data without editing it – Post Office / Fujitsu has always been able to access transaction data however it is the alleged capacity of Post Office / Fujitsu to edit transaction data that appears to be of concern. Finally, it has always been known that Post Office can

1 | ~~remotely affect a post additional, correcting transactions to a~~ branch's accounts in ways that are visible to Subpostmasters (ie. Transaction Corrections and Transaction Acknowledgements) – it is the potential for any hidden method of editing data that is of concern.

In light of these issues, Second Sight and Post Office have therefore agreed the above reformulation of the question to be addressed.

In summary, Post Office confirms that neither it nor Fujitsu can edit transaction data without the knowledge of a Subpostmaster.

#### This document

This document provides a generic response to the general question posed above. It is noted that, as yet, Second Sight has not presented Post Office with a specific evidenced example of

2, 3 | ~~a data irregularities or anomalies that may suggest data integrity issues. where Post Office or Fujitsu have edited transaction data without the knowledge of a Subpostmaster.~~

4, 5 | Nevertheless, Post Office is prepared to investigate ~~any suspected~~ incidents alleged by

6, 7 | claimants as part of the mediation process of this nature providing that is clearly identified (by at least the date, and preferably also the approximate time ) in an Applicant's Case Questionnaire Response.

This document has been prepared with the assistance of Fujitsu and the Post Office IT&C Team. Both have approved this document as being accurate.

#### Response

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In simple terms:

- Transactions are recorded in branches by Subpostmasters and their staff.
- The transaction data is transmitted from a branch Horizon terminal to the Post Office data centre.
- At the data centre, the transaction data is stored on a secured server called the Audit Store.

- 8 | • The transaction data in the Audit Store is what is considered to be **a the source for** "branch's accounts". GT1

9 | There is no functionality in Horizon for either a branch, Post Office or Fujitsu to edit, manipulate or ~~remove~~ remove a transaction once it has been recorded in a branch's accounts.

10 | The following safeguards ~~are~~ in place to prevent such occurrences:

- Transmission of baskets of transaction data ~~between~~ between Horizon terminals in branches and the Post Office data centre is encrypted. DJ2
- 11 | • Transmission of baskets of transaction data between Horizon terminals in branches and the Post Office data centre cryptographically protected through the use of digital signatures.
- Baskets must net to nil before transmission. This means that the total value of the basket is nil and therefore the correct amount of payments, goods and services has been recorded in the basket. Baskets that do not net to nil will be rejected by the Horizon terminal before transmission to the Post Office data centre.
- Baskets of transactions are either recorded in full or discarded in full – no partial baskets can be recorded to the Audit Store.
- All baskets are given sequential numbers (known as Journal Sequence Numbers or JSNs) when sent from a Horizon terminal. This allows Horizon to run a check at the Data Centre for missing baskets (which triggers a recovery process) or additional baskets that would cause duplicate numbers (which would trigger an exception error report to Post Office / Fujitsu).
- All transaction data in the Audit Store is digitally sealed – these seals would show evidence of tampering if anyone, either inadvertently, intentionally or maliciously, tried to change the data within a sealed record.
- Automated daily checks are undertaken on JSNs (looking for missing / duplicate baskets) and on the digital seals (looking for evidence of tampering).

#### Questions for FJ:

- **Is it correct to say that even a malicious attempt to edit transaction data in the audit store would leave a footprint?** DJ3
- **When data is retrieved from the audit store, are the digital seals and JSNs checked every time?** CT4

## Page 2 Comments

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- GT1** I think it is important to distinguish between audit data which is a raw list of detailed transactions and the branch's accounts. The logic is that the branch's accounts are derived from the transactions; all transactions must be accurately accounted for.  
*Godeseth Torstein, 04/12/2014 02:30 PM*
- DJ2** This should be removed as the next paragraph summarises the protection in place and is more accurate in relation to the question of data integrity  
*Davidson James, 05/12/2014 11:55 AM*
- DJ3**  
The system has been designed so that transaction data cannot be edited, only new transactions added via standard operating processes. All access to systems are logged and access is segregated following ISO27001 principles (this is audited annually).  
*Davidson James, 05/12/2014 11:57 AM*
- GT4** Again essentially yes. It would be possible for us to retrieve data from the audit store without doing these checks, but if the data is being used in support of a prosecution or such like then these checks are always made.  
*Godeseth Torstein, 04/12/2014 02:48 PM*



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Although once recorded a transaction cannot be edited or deleted, transactions (including negative transactions) can be **added** to a branch's accounts in the following ways only:

Are the three ways below, the only ways to affect a branch's accounts?

## 1 In branch

Branch staff record additional transactions during their normal daily use of Horizon. So long as they are logging on with their own unique User ID and not sharing User IDs and passwords within a branch, each transaction will be logged against the user's own User ID.

Horizon does not include functionality that allows either Post Office or Fujitsu to log on to a branch terminal of Horizon remotely in order to edit transactions recorded by Branch staff branch's. It is possible for Fujitsu to log on remotely to a branch in order to provide support and conduct maintenance but this does not allow access to any functionality that could be used edit branch data.<sup>GT5</sup>

Questions for FJ:

- 12 • Is the above statement correct? No; we cannot log on to a branch remotely
- What assurances are in place that this support access cannot be misused in order to conduct transactions in branch?
- 13 • The following responses highlighted in green refer to any attempts to change the data/transactions by someone in the data centre.
- 14 • 1. The system is designed to prevent it
- 15 • 2. The system is designed to leave a footprint of actions taken by support staff.
- 16, 17 • 3. The audit trail for transactions coming from the branch would be inconsistent with
- 18 the branch accounts.

There is the capability for Post Office employees to log on to a branch terminal locally (i.e. by being physically in a branch) using a new User ID and password and then conduct transactions. This would only be done in special circumstances (such as when defunding a branch following a branch closure). Any transactions conducted would be recorded against that new User ID and not against the User ID of any branch staff.

Questions for POL / FJ:

- What controls are in place to make sure that the above local access is not misused?
- 19 • This is for POL to answer – not FS.

## 2 TAs and TCs

Post Office can send transaction acknowledgements (TA) or transaction corrections (TC) to branches. TAs are used to record transactions that have been processed in branch through other systems (eg. the sale of Lottery products on the Camelot terminal) and TCs to correct errors made by branches.



## Page 3 Comments

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**GT5**      The system is designed to allow logon only from the branch. We can see a branch's data from the centre, but this does not imply that we 'log on' to the branch.  
*Godeseth Torstein, 04/12/2014 02:52 PM*

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Both TAs and TCs need to be accepted by a user logged into the branch Horizon terminal before they are recorded in the branch accounts. They are therefore fully visible to each branch.

### 3 Balancing Transactions

Fujitsu (but not Post Office) can manually inject a new transaction into a branch's accounts using the Balancing Transaction Process. This process is used in the event of an accounting error that cannot be corrected by use of a TA or TC and it is in accordance with good industry practice to have functionality of this nature in a system like Horizon.

I believe that we have only ever done one of these 'Balancing Transactions' so we would have to discuss that as a specific. The need to do so was triggered by a bug in the code which meant that there was no way to bring the system to a correct state without intervening at a very low level. This whole process was agreed with POL.

I think the questions below are not of any real value given the above.

#### FJ – What is the effect of a Balancing Transaction?

- What types of transaction can it add?
- Does it add a transaction or an entirely new basket? <sup>DJ6</sup>
- Can it add a transaction to an existing basket?
- If a new basket, does the new basket get a new JSN? How does this not clash with the JSNs generated by the branch terminal? <sup>DJ7</sup>
- Where does the BT take affect? If it makes changes in the Audit Store, how is this change communicated (if at all) back to the records held on the branch terminal? <sup>DJ8</sup>
- Does the BT affect the branch's cash and stock holdings? <sup>DJ9</sup>
- Does the BT affect the branch's end of trading period balance?

The use of this process is strictly controlled by Post Office. For a transaction to be manually injected:

- FJ – please describe the process and controls in place for use of this process? <sup>DJ10</sup>

These access controls meet industry good practice standards and are audited under ISO27001 and by LINK (the industry body for ATMs) and PCI (card payment compliance).

Injected Balancing Transactions are visible in the branch's accounts and so the injected transaction will be visible to a Subpostmaster. The transaction is also attributed to a unique transaction ID used only for these type of transactions. It is not recorded against the User ID of any member of branch staff.

FJ - Is this correct?



## Page 4 Comments

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- DJ6** Note – it is not possible to edit existing transaction / basket data as detailed earlier.  
*Davidson James, 08/12/2014 03:54 PM*
- DJ7** These are new transactions with unique jsn's and identifiers  
*Davidson James, 08/12/2014 03:55 PM*
- DJ8** Note – there are no records held on a branch terminal.  
*Davidson James, 08/12/2014 03:53 PM*
- DJ9** See details of incident in March 2010 for details on how this process works  
*Davidson James, 08/12/2014 03:56 PM*
- DJ10** Same as above  
*Davidson James, 08/12/2014 03:56 PM*

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- When are SPMRs made aware that an injection is to occur? Before or after it has been injected?<sup>DJ11</sup>
- How are Balancing Transactions visible to a branch?
- Can a transaction be added to any trading day?
- If so, can a transaction be added to a day more than 60 days ago?
- If so, given that branches can only see 60 days of data on their terminals, how would a Balancing Transaction be visible to a branch?

This process is materially the same for Horizon and Horizon Online.

This use of Balancing Transactions is incredibly rare. Within the Audit Store is an audit log that automatically records any use of Balancing Transactions. This log shows that a Balancing Transaction has only be used once in the last 7 years (being the retention period for the log). A Balancing Transaction was injected on 3 March 2010 and only affected one branch (FAD code: 226542 - which is not a branch under review in the Scheme).

FJ – the above information is based on an email from John Simpkins to Deloitte in May 2014 – please confirm that this is correct?

Post Office Limited

DATE



## Page 5 Comments

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**DJ11**    See incident in March 2010 for details  
*Davidson James, 08/12/2014 03:57 PM*

## Track Changes

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1	Change	<i>Davidson James, 08/12/2014 08:25 AM</i>
2	Delete	<i>Davidson James, 08/12/2014 08:21 AM</i>
3	Change	<i>Davidson James, 08/12/2014 08:22 AM</i>
4	Delete	<i>Davidson James, 08/12/2014 08:22 AM</i>
5	Insert	<i>Davidson James, 08/12/2014 08:23 AM</i>
6	Delete	<i>Davidson James, 08/12/2014 08:24 AM</i>
7	Insert	<i>Davidson James, 08/12/2014 08:24 AM</i>
8	Change	<i>Godeseth Torstein, 04/12/2014 02:29 PM</i>
9	Change	<i>Davidson James, 05/12/2014 11:44 AM</i>
10	Change	<i>Davidson James, 05/12/2014 11:44 AM</i>
11	Insert	<i>Godeseth Torstein, 04/12/2014 02:45 PM</i>
12	Insert	<i>Godeseth Torstein, 04/12/2014 02:54 PM</i>
13	Insert	<i>Godeseth Torstein, 04/12/2014 03:11 PM</i>
14	Insert	<i>Godeseth Torstein, 04/12/2014 03:11 PM</i>
15	Insert	<i>Godeseth Torstein, 04/12/2014 03:09 PM</i>
16	Insert	<i>Davidson James, 05/12/2014 12:08 PM</i>
17	Insert	<i>Godeseth Torstein, 04/12/2014 03:10 PM</i>
18	Insert	<i>Davidson James, 08/12/2014 08:33 AM</i>
19	Insert	<i>Godeseth Torstein, 04/12/2014 03:14 PM</i>
20	Insert	<i>Godeseth Torstein, 04/12/2014 03:18 PM</i>
21	Insert	<i>Godeseth Torstein, 04/12/2014 03:14 PM</i>