Inland Revenue

Build Pack: Software Intermediation Service

Date: 18/08/2022

Contents

1   Overview

1.1   This solution

Inland Revenue has a suite of digital services available for consumption by software providers that supports efficient, electronic business interactions with Inland Revenue. The Software Intermediation Service described in this build pack document forms part of a suite of Gateway Services.

The Software Intermediation Service provides the ability for software providers to link to their tax agency clients or directly to their Customers in order to be provided an initial full data load and daily bulk file updates of their transaction data. The Software Intermediation Service allows these links to be established, queried or removed. There is a separate Intermediation Service that addresses the links between business intermediaries like tax agents and their client lists and their customer accounts. The actual dataset resulting in bulk files from a software intermediation link will be impacted by those intermediation links but the links themselves are maintained separately. This is explained in more detail in the Transaction Data Services (TDS) Overview build pack.

This document is intended to provide the technical details required to support the consumption of this Gateway Service. It describes the architecture of the technical solution, schemas, end points and also its interaction with other build packs that cover different aspects of Gateway Services.

Before continuing, please consult
www.ird.govt.nz/digital-service-providers/services-catalogue
for business-level context, use cases and links to relevant policy.
The information available here explains how to integrate with
Inland Revenue's services.

1.2   Intended audience

The solution outlined in this document is intended to be used by technical teams and development staff. It describes the technical interactions, including responses, provided by the Software Intermediation Service. The reader is assumed to have a suitable level of technical knowledge in order to comprehend the information provided.

1.3   Related services

The following application programming interfaces (APIs) complement this Gateway Service. Instructions on where to find the build packs for these APIs can be found in of this document.

1.3.1   Transaction Data Services

Transaction Data Services are intended to support software providers in their transition from Tax Agent Web Services to the use of TDS. The Transaction Data Services Overview and Transition build pack provides an overview of TDS, describes the data which will be made available through the services and the processes, as well as giving use cases for how these services will be employed.

1.3.2 Intermediation Service

The Intermediation Service build pack supports software providers with the process of linking tax intermediaries (such as tax agents) to their clients so intermediaries can act on their behalf through the Return service.

### 1.3.3 Identity and Access Services

Identity and Access Services (IAS) are used to authenticate access. Authentication tokens will need to be retrieved via IAS prior to making calls to the Software Intermediation Service.

2 Solution design

2.1 Architecture

Inland Revenue is offering a suite of web services in order to facilitate interactions with Inland Revenue via software packages. The Gateway Services suite will be used by approved software providers to facilitate everything from registration activities, filing returns, making payments and other service offerings in order to allow customers to interact with Inland Revenue.

The diagram below illustrates the flow of data from the customer to Inland Revenue.
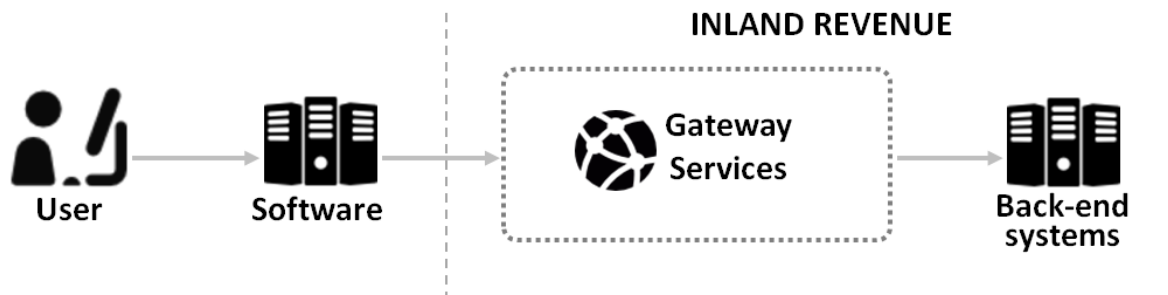
The online WSDLs for the Gateway Services define an 'any' XML request and response structure, which then relies on a group of XSDs to define the data structure of those requests and responses. Each request and response type will define a lower, 'wrapper' element. To simplify analysis and code generation, a development oriented version of the WSDL and XSDs is provided with the build pack that has the any elements replaced with relevant types.

Any malformed XML will instantly be rejected by the Gateway Services prior to any schema validation.

2.2 Service scope

The Software Intermediation Service supports the following operations:

- **Link:** This service is used to create a link between a software intermediary and a client.
- **Delink:** This service is used to cease a link between the above parties.
- **RetrieveClientList:** This service is used to retrieve a list of the software intermediary's clients.

2.3 Messaging

All SOAP messages require a SOAP header containing the **Action:** parameter, as well as a SOAP body containing a structured XML payload. Please refer to the WSDL for the correct addresses.

The online WSDLs for the Gateway Services define an 'any' XML request and response structure, which then relies on a group of XSDs to define the data structure of those requests and responses. Each request and response type will define a lower, 'wrapper' element. To simplify analysis and code generation, a development-oriented version of the WSDL and XSDs is provided with the build pack that has the 'any' elements replaced with relevant types. The Gateway Services allow the consumption of any structured XML payload but will be validated against the Inland Revenue-published XSDs.

This is a late binding validation, performed after authentication has been reviewed. The message structure of these services is a simple request/response. The XML request will be checked for well-formed XML before the schema validation. Responses to these requests will be in XML format as well and will be defined in the same schemas that define the requests.

Any XML submissions in the SOAP body that do not meet the provided schemas will not be accepted by the Gateway Services. Incorrect namespaces will also fail validation against the published schemas.

Example SOAP request structure

```
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
       xmlns:sft="https://services.ird.govt.nz/GWS/SoftwareIntermediation/"
       xmlns:gcl="https://services.ird.govt.nz/GWS/SoftwareIntermediation/:types/RetrieveClientListRequest"
       xmlns:a="http://www.w3.org/2005/08/addressing">
   <soap:Header>
       <a:Action>https://services.ird.govt.nz/GWS/SoftwareIntermediation/SoftwareIntermediation/Operation</a:Action>
   </soap:Header>
   <soap:Body>
       <sft:RetrieveClientList>
           <sft:RetrieveClientListRequestMsg>
               <rcl:RetrieveClientListRequestWrapper>
                   <RetrieveClientListRequest xmlns:xsi…
                       <…XML payload…>
                   </RetrieveClientListRequest>
               </rcl:RetrieveClientListRequestWrapper>
           </sft:RetrieveClientListRequestMsg>
       </sft:RetrieveClientList>
   </soap:Body>
</soap:Envelope>
```

Inland Revenue
Te Tari Taake

Example SOAP response structure

```
<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope"
xmlns:a=http://www.w3.org/2005/08/addressing
xmlns:si=https://services.ird.govt.nz/GWS/SoftwareIntermediation/
xmlns:b=https://services.ird.govt.nz/GWS/SoftwareIntermediation/:types/RetrieveClientListResponse
xmlns:i=http://www.w3.org/2001/XMLSchema-instance
xmlns:cmn="urn:www.ird.govt.nz/GWS:types/Common.v1">
    <s:Header>
        <a:Action s:mustUnderstand="1">
            https://services.ird.govt.nz/GWS/SoftwareIntermediation/SoftwareIntermediation/RetrieveClientListResponse
        </a:Action>
    </s:Header>
    <s:Body>
        <si:RetrieveClientListResponse >
        <si:RetrieveClientListResult>
            <b:RetrieveClientListResponseWrapper>
                <cmn:RetrieveClientListResponse>
                  <cmn:statusMessage>
                     <cmn:statusCode>0</statusCode>
                     <cmn:errorMessage/>
                  </cmn:statusMessage>
                </cmn:RetrieveClientListResponse>
            </b:RetrieveClientListResponseWrapper>
        </si:RetrieveClientListResult>
        </si:RetrieveClientListResponse>
    </s:Body>
</s:Envelope>
```

2.4   Security

2.4.1 Transport layer security and certificates

Mutual Transport Layer Security (TLS) is implemented for this service. This requires the use of a publicly-issued X.509 certificate from one of the trusted certificate authorities listed further below in this section. (Note that Inland Revenue does not issue certificates to external vendors for web service security implementations.)

Inland Revenue has the following requirements for accepting public X.509 keys:

- ECDSA (preferred) key length: 384 bits (or RSA key length: 2048 bits)
- Self-signed certificates are not accepted
- Certificates issued by private/internal certificate authorities are not accepted
- The same certificate cannot be used for the Test and Production environments.

Inland Revenue has adopted a trust-based authentication model and will only accept certificates that contain a pre-approved subject common name and have been issued by one of the following root certificate authorities, trusted and approved by Inland Revenue:

- Amazon
- Comodo
- DigiCert
- Entrust
- GeoTrust
- Let's Encrypt
- Sectigo
- Thawte.

Inland Revenue expects Digital Service Providers to use their Inland Revenue Developer Portal account to create their common name for both Test and Production certificates. Please refer to the Digital Service Providers pages on the Inland Revenue website or contact your Inland Revenue onboarding representative at GatewayServices@ird.govt.nz for further details.

2.4.2 Ciphers

While Inland Revenue currently supports TSL1.2, it is migrating to TLS1.3 which specifies a much smaller and more prescriptive suite of ciphers. As Inland Revenue's security gateways do not currently support the CCM mode (*counter with cipher block chaining message authentication code*) of operation, only the following ciphers will be supported over TLS1.3:

Status	TLS1.3 ciphers
Supported now and in the future	- TLS_AES_128_GCM_SHA256 - TLS_AES_256_GCM_SHA384 - TLS_CHACHA20_POLY1305_SHA256

The following TLS1.2 ciphers are currently supported but some will be deprecated as below:

Status	TLS1.2 ciphers
Supported now and in future	- TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384 - TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256
Supported now but will be deprecated on 31 March 2022	- TLS_ECDHE_RSA_WITH_AES_128_CBC_SHA - TLS_ECDHE_RSA_WITH_AES_256_CBC_SHA - TLS_RSA_WITH_AES_128_CBC_SHA - TLS_RSA_WITH_AES_256_CBC_SHA - TLS_DHE_RSA_WITH_AES_128_CBC_SHA - TLS_DHE_RSA_WITH_AES_128_CBC_SHA256 - TLS_DHE_RSA_WITH_AES_256_CBC_SHA - TLS_DHE_RSA_WITH_AES_256_CBC_SHA256 - TLS_DHE_RSA_WITH_AES_128_GCM_SHA256 - TLS_DHE_RSA_WITH_AES_256_GCM_SHA384

Status	TLS1.2 ciphers
Supported now but will be deprecated on 31 December 2022	• TLS_ECDHE_RSA_WITH_AES_128_CBC_SHA256 • TLS_ECDHE_RSA_WITH_AES_256_CBC_SHA384 • TLS_RSA_WITH_AES_128_CBC_SHA256 • TLS_RSA_WITH_AES_256_CBC_SHA256 • TLS_RSA_WITH_AES_128_GCM_SHA256 • TLS_RSA_WITH_AES_256_GCM_SHA384

2.4.3 End points

There are two end points, which are summarised in the bullet points below (the table immediately afterwards provides more detail):

1. There is an end point to which service providers' centralised **cloud** locations can connect. This will require X.509 certificates for mutual TLS with an agreed common name, however certificates no longer need to be exchanged with Inland Revenue. On the cloud end point, Inland Revenue has controls to shield service providers from issues caused by heavy usage from other providers.

2. For service providers connecting from **desktops/native apps** that are unable to securely store certificates and access tokens. There is a separate end point that does not use mutual TLS and therefore does not require certificates. On the desktop end point, Inland Revenue has less ability to shield consumers of the service from heavy usage by others.

	End point for cloud-based connections	**End point for desktop connections**
Purpose	• Primary preferred end point to connect to from service providers for Gateway Services	• Additional transitory end point provided to facilitate connecting from desktops which might be high volumes of sources addresses, transient DHCP addresses, not realistically associated with client-side TLS certificates, not individually onboarded to set up certificate trust
Client application type	• Cloud applications	• Desktop/native applications • For connecting from multiple decentralised clients
Constraints	• Only for source locations with client-side TLS certificates • On the cloud end point Inland Revenue has controls to shield service providers from issues caused by heavy usage from other providers	• Less scalable • Subject to tighter security controls • On the desktop end point Inland Revenue has less ability to shield consumers of the service from heavy usage by others • OAuth2 refresh tokens will not be

	End point for cloud-based connections	End point for desktop connections
		offered to desktop clients
Mutual TLS	• Inland Revenue explicitly trusts the certificate the service provider associates with the TLS connection as client for Mutual TLS connections and uses it to identify the service provider in conjunction with the web service identification below	• Server-side certificates only
Minimum TLS version	• 1.2	• 1.2
URL	• Contains …/gateway/..	• Contains …/gateway2/..
Port	• 4046	• 443 (Default https port)
Web service consumer identification	• To be identified in web service calls—each cloud application will be given client_id/client_secret credentials during onboarding to allow it to call this end point	• Desktop clients will be given client_id/client_secret credentials in the same manner as cloud application clients. However, desktop clients will not be able to redeem refresh tokens to obtain a new OAuth token when it expires.
Firewalling in production	• No IP address restrictions • Access limited by certificate enrolment	• No IP address restrictions
Firewalling in non-production environments	• No IP address restrictions • Access limited by certificate enrolment	• Firewalled—IP whitelisting needed

2.4.4 Authentication and authorisation

Authentication and authorisation are the mechanisms by which the consumer of the service is identified, and their access rights enforced. This service uses the standard OAuth2 authorisation code flow. For instructions on how to acquire an OAuth access token, and the properties of this token (eg its expiry and refresh parameters) please refer to the Identity and Access build pack.

Authentication and authorisation is described in terms of two parties:

- **Consumer**—this is the party under whose identity the interaction is being transacted (the party who has been authenticated)
- **Resource**—this is the data entity/object being accessed (eg created, read, updated or deleted) via the service.

When using OAuth, the consumer is authenticated using their Inland Revenue myIR credentials and their access is authorised using the same access rights as myIR. For example, if a myIR user does not have permission to file a return online, they will not be able to file a return via Gateway Services either. This applies to users who are granted access as staff inside an organisation or as staff in a tax agency.

The following steps are applied by the Gateway Services when authorising access by the consumer to a resource:

1. If the consumer is the resource owner then access to the resource is authorised (ie the consumer is authorised to manage their own affairs).
2. Otherwise, if the consumer's myIR credential has been granted access to the resource, with the appropriate level of access, then access is authorised.
3. Otherwise, if the consumer is an intermediary of an appropriate type who has been delegated access by being linked to the resource, with the appropriate level of access, then access is authorised.
4. Otherwise access is denied.

3   Operations

The schemas and WSDLs listed here are subject to change.
For the authoritative definitions, please visit
www.ird.govt.nz/digital-service-providers/services-catalogue

The structures of all Gateway Service operations are intended to produce the most efficient requests and responses. Any common structures and fields will be used across many schemas and tax types through an intentional inheritance method. The section below describes the structure of each operation and the scenarios in which certain fields will be used in XML requests and responses.

This section contains schema aliases:

- Cmn: Common.v1.xsd
- Sft: SoftwareIntermediation.v1.xsd

All requests and responses live in the SoftwareIntermediation.xsd.

All operations for the Software Intermediation Service will contain two standard header fields: **softwareProviderData** and **identifier**. The identifier value type will contain either "IRD", "ACCIRD" or "CST". This parameter will be different for each operation, as defined below.

The **identifier** field is common across all Gateway Services but refers to different parties in different services. In all cases it is the party with delegated permissions to whom an OAuth token is provided. If the value cannot be resolved to a known context, or if it can but the provided OAuth token does not have the necessary delegated permissions then the error code 4 "unauthorised delegation" is returned. Please refer to individual operations for the nature of the identifier expected in this parameter in any given context.

For example:

```
<cmn:softwareProviderData>
    <cmn:softwareProvider>SoftwareProvider</cmn:softwareProvider>
    <cmn:softwarePlatform>SoftwarePlatform</cmn:softwarePlatform>
    <cmn:softwareRelease>v1</cmn:softwareRelease>
</cmn:softwareProviderData>
<cmn:identifier IdentifierValueType="IRD">0123456789</cmn:identifier>
```

Field	Description
softwareProvider	The company that developed the software
softwarePlatform	The field value will be provided by Inland Revenue during the onboarding process
softwareRelease	The version of the software package

Field	Description
IdentifierValueType	The ID type being submitted which will be one of the following (see operations below for proper use): • IRD—IRD number • CLTLID—Client List Identifier • LSTID—List Identifier • ACCIRD—Account-specific IRD number
identifier	The value submitted for this field should contain only digits, with no dashes. IRD numbers that are eight digits must be padded with a leading zero.

Proper use:

• The only SoftwareProvider Data values that will be accepted are the ones that were provided to Inland Revenue at the time of onboarding.

The response structure for all requests will use the two default service response fields:

• **statusCode**
• **errorMessage**.

These will be the only two fields returned for the link/delink responses. For the retrieveList, these two fields will be returned as well as the requested client list.

For example:

```
<linkDelinkResponse xmlns="urn:www.ird.govt.nz/GWS:types/ReturnCommon.v1">
      <StatusMessage xmlns="urn:www.ird.govt.nz/GWS:types/Common.v1">
         <statusCode>0</statusCode>
         <errorMessage></errorMessage>
      </StatusMessage>
</linkDelinkResponse>
```

For a list of possible error codes and messages, see the 'Response codes' section of this document.

After October 2021, Inland Revenue will no longer be issuing new IRD numbers for bankrupt clients. When a client's bankruptcy is finalised, the existing income tax account will be closed (pre-adjudicated), and a new account will be opened (post-adjudicated) automatically. This will result in the customer having multiple income tax accounts with a single IRD number. Where a link or delink, request is provided for a customer with multiple accounts and the same IRD number (ACCIRD), Gateway will automatically link all accounts with that IRD number provided in the request. If a unique identifier (ACC) is provided instead, Gateway will only link or delink to/from that specific account.

![Inland Revenue Te Tari Taake logo]

3.1   Link

The Link operation will be used to link a software package to a customer or business intermediary client list. This operation will be called once per relationship upon first use. The request for this operation is defined in the SoftwareIntermediation schema and is called **LinkRequest**.

The Identifier field for the Link operation will have the IdentifierValueTypes of either "ACCIRD" or "IRD". This value indicates the party to be linked to the software platform. This party will be either of the following:

Intermediary type	ID type	ID type description	IRD format	Example
Bookkeeper	CLTLID	Client List Identifier	No	1047030
Other Representative	CLTLID	Client List Identifier	No	1022001
Payroll Bureau	CLTLID	Client List Identifier	No	1014002
Payroll Intermediary	IRD	IRD Number (of client list)	Yes	077415807
Payroll Intermediary	LSTID	List Identifier	Yes	077415807
Payroll Intermediary	CLTLID	Client List Identifier	No	1014003
Tax Agent	IRD	IRD Number (of client list)	Yes	123133609
Tax Agent	LSTID	List Identifier	Yes	123133609
Customer account**	ACCIRD	Account IRD number	Yes	019515842
	ACC	Account Identifier	No	139531973INC002

** AccountType is required

The provided OAuth Token needs to have delegated permissions to this party.

Base structure:

```
<linkRequest
        xmlns="urn:www.ird.govt.nz/GWS:types/SoftwareIntermediation"
        xmlns:cmn="urn:www.ird.govt.nz/GWS:types/Common.v1"
        xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
        xsi:schemaLocation="urn:www.ird.govt.nz/GWS:types/SoftwareIntermediation">
  <cmn:softwareProviderData>
    <cmn:softwareProvider>SoftwareProvider</cmn:softwareProvider>
    <cmn:softwarePlatform>SoftwarePlatform</cmn:softwarePlatform>
    <cmn:softwareRelease>v1</cmn:softwareRelease>
  </cmn:softwareProviderData>
  <cmn:identifier IdentifierValueType="ACCIRD">0123456789</cmn:identifier>
  <cmn:accountType>GST</cmn:accountType>
  <softwarePlatformID>1500068629</softwarePlatformID>
</linkRequest>
```

Field	Requirement	Description
identifier	Required	This value indicates the party to be linked to the software platform. The value submitted for this field should contain only digits, with no dashes. IRD numbers that are eight digits must be padded with a leading zero.
AccountType	Depending on context this field is required (for CUSTOMER) or ignored (for TAX AGENT).	The account type in this payload will specify the account type to which to link. This will only be done for links to CUSTOMERs and not AGENTs. (For distinction between the two see the RetrieveList operation)
SoftwarePlatformID	Required	This is the value provided by Inland Revenue during the registration process. This type of identifier is called a customer ID (a generic technical key for external parties in the Inland Revenue system) and is unique for every software package. It will be compared to the submitted software platform field.

NOTE: When this operation is being called, the *business intermediary or customer account* using the software **must** have owner or administrator access. The delegations are determined by the access currently granted in myIR.

The Link operation will not allow the same link to be created twice. If there is any uncertainty that a link exists there is no harm in calling the operation again, just ensure the first Link call has had time to process. The generic response fragment documented above is the only response since the processing happens asynchronously.

![Inland Revenue Te Tari Taake logo]

3.2 Delink

The Delink operation will be used to delink a customer or business intermediary client list from the software package. This operation will be called once per link upon final use. The removal of a link should only occur upon cessation of a relationship, while the renewal of a subscription does not require this operation.

The Identifier field for the Delink operation will have the IdentifierValueTypes of either the business intermediary or software package depending on who is submitting the Delink call. If the token is for someone with permissions on the software package then the identifier value will contain the software platform ID (of type customer ID so IdentifierValueType="CST"), and the targetID field will contain the agent/account to be delinked. If the token is for a person with permissions on a Tax Agent or Customer Account then this field will contain the corresponding ID and the targetId will contain the platform ID (CST).

The provided OAuth Token needs to have delegated permissions on this party.

Base structure:

```
<delinkRequest
        xmlns="urn:www.ird.govt.nz/GWS:types/SoftwareIntermediation"
        xmlns:cmn="urn:www.ird.govt.nz/GWS:types/Common.v1"
        xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
        xsi:schemaLocation="urn:www.ird.govt.nz/GWS:types/SoftwareIntermediation">
  <cmn:softwareProviderData>
     <cmn:softwareProvider>SoftwareProvider</cmn:softwareProvider>
     <cmn:softwarePlatform>SoftwarePlatform</cmn:softwarePlatform>
     <cmn:softwareRelease>v1</cmn:softwareRelease>
  </cmn:softwareProviderData>

  <!-- Either -->
  <cmn:identifier IdentifierValueType="CST">1500123456</cmn:identifier>
  <targetId>123123123</targetId>
  <targetAccount>GST</targetAccount>

  <!-- OR -->
  <cmn:identifier IdentifierValueType="IRD">123123123</cmn:identifier>
  <targetId>1500123456</targetId>
  <targetAccount>GST</targetAccount>

</delinkRequest>
```

Field	Description
identifier	• If the token resolves to an owner with permissions on the *software package* then the identifier value will contain the software platform ID (of type customer ID so IdentifierValueType="CST"), and the targetID field must contain the IRD number of the Tax Agent/Customer Account to be delinked. • If the token resolves to a *business intermediary or customer account* with permissions on a Tax Agent or Customer Account then

Field	Description
	this field will contain the corresponding ID and IdentifierValueType **must** be a valid ID (CLTLID, IRD, LISTID, ACC or ACCIRD), and the targetId **must** contain the platform ID. The value submitted for this field should contain only digits, with no dashes. IRD numbers that are eight digits must be padded with a leading zero.
AccountType	Not used
targetId	This field will be the other party to the link not already provided in the identifier. • If the identifier is for the *software package* then the targetId will be that of a business intermediary or customer account • If the identifier is that of the *business intermediary or customer account* then the targetId will be the CST of the software package.
targetAccount	This field will be used when the link being removed is an account-level link. If this field is not included in the payload and a customer-level link could not be found, account-level links will not be searched for. If the link was to a tax agent then this field will be ignored.

Proper use:

There are two ways that this payload can be submitted, via the *software package* or the *business intermediary or customer account*. If the software package is requesting to delink, the software can submit this request one of two ways:

- A payload with an ID of the business intermediary or customer account (see table in section 3.1) as the **IdentifierType** and the CST identifier for the platform as the **targetID**.
- Alternatively, the request can be made later by the software package with the value of "CST" type as the **IdentifierType** and the *business intermediary or customer account* as the targetID.

The delinking of an account-level link requires the TargetAccount field to be populated. This means that any client with multiple account-level links will require multiple Delink calls for the different links.

NOTE: For special cases the Delink operation can be used to reissue bulk feed files. This operation will be called followed by the link operation. There is a short processing time required for the Delink operation to finish before the Link operation can be called. The generic response fragment documented above is the only response since the processing happens asynchronously.

![Inland Revenue Te Tari Taake logo]

3.3 RetrieveClientList

The RetrieveClientList operation will be used to retrieve all purchasers of a software package subscribed for bulk updates. This will only return active links and will not return delinked or expired relationships.

Base request structure:

```
<RetrieveListRequest
        xmlns="urn:www.ird.govt.nz/GWS:types/SoftwareIntermediation"
        xmlns:cmn="urn:www.ird.govt.nz/GWS:types/Common.v1"
        xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
        xsi:schemaLocation="urn:www.ird.govt.nz/GWS:types/SoftwareIntermediation">
  <cmn:softwareProviderData>
     <cmn:softwareProvider>SoftwareProvider</cmn:softwareProvider>
     <cmn:softwarePlatform>SoftwarePlatform</cmn:softwarePlatform>
     <cmn:softwareRelease>v1</cmn:softwareRelease>
  </cmn:softwareProviderData>
  <cmn:identifier IdentifierValueType="CST">0123456789</cmn:identifier>
  <clientType>CUSTOMER</clientType>
  <clientAccountType>GST</clientAccountType>
</RetrieveListRequest>
```

Field	Description
identifier	Indicates the software platform.
	If this party cannot be resolved as a valid party, or if it can but the OAuth token is for someone who does not have permissions, in both cases a '4 unauthorised delegation' status code will be returned.
	The value submitted for this field should contain only digits, with no dashes. IRD numbers that are eight digits must be padded with a leading zero.
AccountType	Not used
clientType	This type is to distinguish between AGENT lists and CUSTOMER lists. AGENT lists will return the links to tax agents and CUSTOMER lists will return the links directly to customer accounts.
clientAccountType	Optional: This field will allow filtering by account type when clientType above is CUSTOMER.

Base response structure:

```
<retrieveListResponse
    xmlns="urn:www.ird.govt.nz/GWS:types/SoftwareIntermediation"
      xmlns:cmn="urn:www.ird.govt.nz/GWS:types/Common.v1"
      xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
      xsi:schemaLocation="urn:www.ird.govt.nz/GWS:types/SoftwareIntermediation">
      <cmn:statusMessage>
            <cmn:statusCode>0</cmn:statusCode>
            <cmn:errorMessage/>
      </cmn:statusMessage>
```

```xml
<softwareUser>
    <client>
        <clientType>AGENT</clientType>
        <idType>IRD</idType>
        <id>123158616</id>
    </client>
    <client>
        <clientType>AGENT</clientType>
        <idType>LSTID</idType>
        <id>123744705</id>
    </client>
    <client>
        <clientType>AGENT</clientType>
        <idType>CLTLID</idType>
        <id>1035033</id>
    </client>

    <!-- OR -->

    <client>
        <clientType>CUST</clientType>
        <idType>ACCIRD</idType>
        <id>123089456</id>
        <accountType>GST</accountType>
    </client>
    <client>
        <clientType>CUST</clientType>
        <idType>ACCIRD</idType>
        <id>123089456</id>
        <accountType>INC</accountType>
    </client>
</softwareUser>
</retrieveListResponse>
```

Field	Description
clientType	Depending on the request, only a list of AGENTs or only a list of CUSTOMERs will be returned
idType	This value will either be an Account IRD (ACCIRD) or IRD. Tax agencies will be the only ones with IRD as the identifier.
Id	This is the value based on the idType
accountType	This value only applies to ACCIRD idTypes

After October 2021, Inland Revenue will no longer be issuing new IRD numbers for bankrupt clients. When a client's bankruptcy is finalised, the existing income tax account will be closed (pre-adjudicated), and a new account will be opened (post-adjudicated) automatically. This will result in the customer having multiple income tax accounts with a single IRD number. If a customer has multiple accounts with the same IRD number linked to an Intermediary, when retrieving the client list the response will only include one record of the IRD number and account type so it doesn't appear as a duplicate.

4   Additional development resources

Current environment information for this service—including the end points for each environment, schemas and WSDLs—is available within the relevant Software Development Kit (SDK).

To access the SDK, do one of the following:

- Go to https://github.com/InlandRevenue and select this service
- Go to https://developerportal.ird.govt.nz and click the link to the SDK within the Gateway Service documentation (please register first).

4.1   Schemas

All schemas for the Software Intermediation Service import a common.xsd which has some data types specific to Inland Revenue. This common.v1.xsd will be used in other Gateway Services outside of the /SoftwareIntermediation/ namespace so it must be kept up-to-date, without numerous redundant versions remaining. The schemas for all operations will import SoftwareIntermediation.xsd for the request and response.

See instructions at beginning of section 4 for where to find schemas for this service.

4.2   WSDLs

The Software Intermediation Gateway Service has one WSDL, which has a target namespace of https://services.ird.govt.nz/GWS/SoftwareIntermediation and can be found at https://services.ird.govt.nz:4046/gateway/GWS/SoftwareIntermediation/?singleWsdl

Note: The production URL above will not work until you have onboarded with Inland Revenue.

As explained in the 'Solution design' section of this document, the online WSDLs have 'any' elements underneath the wrapper elements. There is a development version of the WSDL available with this build pack that replaces the 'any' element with an imported reference to the schema to facilitate initial development and testing. To consume the actual service, the binding will need to be done at the hosted end point. However, for initial development this static WSDL can be used.

All WSDL messages follow this naming convention:

```
SoftwareIntermdiation_<operation>_InputMessage

<wsdl:portType name="SoftwareIntermediation">
        <wsdl:operation name="Link">
        <wsdl:operation name="Delink">
        <wsdl:operation name="RetrieveList">
        <wsdl:service name="SoftwareIntermediation">
```

See beginning of section 4 for instructions on where to find WSDLs for this service.

5 Response codes

The response message from the Gateway Services always includes a status code and status message that describes how successfully the gateway service call was carried out. Following the status message will be the responseBody, which will return the operations response.

5.1 Generic gateway response codes

The following response codes are common to all Gateway Service calls. The operations for the Software Intermediation Service all apply customer-level security validation at the framework level and the descriptions for these codes reflect that.

Standard codes	Standard message	Description
-1	An unknown error has occurred	This is generally what will be returned for internal errors that are not due to the service request
0	Success	Standard success code is 0
1	Authentication failure	General authentication failure status
2	Missing authentication token(s)	Tokens were not included in the HTTP header as expected
3	Unauthorised access	Access is not permitted for the requester to use the gateway services. Access could not be confirmed due to OAuth token validation failing. This could be due to invalid format of the token or infrastructure being unavailable.
4	Unauthorised delegation	Access is not permitted for the requester to perform this operation for the submitted identifier. This code will be returned in any of these situations: • The submitted cmn:identifier has an invalid value. • The identifier type (IdentifierValueType attribute on cmn:identifier) supplied is invalid. • All the values above are valid but the provided OAuth token does not have delegated access to that Customer. • **The Delink operation will NOT return this code but will return 113 as per below**.
5	Unauthorised vendor	Vendor is not permitted access—has not been onboarded for this operation
20	Unrecognised XML request	This could be due to the external sender sending in incorrect XML or it could be due to bad/poor/missing configuration

Inland Revenue
Te Tari Taake

Standard codes	Standard message	Description
21	XML request failed validation	The external requestor submitted XML that is not formatted according to our defined schemas
(none)	(non XML)	In some scenarios where the request message does not have a well formed XML structure or is not valid or does not adhere to the SOAP protocol formats, the framework generates a parsing exception that is not wrapped in XML nor has a response status code
(none)	(SOAP fault) UnAuthorised	An unexpected technical fault has been detected. Depending on the context (eg if an online user is waiting), try the request again after at least five seconds. If the fault recurs then please contact GatewayServices@ird.govt.nz.

5.2   Generic software intermediation response codes

The following response codes are specific to Software Intermediation Service calls:

Standard codes	Standard message	Description	Link	Delink	Retrieve List
100	Could not extract data from xml payload	Could not extract data from XML payload	X	X	X
101	Link already exists	A link already exists between the parties attempting to link	X		
102	No active link	A link does not exist between the parties attempting to delink		X	
103	Unable to save request	A request was not created. Submit request again.	X	X	
104	Missing account type	An account IRD number was submitted without an account type	X		
105	Cannot create customer level link	An IRD number was submitted without an account type and the IRD number does not belong to a tax agency	X		
106	Missing target account	A target account type was not provided to find the account from which to delink		X	
108	No account IRD provided for account	No account IRD number (ACCIRD) provided for the given account type	X		

Inland Revenue
Te Tari Taake

Standard codes	Standard message	Description	Link	Delink	Retrieve List
109	The specified software has no links of that type	The specified software intermediary has no links of that type. Link types are either AGENT or CUSTOMER.			X
111	No software registration found	No software intermediary found for the given Software Platform Customer ID	X	X	
112	No agent or customer found	No agent or customer found with provided identifier		X	
113	No account found	No account found for the given account type		X	
114	The provided account type is not supported	The provided account type is not authorised in the current operation	X		

6   Change log

This table lists all changes that have been made to this build pack document since the release of version 1.

Date of change	Document section	Description
18/08/22	5.2	• 104 error code changed from De-link to Link in the error code table
	3	• Footnote description updated on page 13
	3.3	• Footnote description updated on page 19
17/09/21		• October 2021 release changes
	3.1	• Added support for CLTLID to Payroll intermediaries
	3.1	• Added ACC to identifier table
	3.2	• Added ACC to identifier description
	3	• Information added at end of section to cover October bankruptcy changes
	1.3.2	• Added 'Intermediation Service' to list of related services
		• Glossary removed
	2.4	• Security section restructured – now contains sub-sections on information classification, transport layer security and certificates, ciphers, end points, and authentication and authorisation • New information added to provide for Inland Revenue's support for TLS1.3, and deprecation of certain TLS1.2 ciphers • Updated end point information on web service consumer identification for desktop connections (in table) • Updated list of recommended certificate authorities • Updated list of requirements for accepting public X.509 keys – now includes ECDSA
	1	• Moved 'Mutual Transport Layer Security and certificates' section into section 2.4
		• 'Prerequisites' table removed and absorbed into section 2.4
	4	• Renamed 'End points, schema and WSDLs' section to 'Additional development resources'

	5.1	Updated description of following response code:
		        (none)
		        (soap fault)
		        UnAuthorised

Date of change	Document section	Description
24/08/20	3.3	• Revised example of client list response
	1.3	• Change TDS description from API to services
	3	• List of ID types updated in description of IdentifierValueType (NOTE: supported ID types have been updated throughout document to include IRD, CLTLID, LSTID and ACCIRD)
	3.1	• Revise the link operation description
		• Added table of supported ID types
		• Remove "CST" from supported IdentifierValueType and added list of supported types
	3.2	• Revised field descriptions
		• Changed customer to business intermediary or customer account
	1.3	• Section name changed from 'Related build packs' to 'Related services' and text modified.
	1.4	• Note added to Prerequisites table: Note that the same certificate cannot be used for the Test and Production environments.
	2.4	• TLS information updated to reflect use of TLS1.3
	4.1	• Removed end points and replaced with link: *Onboarding instructions are available at https://www.ird.govt.nz/software-providers/.*
	5	• Error code 6 removed (authentication expired)
	1.1	• Updates made to boxed instructions for where to find additional information such as business-level context, use cases and links to relevant policy.
	1.3	• Updated instructions on where to find related build packs.
	2.4	Text added at end of section: • *For updates to versions of the SOAP architecture including the communication standards, security and service end points please follow the links provided in section 4.*
	3	• Updated hyperlink in boxed text at start of section
	4	• Removed boxed instructions on where to find current end points, schemas and WSDLs and updated with new instructions.
	4.1	Text updated to this: • *See instructions above for where to find end points for this service.*

Date of change	Document section	Description
	4.2	Note added: • *See instructions at beginning of section 4 for where to find schemas for this service.*
	4.3	Removed redundant note at end of section regarding WSDLs. Added following text: • *See beginning of section 4 for instructions on where to find WSDLs for this service.*
05/03/19	3	• Description of softwarePlatform in table removed: *"The software package that is making the request".* Replaced with new description: *"The field value will be provided by Inland Revenue during the onboarding process."*
03/12/18	(formerly section 6)	• REMOVED: Section on use cases and scenarios. Readers are instead advised to visit https://www.ird.govt.nz/software-providers/ for such information
	4.3	• **Removed:** The Software Intermediation Gateway Service has one WSDL, which has a target namespace of https://services.ird.govt.nz/GWS/SoftwareIntermediation/ and can be found at https://services.ird.govt.nz/GWS/SoftwareIntermediation/?singleWsdl. **Replaced with:** *The Software Intermediation Gateway Service has one WSDL, which has a target namespace of https://services.ird.govt.nz/GWS/SoftwareIntermediation and can be found at* *https://services.ird.govt.nz:4046/gateway/GWS/SoftwareIntermediation/?singleWsdl* ***Note:** The production URL above will not work until you have onboarded with Inland Revenue.*
		• **Removed:** *Note: The WSDL hosted at the end point above will not contain these XSD references, only the static WSDL provided on our GitHub page.* **Replaced with:** *Note: The WSDL hosted at the end point above will not contain these XSD references, only the static WSDL*

Date of change	Document section	Description
		provided at https://www.ird.govt.nz/software-providers/.
	3.1	• Table reformatted to include column for 'requirement'
	3 4	• **Removed:** **IMPORTANT:** *The end points, schemas and WSDLs listed here are subject to change. For the authoritative definitions, please refer to the information provided on the Inland Revenue Gateway Services GitHub site:* https://github.com/InlandRevenue/Gateway-Services **Replaced with:** **IMPORTANT** The end points, schemas and WSDLs listed here are subject to change. For the authoritative definitions, please visit https://www.ird.govt.nz/software-providers/
	Table of contents	• Removed 'List of tables' and 'List of figures'
	Entire document	• Removed all 'table' and 'figure' captions
	1.4	• Removed row from prerequisites table on Inland Revenue: **INLAND REVENUE:** *Provide the Inland Revenue public certificate for mutual TLS. Inland Revenue's public X.509 certificate to support TLS will be provided as part of connectivity testing.*
	1.1	• REMOVED: The associated onboarding and overview documents describe the end-to-end business level solution, of which this build pack forms part. Development versions of schemas, and sample requests and responses are also available with this build pack. • REMOVED: section called 'Onboarding packs for supported processes' • ADDED: Before you continue, please be sure to consult **http://www.ird.govt.nz/software-providers/** for the products that use this Service, business-level context and use cases, links to relevant policy, and information on how to integrate with Inland Revenue's products and services.
	Glossary	• Entries added to glossary
19/11/18	1.4.1	• Section 1.4.1 added to cover mutual TLS security
	7 Glossary 8 Change log	• Removed word 'Appendix' from both headings

Date of change	Document section	Description
13/04/18	Entire doc	• V1