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Build Pack: Bill API

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Te Tari Taake

Contents

1 Overview 3
1.1 This solution 3
1.2 Intended audience 3
1.3 Related services 3
1.3.1 Identity and Access Services (required) 3
2 Solution design 4
2.1 Architecture 4
2.2 Messaging 4
2.2.1 Bill 4
2.2.1.1 Request payload 4
2.2.1.2 Response payload 5
2.3 Security 7
2.3.1 Information classification 7
2.3.2 Transport layer security and certificates 7
2.3.3 Ciphers 8
2.3.4 Authentication options 9
3 Additional development resources 10
3.1 End points 10
3.2 OpenAPI specifications 10
4 Change log 11

Inland Revenue
Te Tari Taake

1 Overview

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.

1.1 This solution

Inland Revenue has a suite of digital services available for consumption by our service providers that supports efficient, electronic business interactions with Inland Revenue. This service is an application programming interface (API) that external applications can call in real-time to retrieve information for a particular customer bill item. The response also includes provisional tax method details and history associated to the account to which the bill item belongs.

The objective of this API is to allow transaction data services (TDS) software providers to query information that was formerly available in the Tax Agent Web Services (TAWS) data feed.

1.2 Intended audience

The solution outlined in this document is intended to be used by TDS software providers. 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 section 3 of this document.

1.3.1 Identity and Access Services (required)

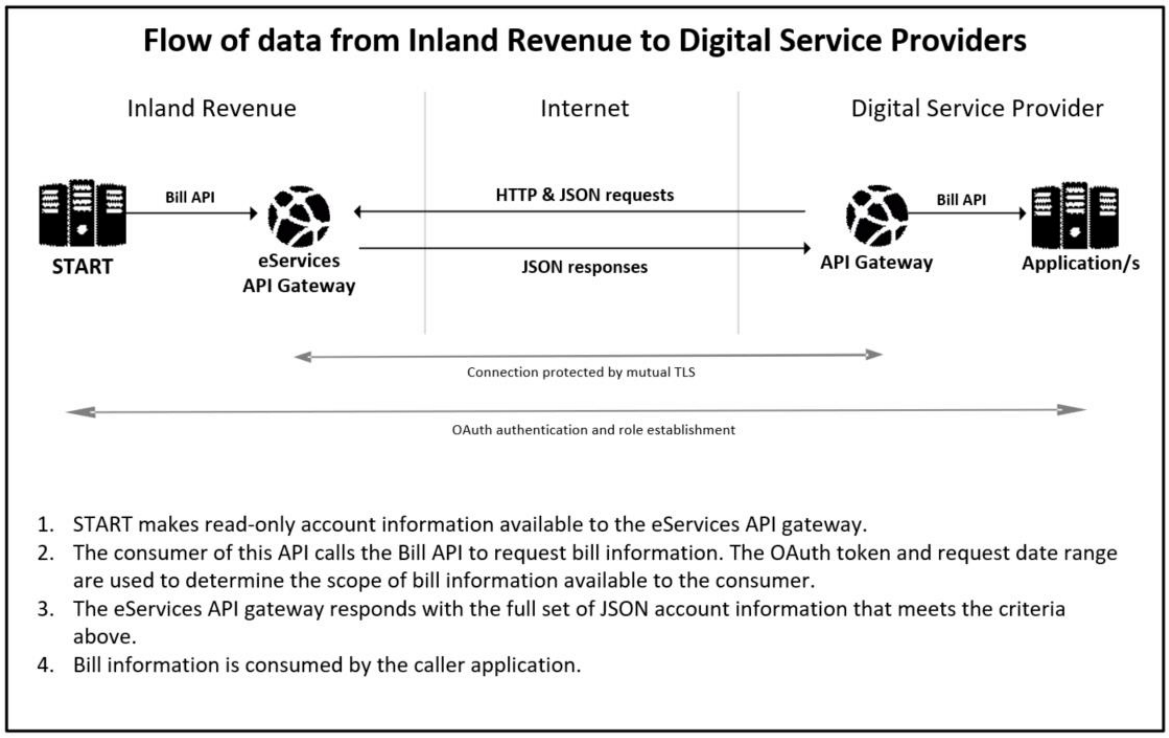
The Identity and Access Services (IAS) are used to authenticate access. Authentication tokens will need to be retrieved via IAS prior to making calls to this API.

2 Solution design

2.1 Architecture

Inland Revenue offers a suite of web applications in order to facilitate interactions via software packages. This API using JSON messaging, will be used by approved organisations to retrieve bill item and provisional tax information from Inland Revenue. Refer to 'additional development resources' for details.

The diagram below illustrates the flow of data from Inland Revenue to the Digital Service Providers.



2.2 Messaging

This service supports the following message type:

- **BILL:** Retrieves bill item information and associated provisional tax method and history from Inland Revenue. Requires a bill ID, which is available in the TDS file as the value of element <billID>.

2.2.1 Bill

2.2.1.1 Request payload

Field	Description
Id	This refers to the bill ID as it appears in the TDS file (value of element <billID>). Id is the only parameter within the Bill object.

2.2.1.2 Response payload

Field	Description
Bill ➢CustomerId	Customer ID of customer to whom requested bill item belongs. This ID is the customer's IRD number.
Bill ➢CustomerIdType	**NOTE:** This will only ever be "IRD".
Bill ➢AccountId	Account ID of the account to which requested bill item belongs
Bill ➢AccountIdType	**NOTE:** This will only ever be "ACC".
Bill ➢Period	End date of the filing period to which requested bill item belongs
Bill ➢Id	This refers to the bill ID as it appears in the TDS file. This is identical to the value provided in the request payload.
Bill ➢RetrieveDate	Date that the requested bill item information was retrieved
Bill ➢DueDate	The date that the requested bill item is due
Bill ➢UnderArrangement	Indicates that this bill item is included in an instalment arrangement
ProvMethodHistory[]	Array containing all versions of all provisional methods belonging to the account.
ProvMethodHistory[] ➢MethodKey	Unique identifier for the provisional method. If multiple versions of a particular method exist (ie the method has been updated by either the taxpayer or an Inland Revenue employee), they will be listed from newest to oldest in the array. **NOTE:** A customer may have multiple provisional tax filing methods. This array will contain the history of all of the methods used by this customer, including the one used to generate the requested bill item.
ProvMethodHistory[] ➢Method	Method used. Available options are STD (standard), EST (estimation), RATIO, and AIM.
ProvMethodHistory[] ➢TaxYear	Tax year associated with provisional tax method.
ProvMethodHistory[] ➢Commence	Provisional tax method commencement date.
ProvMethodHistory[] ➢Cease	Provisional tax method cessation date.
ProvMethodHistory[] ➢Amount	Total provisional tax method amount.

Field	Description
ProvMethodHistory[] **➢Ratio**	Provisional tax method ratio (applicable to ratio method only).
ProvDetails **TransactionId**	Unique identifier of provisional tax instalment transaction.
ProvDetails **➢TransactionType**	Type of transaction associated with the bill item. Possible values are CNVPRV (Converted provisional tax debit), PRVDBT (Provisional instalment), RTNADR (AIM debit) and RTNACR (AIM credit).
ProvDetails **➢FilingPeriod**	Provisional tax method filing period. This date is the last day of the tax year.
ProvDetails **➢DueDate**	Provisional tax instalment due date.
ProvDetails **➢Amount**	Provisional tax instalment amount due.
ProvDetails **➢FITReduction**	Provisional tax instalment FIT reduction.
ProvDetails **➢Method**	Provisional tax instalment method that the instalment and bill item were generated for. Available options are STD (standard), EST (estimation), RATIO, and AIM.
ProvDetails **➢Reversed**	Provisional tax instalment reversed date.
ProvDetails **➢Processed**	Provisional tax instalment processed date.

Inland Revenue
Te Tari Taake

2.3 Security

2.3.1 Information classification

The information exchanged via this API has an information classification of "**IN CONFIDENCE**". The following security standards therefore apply.

2.3.2 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.

Inland Revenue
Te Tari Taake

2.3.3 Ciphers

While Inland Revenue currently supports TSL1.2 and 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
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

2.3.4 Authentication options

This design will use OAuth2.0 tokens and protocol to establish the calling party's identity, and also requires a myIR logon that is a customer or intermediary-level XIAMS user account recognised by START.

The service will allow one to retrieve bill item data for an income tax account to which the myIR user (as represented by the OAuth2 token) has access. If the user does not have access to the income tax account associated with the bill item in the request parameters, an error will be returned.

HTTP headers intended for OAuth access services will be have the token prefixed with "Bearer ".

HTTP header	Example value
Authorization	Bearer {JWTAccessToken}

Note that this service does not support JWT authentication.

Refer to the Identity and Access Services build pack for more information.

Inland Revenue
Te Tari Taake

3 Additional development resources

3.1 End points

Current environment information for this service—including the end points for each environment—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).

3.2 OpenAPI specifications

An OpenAPI file allows for the description of the entire API, end points, operations on each end point, and operation parameters. The included .yaml file can be used along with an OpenAPI editor such as editor.swagger.io to view technical specifications for this operation and generate example client code.

To access the latest OpenAPI definition for this service, please do the following:

- Login to the developer portal at https://developerportal.ird.govt.nz (register first)
- Download and view the OpenAPI definition within the Gateway Service documentation.

4 Change log

This table lists all material changes that have been made to this build pack document since the release of v1.0. It does not encompass non-material changes, such as to formatting etc.

Date of change	Document section	Description
24/06/21	1.3	'Prerequisites' section removed and absorbed into new 'Security' section (2.3)
	1.3	'Related services' section added to build pack
	1.3.1	'Mutual Transport Layer security and certificates' section updated and moved into section 2.3.2
	1.3.2	'Authentication options' section modified and moved into section 2.3.4
	2.1	Diagram added to 'Architecture' section
	2.2	Heading changed from 'Supported message type' to 'Messaging'
	2.3	'Bill item and provisional tax information' heading removed
	2.4	Security section upgraded: • 'Information classification' section added • 'Transport layer security and certificates' updated • 'Ciphers' section added • 'Authentication options' section modified • 'M2M JWT' section removed (inc. redundant 'Header', 'Payload' and 'startLogon' sections – information can be found in Identity and Access Service build pack)
	3	'End points and OpenAPI specifications' section renamed 'Additional development resources'
	4	Glossary removed
19/11/20	1.3.2.2	JWT section removed as it does not apply
30/09/20	1.3.2	New section added – 'Authentication options'
	2.3.2	Added new fields for DueDate and UnderArrangement • YAML file updated
06/08/20	2.4.2.1	Typo corrected in value values field for 'alg'
	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.
	3	All of section 3 updated with new instructions on where to find current end points and YAML files etc.

Date of change	Document section	Description
14/04/20	3.1	End points removed and replaced with instruction to instead visit https://www.ird.govt.nz/software-providers/
	2.4	Security section added
09/03/20		V1.0 released