Inland Revenue
Te Tari Taake

Inland Revenue

TDS History Bulk File Feed V0.80 31 January 2018 – Build Pack

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About this Document

This document is provided to Software Providers to support the build and use of the Transaction Data Service (TDS) History Bulk File Feed. It also describes the relationship with other build packs, architecture of the technical solution, schemas (file formats) and endpoints; it also provides sample file content.

This document is part of the suite of build packs that software developers need for implementing interfaces between their software and Inland Revenue TDS.

Document Control

Document Name	TDS History Bulk File Feed - Build Pack
Document Version	0.80 Draft
Contact	For feedback relating to this document and/or further information please contact the Inland Revenue Software Developers Liaison Unit (SDLU) E: mailto: SoftwareDevelopersLiaisonUnit@ird.govt.nz

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Overview

1.1 Solution overview

Transaction Data Services (TDS) as a business service provides the following three technical services:

1. The *TDS Bulk File Feed* is an overnight file feed that pushes transaction data to Tax Agents or Customers via the Software Provider software they utilise. It is designed to cater for the high volumes of transactional data.

2. The *TDS Real Time Technical Service* is a set of web services for querying individual customers/accounts. It is intended for occasional use when the latest information is required, or information is not available from the Bulk File Feed (e.g. a new customer).

3. In addition, until transition to START and TDS has phased out all dependency on Tax Agent Web Service data, there will be a **TDS History Bulk File Feed** for data in Tax Agent Web Service format.

    a. This is primarily a once only file feed that pushes historic transaction data to agents or parties via the Software Providers whose software they utilise. Since this history will not change frequent updates will not be sent. This facilitates transitioning of Tax Agent Web Service data previously provided to the equivalent data in START and in TDS format.

    b. There will be an ability to do an ad hoc request for the same file content for an additional agent or customer later or for additional periods that might get converted and reopened later.

    c. There will also be an ability to do an ad hoc request for an extended set of content that goes back further than the converted periods in START and includes all periods and transactions for a time range including those that are not considered open or Inland Revenue kept in START.

All TDS services will provide data for only Account Types (tax types) in Inland Revenue's new system, START. See Overview Build Pack for details of when particular Account type data will be available through TDS.

This build pack focuses on the highlighted service:
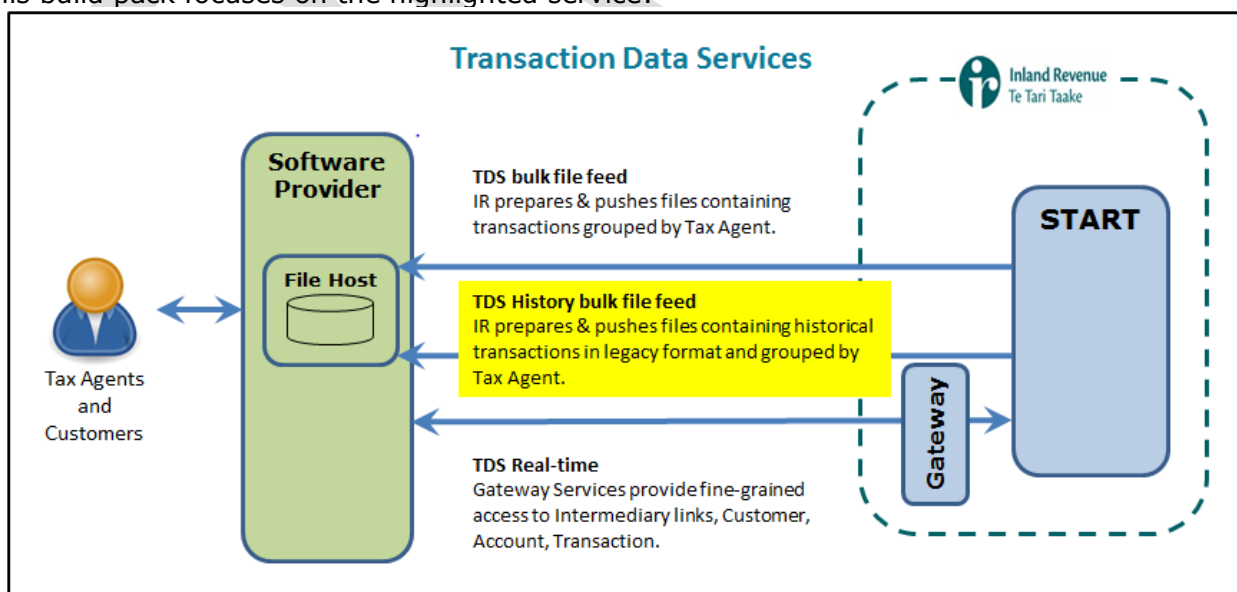
Figure 1: Transaction Data Services overview

1.2 Intended audience

This document is intended to be used by technical teams and development staff. The reader is assumed to have a reasonable level of technical knowledge in order to comprehend the information provided. A range of technical terms and abbreviations are used throughout this document, and while most of these will be understood by the intended readers, a glossary is provided in Appendix A—Glossary.

1.3 Related documents

All Build Packs are available on the Inland Revenue BT GitHub website here:

https://github.com/InlandRevenue/Gateway-Services/wiki

The following diagram explains the relationships between the documents supporting the TDS solution:
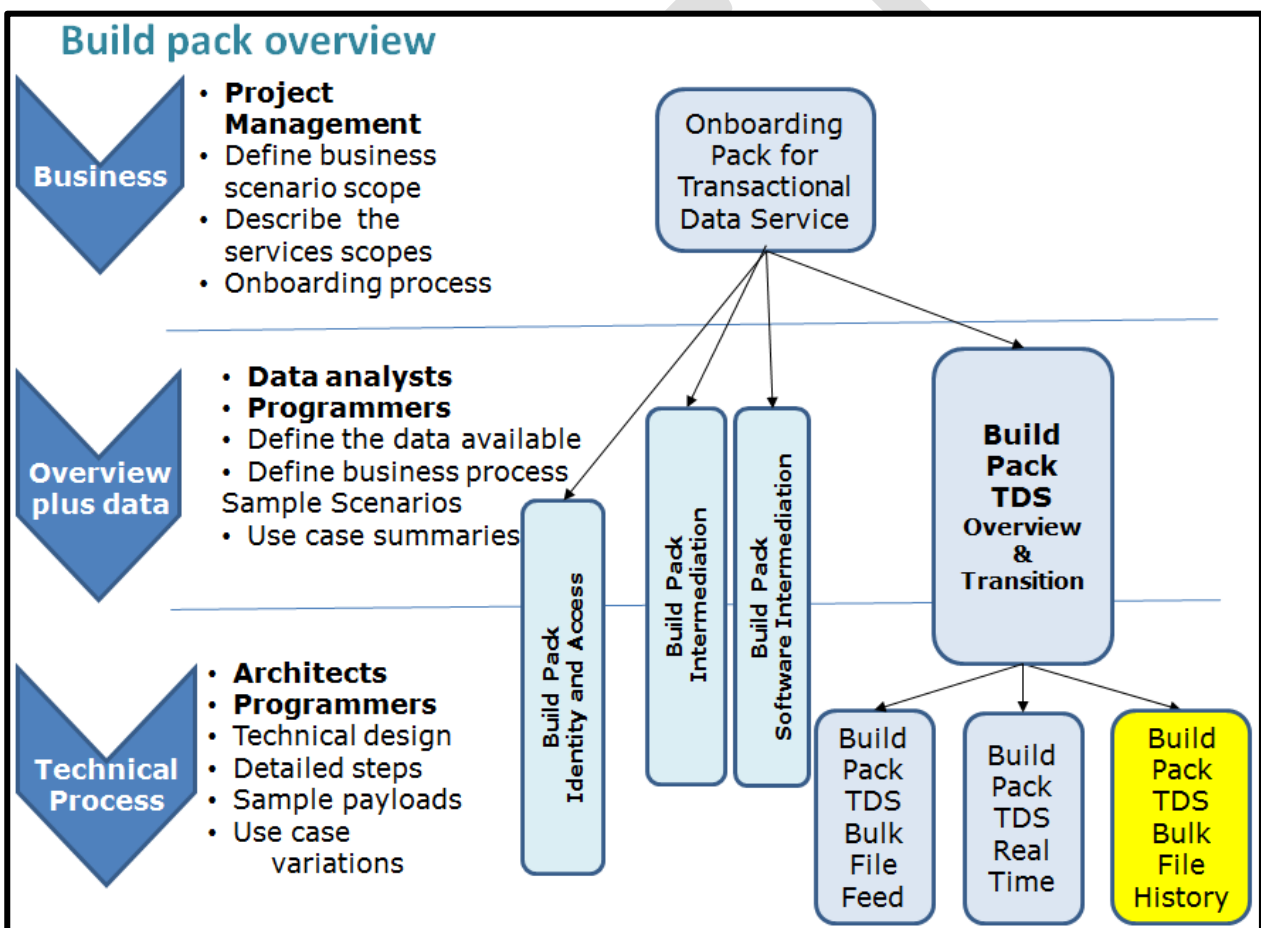
Figure 2: Onboarding and build pack structure for TDS Transition

| Name	Description
TDS – Onboarding Pack	Provides the onboarding guide for consumers of the various TDS components. Gives details of prerequisites, setup requirements, testing, contact lists, etc. It is intended to get an organisation up and running using the TDS solution. This document will not be available at the link below; instead it will be sent to Software Providers when necessary.
TDS - Overview and Transition	Describes the service components at a high level and provides an overview of the data available through TDS. Also contains information about how the component services that make up the TDS solution interact with each other.
TDS Bulk File Feed	Details the technical requirements and specifications, processes and sample payloads for the TDS Bulk File Service
TDS Real Time Feed Build Pack	Details the technical requirements and specifications, processes and sample payloads for the TDS Real Time Feed
TDS History Bulk File Build Pack	This document
Identity and Access Build Pack	Details the Authentication mechanisms used by Inland Revenue.
Software Intermediation Build Pack	Details the technical requirements and specifications for the linking of Tax Agents/Customers to Software Providers to enable these links to be used by the Bulk File Feed and Bulk file History Service.
Intermediation Build Pack	Details the technical requirements and specifications querying the links between Tax Agents and Clients to enable these links to be used by the TDS Real Time queries.

Table 1: Related documents

2   Technical design

2.1 Overview

The TDS Bulk File History Feed is provided to Software Providers as a one off feed of historical data. Historical data is defined as all transactions converted from the old system (FIRST) into the new system – being START. Details of the Account types and years converted can be found in the TDS Overview and Transition Build Pack.

The TDS Bulk File History Feed is based around a file transfer solution, where Inland Revenue will send (via SFTP) information to the Software Provider once only.
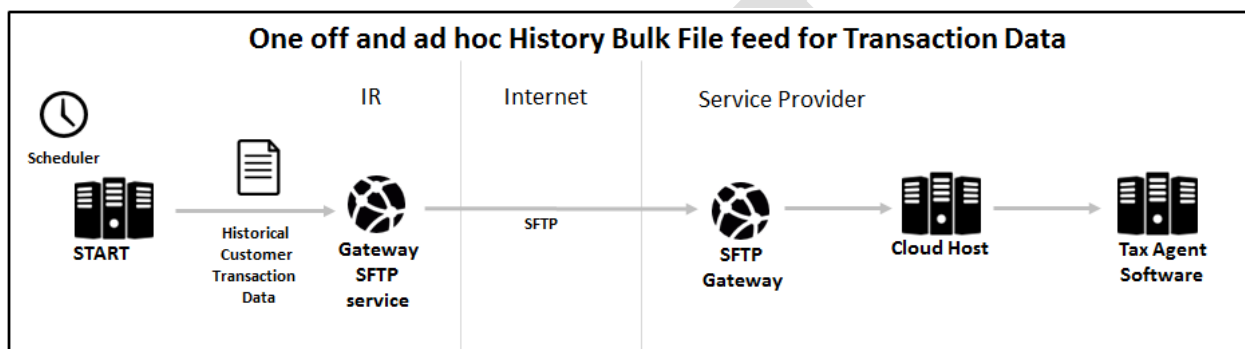
Figure 3: One off and ad hoc History SFTP file

The transfer will use the same SFTP path set up during onboarding for the TDS bulk file updates. The file is sent from START via a gateway SFTP service to the Software Provider SFTP gateway in a central cloud location from where it can be made available to their software applications and users.

Additionally Software Providers can request ad hoc manually generated files from Inland Revenue support for the same dataset as during initial transition but for a specific client or customer who might be new or might have a newly reopened and converted period. These files will be sent over the same SFTP channel when generated.

Additionally Software Providers can also request ad hoc manually generated files from Inland Revenue support for **an extended history**, for a specific agent or customer. These files will be sent over the same SFTP channel when generated.

Each subscribing Software Provider will receive a number of zipped files containing historical data relating to Tax Agents/Customers that use their software product.

To determine which customer information is sent in the initial one off batch to which Software Provider, a link needs to be established at Inland Revenue between the Tax Agent or Customer and the Software Provider – this link is established as part of the initial bulk linking.

To determine which customer information is allowed to have ad hoc requests from the Software Provider, a link needs to be established at Inland Revenue between the Tax Agent or Customer and the Software Provider – if not part of the initial bulk linking this link is maintained via the Intermediation Service for both the TDS bulk file feed and this ad hoc history request purpose.

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This is a new web service that is being made available to support the [TDS Bulk File Feed](#) long term and this History feed for the ad hoc request use.

To ensure all Tax Agent and Customer data is sent in the History File it will be important that all Software Providers have a link to their clients in place at the time the file is created. This will be accomplished by Bulk linking – see use case PUC202 in [TDS Overview and Transition Build Pack](#)

For the purposes of this document, it is assumed that these links are in place and the business context is understood; refer to the TDS overview build pack for the broader context.

2.2 Transfer mechanisms

2.2.1 Connectivity for bulk file feed
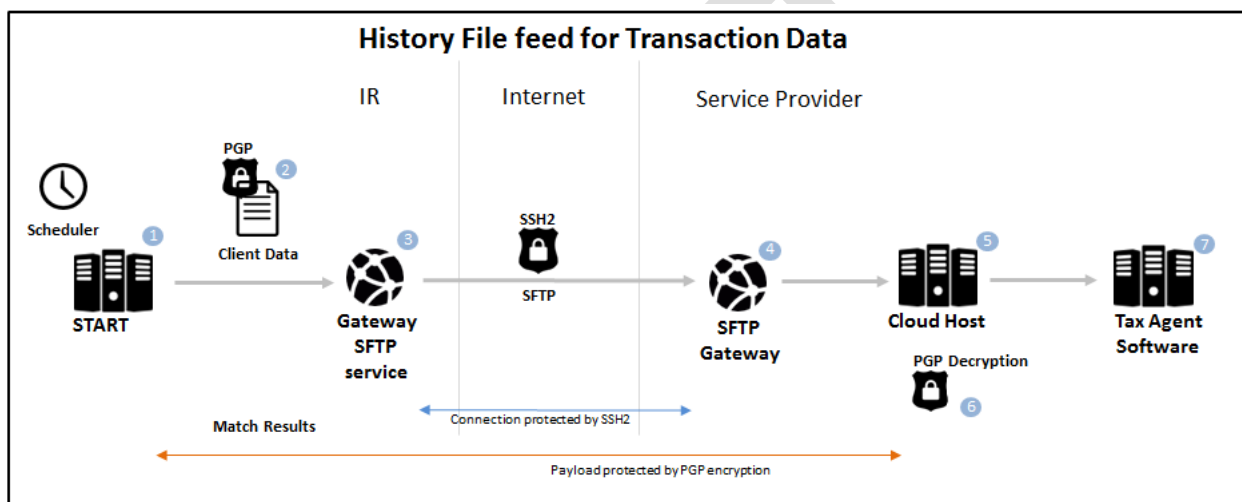
Figure 4: Connectivity and security

The numbers above show the sequence in the path the bulk update files travel as described in the rest of this document.

Software Providers will host an SFTP server that Inland Revenue will upload the History file to, along with the Bulk File. SFTP 3.0 and SSH version 2.0 must be used. Inland Revenue will provide its public key from a key pair to be set up for access to the Software Provider SFTP site. The exact keys and their nature will be agreed during the onboarding phase. For SFTP keys Inland Revenue will prefer to be NZISM compliant and therefore to use ECDSA keys. Where a Software Provider cannot support this RSA 2048 keys will be used.

Note: Inland Revenue expects to try to phase out non-EC keys around 2020.

PGP (as per RFC 4880) is used for payload encryption and signing—this is required due to the sensitivity of customer data being shared and especially considering the large volumes involved. Inland Revenue thereby ensures that once a file is transferred to an endpoint only an authorised party can interpret it. As per PGP convention the receiver (Software Provider) keys are used by the sender (Inland Revenue). These PGP keys need to be 2048 bit RSA.

The PGP encryption will use Advanced Encryption Standard (AES) with a 256-bit key and the PGP hashing will be done with Secure Hash Algorithm (SHA) SHA-256.

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2.3 File structure

The files sent via SFTP are zipped files as described below.

2.3.1 Multiple ZIP files

Information will be sent as one or more ZIP files containing customer information.

A control file will be sent containing a list as follows:

- The zip file(s)
- For each zip file a list of files inside it and how many transactions and periods are included

The control file serves various purposes:

- It needs to be used to know when the zip files received is equal to the intended list in the control file.
- Some Software Providers might use it to validate that all intended files in the zip files are present, other Software Providers might just rely on the PGP signing to ensure that.

The size of each ZIP file will be limited to 100 million transactions to optimise file transmission performance including retry overhead in case of failure. Client or Customer data will not be split between multiple files. It is possible for agents to be spread across multiple files.

Zip files are individually PGP signed and encrypted, allowing verification that content was received and unmodified.
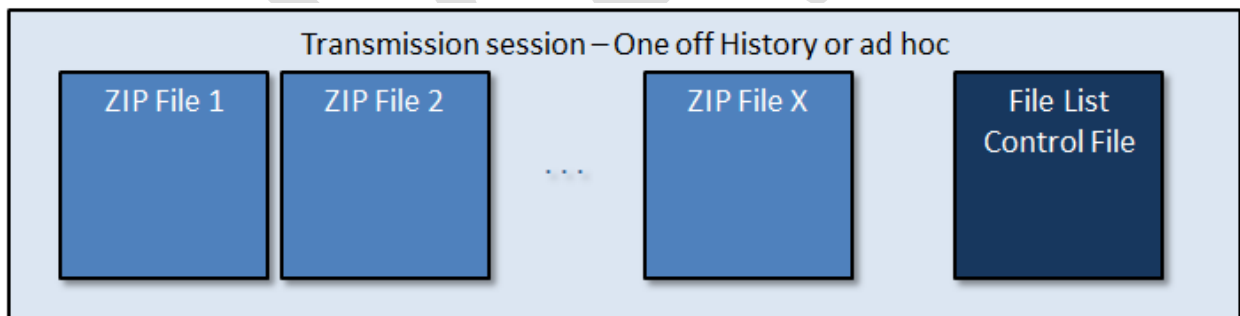
Figure 5: Zip Files plus Control file

2.3.2 ZIP file structure and control file content

Each ZIP file will contain Tax Agent files and/or Customer files. The last zip file in a set will also contain an Intermediation link listing file. This file lists all the Tax Agents with a Software Intermediary link to the Software Provider. It also lists the Clients per Agent.

Each Zip file will be PGP signed and PGP encrypted using the Software Providers Public PGP keys for signing and encryption respectively.

There will be one Tax Agent file with the data for all the customers linked to the given tax agent.

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To optimise performance (of encryption processing) the above files with Tax Agent information will be split across more than one file when they go beyond 100,000 transaction level elements.

All the above will initially go into one zip file, but be split across multiple zip files whenever the total size exceeds 100 million (100,000,000) transactions.

Even in such a scenario the data for a specific customer (or tax agent client) will still not be split across multiple zip files.

Along with each set of ZIP files a control file will also be present that will contain a list of zip files and the files within the ZIP file(s). This control file will also reflect the number of transactions and periods contained in each file.

All Customer data linked to a Software Provider directly, not via a Tax Agent, will be put into one Customer file for that Software Provider. That file will have a root Customers element representing the list of all customers directly linked to the Software Provider. This file will be split into multiple files whenever it exceeds 100,000 transaction level elements, but any individual Customer's data will be in only one file.
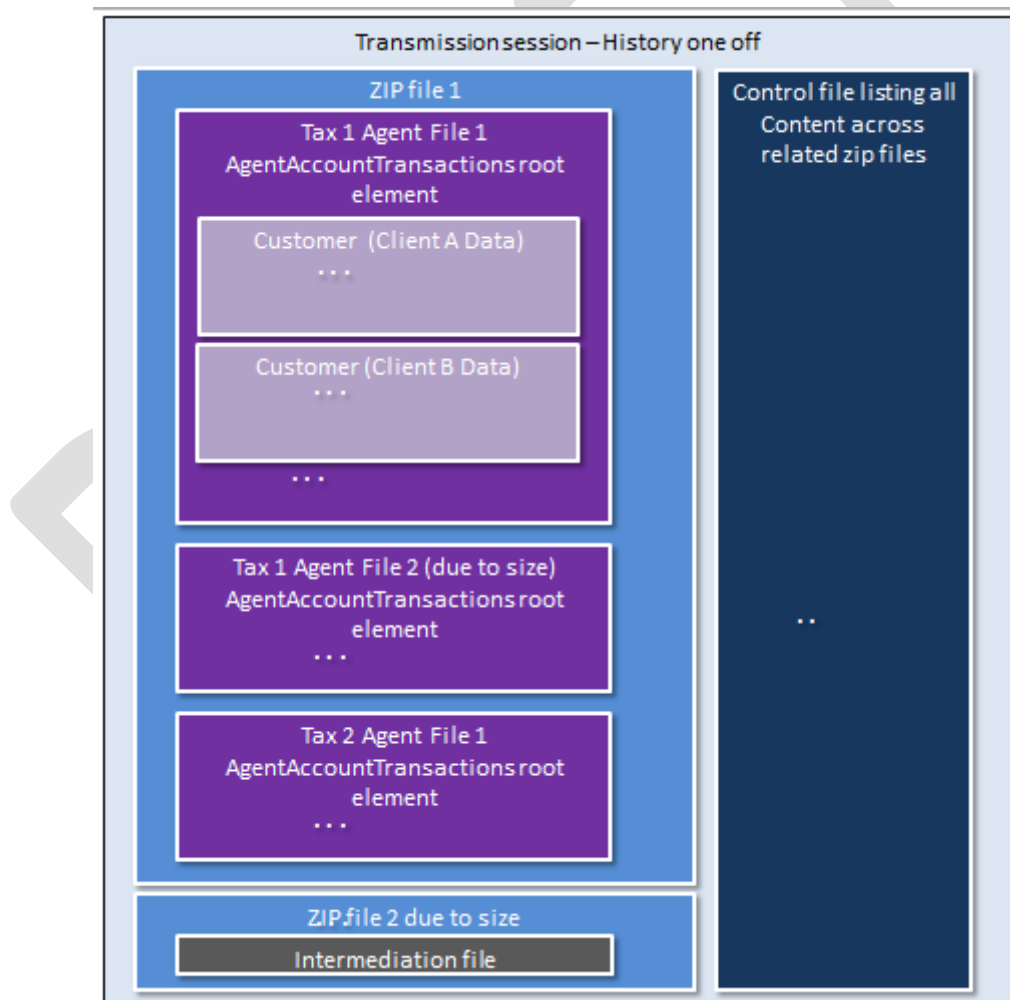
Figure 6: Zip files and their structure and summary control file

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2.3.3 File Structure

Where the Software Provider linked user is a Tax Agent or other intermediary, the file(s) provided for that Tax Agent will contain data for one or more Clients of that Tax Agent/intermediary.

Where the Software Provider linked user is not a Tax Agent or intermediary but a direct Customer, there will be a single file containing all this data across all Customers. When this file becomes larger than 100,000 transaction level elements then it will be split across multiple files.

Within both file types – Tax Agent or direct customers, there is a root element called Customers and then for each Customer (Client or direct Customer) the data is structured as follows:
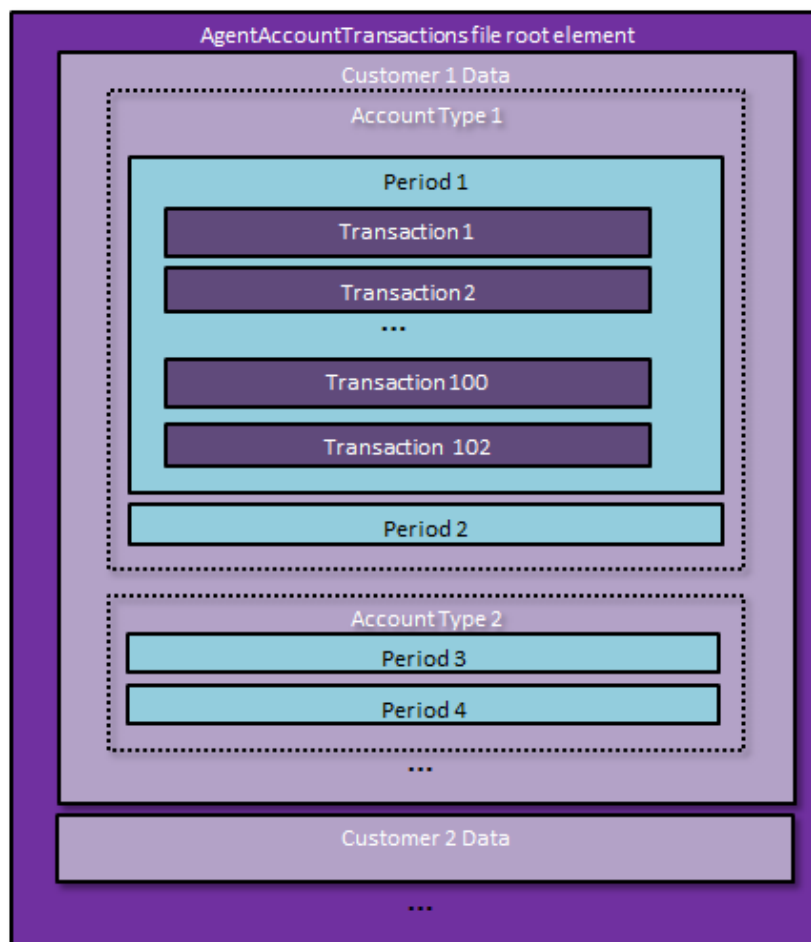
Figure 7: File content

Inside the customer section will be **NO** subsections for Accounts (tax types). Data for customers will be grouped by period, sorted by tax type.

a) All Customers linked to the Tax Agent will be included in the Tax Agent file. All Customers linked directly to the Software Provider will be included in the Customer file.

b) All Accounts linked for that Tax Agent will be included. All Accounts that exist for a directly linked Customer will be included.

c) All periods in START for each of these Accounts will be included. (See TDS Overview Build Pack for more on data available in START.)

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The structure of the data is fundamentally the same as for the previous Tax Agent Web Service feed in order to facilitate matching. Please refer to the TDS Overview & Transition Build Pack section 2.9 "Data conversion from Tax Agent Web Service to START"

2.3.4 Ad hoc files (subsequent files)

Software Providers can request ad hoc manually generated files. These may contain the same periods as the initial file or a different set based on what was requested. For any requested period all historical transactions will be included.

The structure of the files sent for the one-off initial history bulk and for subsequent ad-hoc files will be the same: All will have zip files and control file sent over SFTP, with the last zip file also containing an intermediary link listing file.

2.4 File Content

Attribute Name	History Message Element	Description	Example Value
agentlrdNumber	AgentAccountTransactionsType	Tax Agent Inland Revenue D number identified from the username in the Request.	{170000919}
clientlrdNumber	ClientTxs	Client Inland Revenue D number.	{485611622}
taxType	taxPeriodTxs	Code indicating the Tax Type. See related content in TDS Overview and Transition Build Pack	{INC}
periodEndDate	taxPeriodTxs	Tax period end date.	{20100331}
periodStartDate	taxPeriodTxs	Tax period start date.	{20090401}
periodBalanceAmount	taxPeriodTxs	Tax type and period ending balance amount.	{100.00}
lastTxId	taxPeriodTxs	Unique transactions identifier of the last transaction available.	{128329381290593821}
migrationDate	taxPeriodTxs	When the account type was moved into the Inland Revenue Inland Revenue operational system and the history feed ends i.e. there will be no more transactions added to the History File.	{20160415}
id	TxDetails	Unique transaction identifier.	{128329381290593821}
txType	TxDetails	Transaction Type. See related content in TDS Overview and Transition build pack	{0000}
procDate	TxDetails	Process Date.	{20101101}
effDate	TxDetails	Effective Date.	{20090801}
amount	TxDetails	Transaction Amount.	{26.00}
newTxID	TxDetails	This is the Transaction ID in the new system to which this transaction has been converted	{1133073280}

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Attribute Name	History Message Element	Description	Example Value
n/a	n/a	Note the history service includes transfer transactions and any TAWS transactions, but additional metadata like transfer related status codes or linked accounts or bank accounts are not included	n/a
n/a	n/a	Note that since this file will be a full dump of transaction for a set of periods there is no need for continuation IDs or incremental flags.	n/a

Table 2 : History File Content

2.5 Content of Intermediation link file

The last zip file will also contain the intermediation link file. This file summarises

- Which tax agents are linked to this Software Provider.
- Which client/customer accounts are linked to those Tax Agents
- Which customers are linked directly to this Software Provider as users
- Inland Revenue also is considering adding the names of the myIR logons associated with this customer or agency and the subset of accounts visible to each of those

2.6 Transfer of files – processing

The following is expected to happen on the site of the Software Provider SFTP endpoint/server. This process for history bulk files is the same as the process for TDS bulk files (non-history).

1. Receive control file to help calculate processing
2. Receive one or multiple zip files from Inland Revenue
3. Validate file list in the control file matches the list of zip files received, if not, escalate to Inland Revenue support.
4. Process each zip file:
   a. Decrypt zip file using agreed PGP key
   b. Verify zip file signature using agreed PGP key – if signature does not match then request Inland Revenue D to resend
   c. For each file in the zip
      i. Process content of the file
      ii. Make content available to relevant data stores for users

2.7 Software Provider link dependencies for one off vs Ad-hoc requests

The initial bulk history file will rely on the link between Software Provider and Tax Agent/Customer already being in place. For subsequent years as Inland Revenue moves more tax types into its new START system existing links will be in place and bulk linking will augment this.

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To do an ad hoc history request it is expected that a link be in place already; this can be done via the software intermediation service. By implication in order to consume history bulk file content a Software Provider is also subscribing to bulk file (non history).

An ad-hoc request will be manually processed by Inland Revenue and then batched up to be sent in the next overnight run together with the next daily bulk file (non-history).

2.8 File naming conventions

2.8.1 Name of control file listing zip files

Format:
HISTORY_PROVIDER_<software_platform_id>_<filesequence>_<timestamp>_<environment>_CONTROL
.xml

For example: HISTORY_PROVIDER_ 1500011034_1_201710100921548813_NZT_CONTROL.xml

Part	Format	Possible values
HISTORY	Constant	HISTORY
PROVIDER	Constant - Internal ID Registration Type for Software Intermediary software version.	PROVIDER
<software_platform_id>	ID allocated to Software Platform by Inland Revenue during the onboarding process	Numeric 10 digit, should remain constant for a given Software Platform
<file sequence>	Next number after zip file count	1 2 3 …
<timestamp>	Time file was created yyyyMMddHHmmssffff	e.g. 201710100921548813
<environment>	Inland Revenue environment Three letters	Production: PRD Partner testing: XZS XZT IRD testing: NZT NZD

Table 3 : Naming of Control File

2.8.2 ZIP files names

This pattern is almost the same as for the control files which is defined above.

Format:
<HISTORY_PROVIDER_< software_platform _id>_<file sequence>_<timestamp>_<environment>.zip

For example: HISTORY_PROVIDER_1500011034_0_201710100921548813_NZT.zip

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Part	Format	Possible values
HISTORY	Constant	HISTORY
PROVIDER	Constant - Internal ID Registration Type for Software Intermediary software version.	PROVIDER
< software_platform _id>	ID allocated to Software Platform by Inland Revenue during the onboarding process	Numeric 10 digit, should remain constant for a given Software Platform
<file sequence>	Start with 0 for first zip file of day and increments if there are more than one	0 1 2 …
<timestamp>	Time file was created yyyyMMddHHmmssffff	e.g. 201710100921548813
<environment>	Inland Revenue environment Three letters	Production: PRD Partner testing: XZS XZT Internal IRD testing: NZT NZD

Table 4 : Naming of Zip files

The following two file types are embedded in the zip files:

2.8.3 Tax agent files

Format: HISTORY_AGENT_<agent_id>_<file sequence>_<timestamp>_<environment>.xml

For example: HISTORY_AGENT_IRD_000000000_0_201710111532239353_NZD.xml

Part	Format	Possible values
HISTORY	Constant	HISTORY
AGENT	Constant denoting this file is sent for all the customers data linked to a tax agent or other intermediary	AGENT_IRD Number
<tax_agent_id>	ID allocated to tax agent by Inland Revenue	Numeric 10 digit – or is it 9??
<file sequence>	Start with 0 for first zip file and increments if there are more than one	0 1 2 …
<timestamp>	Time file was created yyyyMMddHHmmssffff	e.g. 201710100921548813

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Part	Format	Possible values
<environment>	Inland Revenue environment Three letters	Production: PRD Partner testing: XZS XZT Internal IRD testing: NZT NZD

Table 5 : Naming of Tax Agent files

2.8.4 Customer file(s)

Format:
HISTORY_CUSTOMER_<file sequence>_<timestamp>_<environment>.xml

For example: HISTORY_CUSTOMER_0_201710111532239353_NZD.xml

Part	Format	Possible values
HISTORY<	Constant	HISTORY
CUSTOMER	Constant denoting this file is sent for all the customers data linked to a tax agent or other intermediary	CUSTOMER
<file sequence>	Start with 0 for first zip file and increments if there are more than one	0 1 2 …
<timestamp>	Time file was created yyyyMMddHHmmssffff	e.g. 201710100921548813
<environment>	Inland Revenue environment Three letters	Production: PRD Partner testing: XZS XZT Internal IRD testing: NZT NZD

Table 6 : Naming of Customer Files

2.8.5 Intermediation file

This pattern is almost the same as the pattern for the control and zip files - which is defined above.

Format:

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HISTORY_PROVIDER_< software_platform _id>_<file sequence>_<timestamp>_<environment>_INTERMEDIATION.xml

For example:
HISTORY_PROVIDER_1500011034_0_201710100921548813_NZD_INTERMEDIATION.xml

Part	Format	Possible values
HISTORY	Constant	HISTORY
PROVIDER	Constant	PROVIDER
< software_platform _id>	ID allocated to Software Platform by Inland Revenue during the onboarding process	Numeric 10 digit, should remain constant for a given Software Platform
<file sequence>	Start with 0 for first zip file of day and increments if there are more than one	0 1 2 …
<timestamp>	Time file was created yyyyMMddHHmmssffff	e.g. 201710100921548813
<environment>	Inland Revenue environment Three letters	Production: PRD Partner testing: XZS XZT Internal IRD testing: NZT NZD
INTERMEDIATION	Constant	INTERMEDIATION

Table 7 : Naming of Intermediation Files

2.9 Sample payloads

This initial one off file has no incoming requests.

Bulk linking requests will involve Software Providers giving Inland Revenue
- A list of Agents by IRD number to be linked to
- A list of direct Customer by IRD number and the account types to be linked to

Please refer to the Software Intermediation Build Pack for subsequent linking requests.

Ad hoc file requests are still being formalised, and will contain:
- Software Intermediary ID
- Agent ID (if any)
- Client ID (agent client or SI customer)
- Account Type (if specific)
- Client Period From (if not default conversion set)
- Client Period To (if not up to migration date)

This picture is an extract of what files can contain; please see the attached sample files below for the full context. Please note the samples here are indicative only and still subject to change.

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```
<?xml version="1.0"?>
- <AgentAccountTransactionsType agentIrdNumber="123105028"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema">
    - <ClientTxs xmlns="urn:nz.govt.ird.eservices.types.account.transaction:0-6"
      clientIrdNumber="501782255">
        - <taxPeriodTxs migrationDate="20170206" lastTxId="501782255000187"
          periodBalanceAmount="62115.54" periodEndDate="20150630" taxType="GST">
            - <TxDetails amount="-44347.83" effDate="20150701" procDate="20150706"
              txType="60" id="501782255000001">
                <newTxId>1133073280</newTxId>
            </TxDetails>
            - <TxDetails amount="59.54" effDate="20150701" procDate="20150722"
              txType="570" id="501782255000002">
                <newTxId>407458688</newTxId>
            </TxDetails>
            - <TxDetails amount="147.12" effDate="20150701" procDate="20150722"
              txType="570" id="501782255000003">
                <newTxId>1481200512</newTxId>
            </TxDetails>
            - <TxDetails amount="261.82" effDate="20150701" procDate="20150722"
              txType="570" id="501782255000004">
                <newTxId>944329600</newTxId>
            </TxDetails>
            - <TxDetails amount="261.82" effDate="20150701" procDate="20150722"
              txType="570" id="501782255000005">
                <newTxId>2018071424</newTxId>
            </TxDetails>
            - <TxDetails amount="245.6" effDate="20150701" procDate="20150722"
              txType="570" id="501782255000006">
                <newTxId>71914368</newTxId>
```

Figure 8 : Sample file

2.10   Schema

File Type	Reference
Basic Simple types	
Structure	TDS_history_transaction_list_v0.1.xsd

Table 8 : Schema

2.11   Samples

File type	Reference
Zip and files	Historical 2017-11-08.zip

Table 9 : Samples

3   Use cases and process

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3.1 Use case overview

As described in the [TDS Overview Build Pack](#), Transaction Data Services provides data into an overall business process that is controlled by the accounting software and its user. The use cases therein are diverse (and therefore neither exhaustive nor meant to represent every combination of process that the Customer or Software Provider may execute) and described in broad terms in the overview build pack– the business/organisational use cases denoted below as yellow or blue.

The corresponding technical steps inside them to integrate with Inland Revenue are defined as systems use cases with corresponding numbers SUC<nnn> below. The grey ones are covered in other Build Packs as identified in the Table below. Below this diagram is a table explaining this more.

Figure 9 : Use case overview

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Use cases have been classified into the following types:

(Note: High level use cases are broken down in the Build Pack concerned)

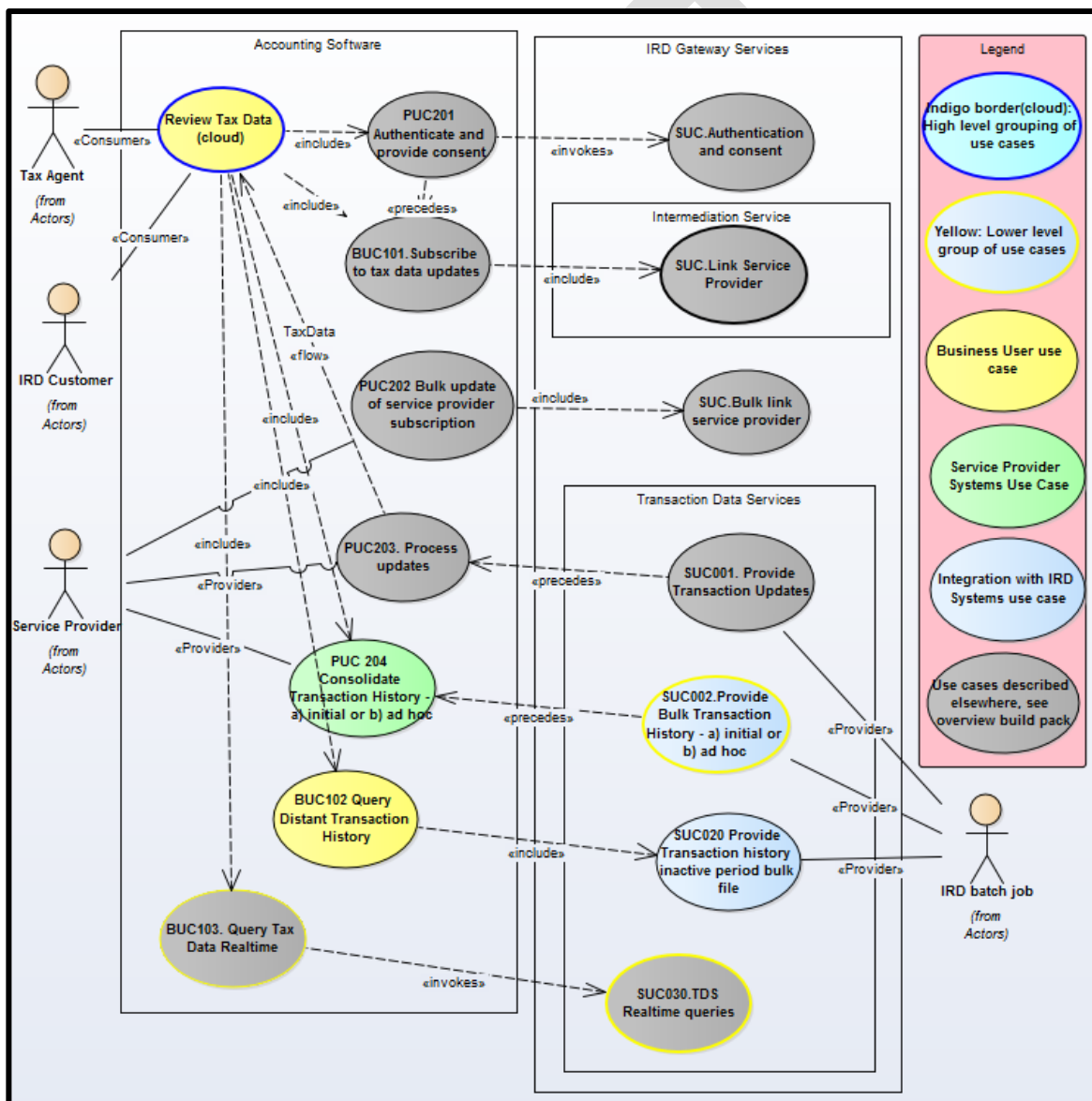| Use case Group	Description	Colour	Use Case	Build Pack
Tax Agent /Customer	Use cases specific to the Customer / Agent point of view	Yellow	BUC101 Subscribe to tax data updates	TDS Overview BP
			BUC102 Query Distant Transaction History	TDS Overview BP
			BUC103 Query Tax Data real-time	TDS Overview BP
Software Provider	Some systems use cases on the Software Provider side are not user driven and broader than the integration with Inland Revenue	Green	PUC201 Authentication and consent	TDS Overview BP
			PUC202 Bulk update of Software Provider subscription	TDS Overview BP
			PUC203 Process updates	TDS Overview BP
			PUC204 Consolidate Transaction History - a) initial or b) ad-hoc	TDS Overview BP
Systems use cases	The corresponding technical steps inside the above use cases which are required to integrate with Inland Revenue	Blue	SUC Authentication and Consent	Identity and Access BP
			SUC Link Software Provider	Software Intermediation BP
			SUC Bulk Link Software Provider to seed the Inland Revenue START system	TDS Overview BP, see PUC202
			SUC001 Provide Transaction Updates	TDS Bulk File Build Pack
			SUC002 Provide Bulk Transaction History - a) initial or b) ad hoc	This document
			SUC020 Provide transaction history inactive period bulk file	This document
			SUC030 TDS real-time queries	TDS Real-time Build Pack

Table 10: Use cases and their relevant documentation

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In the [TDS Overview Build Pack](#) sample process scenarios provide some organisational/business summary goal context.

3.1.1 Use Case SUC002 Provide Bulk Transaction History – a) initial or b) ad hoc

Use Case SUC 002 - Provide Bulk Transaction History – a) initial or b) ad hoc	
User/Actors	Inland Revenue Transaction Data Services
Secondary Actor	Software Provider software
Description	The use case goal is to retrieve data linked to the Software Provider software, format and package it as described earlier in this document and send via SFTP to the Software Provider software central location. The data included here is for the converted periods that have equivalent data in the operational Inland Revenue START system. Note: This use case is for Tax Agents/Customers using Software Provider software where they already have Customer data from the Tax Agent Web Service system and where they have annotated or linked to this Tax Agent Web Service data. This use case facilitates replacing that Tax Agent Web Service data with new migrated TDS START data. The use case plugs possible gaps in the history for that period previously received and relates it to the new transaction IDs. This allows the Software Provider software and or Tax Agent to move the annotations or links from the Tax Agent Web Service data to the new TDS START data and use that as the point of reference going forward.
Inland Revenue systems	START
SUC002 a)	**Provide Transaction History – a) initial**
Description	This use case is for Software Providers and their users who already have Tax Agent Web Service data that needs to be mapped to and replaced with the new equivalents from the Inland Revenue START system. If Tax Agent Web Service data is not already in a Software Provider system for the given agent or customers then the TDS bulk feed will provide that data and this use case will be redundant. If further history is required beyond what was converted or is available in the new TDS feeds then refer to use case SUC020.
Pre-Conditions	Software Provider software is onboarded and therefore authorised to communicate with TDS.(See the [Onboarding section of the TDS Overview Build Pack](#) TDS Onboarding Build

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Use Case SUC 002 - Provide Bulk Transaction History – a) initial or b) ad hoc	
	Pack)
	A link/subscription has been established between the Software Provider and ALL their Tax Agents/Customers identifying which entities' tax data to send to the Software Provider and how to group it. (See the Software Intermediation Build Pack)
	Bulk Linking of all Tax Agents/Customers has been completed and verified – PUC202
	Data conversion to START is complete and Transaction IDS have been associated with FIRST transactions to ensure aggregated transactions can be tracked.
Triggers	As part of the transition cutover to the new Inland Revenue START system for a set of Accounts, Inland Revenue starts the compilation of the History Bulk Files.
Constraints	It is assumed that the Software Provider has explicit consent from the Tax Agent or Customer to set up the links to receive their data through the History Bulk File Feed
Post-Conditions	The Transaction History data has been sent by Inland Revenue to the Software Provider software.
Use Case Scenarios	
1. Normal Flow	Inland Revenue processing for Software Provider subscription generates PGP signed and encrypted ZIP files. This subscription link will cause a file with an initial full data set. 1. Iterate through on-boarded Software Providers and their linked Customers as well as their linked Tax Agents and the clients linked to those Tax Agents: 2. Data is formatted as described above in this document and in the TDS Overview and Transition Build Pack 3. Data will be packaged in zip files as described above in this document 4. File(s) sent to Software Provider software central location via SFTP as described above in this document 5. This system use case ends Software Provider use case PUC204 a) then completes at each Software Provider. The steps after the SFTP transfer completes depend on the Software Provider software. Once all the file content has been transferred the Software Provider will process the file content and makes it available to the software instances used by the users of the requesting organisation
2. Exception Flows	1. If Inland Revenue is unable to connect to the Software Provider SFTP site the system will escalate for the Inland Revenue support team to contact the Software Provider and agree a plan to restore connectivity and reschedule

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Use Case SUC 002 - Provide Bulk Transaction History – a) initial or b) ad hoc	
	transmission.
	2. If SFTP transmission fails it escalates to the Inland Revenue support team to contact the Software Provider and agree a plan to troubleshoot and restore reliable connectivity and reschedule transmission
	3. If all files are sent but during PUC204 b) processing thereof the Software Provider finds there are issues like file corruption they will contact Inland Revenue support over channels agreed during the onboarding process to agree a plan for troubleshooting and rescheduling transmission or requesting new manual files.
3. Alternatives	No alternatives
PUC204 b)	**Consolidate Transaction History – b) ad hoc**
Description	In some cases audits or other events cause Inland Revenue to have to manually convert additional history periods into START. This data will show up in the TDS bulk feed.
	In cases where the Tax Agent/Customer in the Software Provider software already had equivalent Tax Agent Web Service data and also have annotations or links next to it requiring consolidation rather than just replacement of the data this use case can be invoked
Pre-Conditions	Software Provider software is onboarded and therefore authorised to communicate with TDS.(See the Onboarding section of the TDS Overview Build Pack)A link/subscription has been established between the Software Provider and the relevant Tax Agent/Customer Account. (See the TDS Overview and Transition Build Pack)
Triggers	Inland Revenue receives the Tax Agent/Customer request for history data for Customer/Account/Period through process set up by Inland Revenue /Software Provider and agreed during onboarding phase
Constraints	It is assumed that the Software Provider has explicit consent from the Tax Agent/Customer to receive their data.
Post-Conditions	The Transaction History data has been sent by Inland Revenue to the Software Provider software.
Use Case Scenarios	
1. Normal Flow	1. Request received for History from Tax Agent/ Customer
	2. Inland Revenue invokes "Prepare Historical TDS Bulk File facility" and produces file
	3. Data is formatted as described above in this document and

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Use Case SUC 002 - Provide Bulk Transaction History – a) initial or b) ad hoc	
	in the TDS Overview and Transition Build Pack 4. Data is packaged in zip files as described in this document 5. Files are added to the overnight batch run for that day. 6. File(s) sent to Software Provider software central location via SFTP as described in this document 7. System use case ends Software Provider use case PUC204 b) then completes at the Software Provider (See the TDS Overview and Transition Build Pack). The steps after the SFTP transfer completes depend on the Software Provider software. Once all the file content has been transferred the Software Provider will process the file content and makes it available to the software instances used by the users of the requesting organisation
2. Exception Flows	1. If Inland Revenue is unable to connect to the Software Provider SFTP site the system will escalate for the Inland Revenue support team to contact the Software Provider and agree a plan to restore connectivity and reschedule transmission. 2. If SFTP transmission fails it escalates to the Inland Revenue support team to contact the Software Provider and agree a plan to troubleshoot and restore reliable connectivity and reschedule transmission 3. If all files are sent but during PUC204 b) processing thereof the Software Provider finds there are issues like file corruption they will contact Inland Revenue support over channels agreed during the onboarding process to agree a plan for troubleshooting and rescheduling transmission or requesting new manual files.
3. Alternatives	No alternatives

Table 11 : SUC 002 - Provide Bulk Transaction History

3.1.2 Use Case SUC020 Provide transaction history inactive period bulk file

SUC020 Provide transaction history inactive period bulk file	
User/Actors	Inland Revenue Transaction Data Services
Secondary Actor	Software Provider software
Description	The use case goal is to retrieve data for a Tax Agent or Customer Account and Period linked to the Software Provider or Accounting Software, format and package it as described earlier in this document and send via SFTP to the Software Provider central location. The data included can be for periods

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SUC020 Provide transaction history inactive period bulk file	
	previous to those included in the Bulk History Feed.
	This use case differs from SUC002 in that it allows unconverted distant history to be requested ad hoc and sent with the overnight bulk file to the Software Provider.
Inland Revenue systems	START
Pre-Conditions	User has requested transaction detail for a Specific Customer by Account and by Period through the Software Provider software for a period older than what is available in START and TDS Real Time or TDS Bulk.
Triggers	Inland Revenue has received a request for transaction detail for a specific Agent or Customer by Account and by Period, through the Software Provider software for (a) period(a) older than what is available in START and TDS Real Time or Bulk.
	The process whereby the user makes this ad hoc request and sends it to Inland Revenue will be agreed during the onboarding phase with the Software Provider. This request is evaluated by Inland Revenue support and starts this use case.
Constraints	
Post-Conditions	The data requested by the User is included in the SFTP file transfer overnight to the Software Provider software.
Use Case Scenarios	
1. Normal Flow	1. Inland Revenue support evaluates the request and kicks off an ad hoc batch run 2. The files are generated and queued up for sending with the next overnight batch run 3. Software Provider is sent the data 4. System use case ends Software Provider use case BUC102 then completes at the Software Provider (See the TDS Overview and Transition Build Pack). The steps after the SFTP transfer completes depend on the Software Provider software. Once all the file content has been transferred the Software Provider will process the file content and makes it available to the software instance used by the user of the requesting organisation
2. Exception Flows	
3. Alternatives	No alternatives

Table 12: SUC020 Provide transaction history inactive period bulk file

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4   Appendix A—Glossary

Term	Meaning
Authentication	The process of verifying an identity claimed by or for a system entity. [RFC 2828]
Authorisation	A right or a permission that is granted to a system entity to access a system resource. [RFC 2828]
Build Pack	Details the technical requirements and specifications, processes and sample payloads for the specified activity
Business Processing	Processing by Inland Revenue systems in retrieving data and constructing the Payload (business information content) of a message.
Business Service	An integration interface (description) of the Solution which provides a set of business data and information in fulfilling the Service and is specified in this document. The Solution may offer more than one Business Service.
Confidential Information	Means, in relation to a party, any information (in any form whether written, electronic or otherwise): (a) relating to the business or operations of that party or its suppliers or customers; (b) disclosed by that party to the other party on the express basis that such information is confidential; or (c) which might reasonably be expected by that party to be confidential in nature;
Customer	A Customer is the party who is a tax payer or a participant in the social policy products that are operated by Inland Revenue. The Customer might be a person (an "individual") or a non-individual entity such as a company, trust, society etc. Practically all of the service interactions with Inland Revenue are about a Customer (e.g. their returns, accounts, entitlements etc.) even though these interactions might be undertaken by an Intermediary such as a tax agent on their behalf.
Data integrity	The property that data has not been changed, destroyed, or lost in an unauthorized or accidental manner. [RFC 2828]
Digital certificate	A certificate document in the form of a digital data object (a data object used by a computer) to which is appended a computed digital signature value that depends on the data object. [RFC 2828]
Digital signature	A value computed with a cryptographic algorithm and appended to a data object in such a way that any recipient of the data can use the signature to verify the data's origin and integrity. [RFC 2828]
ECDSA	In cryptography, the Elliptic Curve Digital Signature

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Term	Meaning
	Algorithm (ECDSA) offers a variant of the Digital Signature Algorithm (DSA) which uses elliptic curve cryptography.
Encryption	Cryptographic transformation of data (called "plaintext") into a form (called "cipher text") that conceals the data's original meaning to prevent it from being known or used. If the transformation is reversible, the corresponding reversal process is called "decryption", which is a transformation that restores encrypted data to its original state. [RFC 2828]
GWS	Gateway Services—the name for the suite of web services that Inland Revenue is providing.
HTML	Hypertext Markup Language.
HTTP	Hypertext Transfer Protocol is a networking protocol and is the foundation of data communication for the World Wide Web.
HTTPS	HTTP that uses SSL.
IAMS	Identity and Access Management—a logical component that performs authentication and authorisation. Physically it is a set of discrete hardware and software products, plug-ins and protocols. Usually implemented as separate External IAMS (XIAMS) and Internal IAMS.
IAS Build Pack	Identity and Access Build Pack
Intermediary	A party who interacts with Inland Revenue on behalf of a Customer. Inland Revenue's Customer is a Client of the Intermediary. There are several types of Intermediary including Tax Agents, PTSIs, PAYE Intermediaries etc.
Intermediation Service	
IP	Internet Protocol—the principal communication protocol in the Internet protocol suite for relaying datagrams across networks.
MSH	Messaging Service Handler.
NZISM	NZ Information Security Manual—the security standards and best practices for Government agencies. Maintained by the NZ Government Communications Security Bureau (GCSB).
OAuth 2.0	OAuth 2.0 is an industry-standard protocol for authorization
Pattern	A constraint on data type values that require the string literal used in the data type's lexical space to match a specific pattern.
Payload	The business information content of the message and/or file(s) between Inland Revenue and a Business Partner.
Service	The exchange, as enabled by the Solution, of information, data and/or funds for the purpose of Clients' tax

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Term	Meaning
	administration by Tax Agents.
Software Provider Software	A Client Application is an operating instance of Software that is deployed in one or more sites. A number of deployment patterns are possible: - A single cloud based instance with multiple tenants and online users, - An on premise instance (e.g. an organisation's payroll system) - A desktop application with an online user. This is the computer software that contains interfaces to consume the services that Inland Revenue exposes. Software is developed and maintained by a Software Developer and subsequently deployed as one or more Client applications.
SFTP	Secure File Transport Protocol. SFTP 3.0 is used.
SOAP	Simple Object Access Protocol (SOAP) is a protocol specification for exchanging structured information in the implementation of Web Services in computer networks.
Solution	The technology components, systems and interface specifications constituting the Tax Agent Web Services capability which enables integration and communication across the Gateway channel between Inland Revenue and Tax Agents for the purpose of providing the Service.
Software Developer	The developer of a Tax Agent software package and its Gateway Channel integration capability which forms part of the Solution.
SSH	Secure Shell (SSH) is a cryptographic network protocol for operating network services securely over an unsecured network. Version 2.0 is used.
SSL	Secure Sockets Layer (SSL) is a cryptographic protocol that provides security for communications over networks such as the Internet.
START	Inland Revenue's new system which stands for Simplified Taxation and Revenue Technology
System	The parts of the Solution operated by a single Business Partner; typically this term means the Business Partner's MSH.
Tax Agent	A tax agent who is formally registered as such with Inland Revenue.
TDS	Transaction Data Services
TLS1.2	Transport Layer Security version 1.2—the protocol that is observed between adjacent servers for encrypting the data that they exchange. Prior versions of TLS and all versions of SSL have been compromised and are superseded by TLS1.2.

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Term	Meaning
URL	Universal Resource Locator—also known as a 'web address'.
User	The user referred to in this document is the user of the software provider accounting or tax package. This user needs delegated permissions on Customer tax accounts (potentially via a tax agency or other intermediary) in order to use TDS. The web logon used in eServices needs to be used in making Inland Revenue queries. This web logon must be granted permission there to access Customer Accounts
WSDL	Web Services Description Language (WSDL) is an XML-based language that provides a model for describing Web Services.
XML	EXtensible Markup Language

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5　Appendix B—Document history

Version	Date	Description
0.8	31 January 2018	Cosmetic formatting changes Update for terminology such as Software Provider, distinction between Software Intermediation and Intermediation, Software Platform ID, Environments Update for Tables and Figures Update for Links to Github
0.5	22 November 2017	Ready for external use
0.3	25 October 2017	Reworked draft for initial feedback
0.1	13 Oct 2017	Internal only