

Inland Revenue

Build pack: Employment service

Date: 23/04/2018

UNCLASSIFIED

Contents

1 Overview.....	3
1.1 This solution	3
1.2 Intended audience.....	3
1.3 Supported onboarding services	3
1.4 Related build packs	3
1.4.1 Identity and Access services build pack.....	3
1.4.2 Return service build pack	4
1.5 Prerequisites.....	4
2 Solution design	5
2.1 Architecture.....	5
2.2 Service scope	5
2.3 Messaging	5
2.4 Security	7
3 Operations	10
3.1 Create	11
3.2 Update.....	14
3.3 Terminate	18
3.4 RetrieveList	19
3.4.1 Request	19
3.4.2 Response	19
4 End points, schemas and WSDLs.....	21
4.1 End points.....	21
4.2 Schemas	22
4.3 WSDLs.....	22
5 Response codes	23
5.1 Generic gateway response status codes	23
5.2 Response codes specific to Employment service	24
6 Processing flows.....	26
6.1 Use cases.....	26
6.1.1 Create and Update (new employee/KiwiSaver details)	26
6.1.2 Update an employer/employee relationship	26
6.1.3 Terminate an employer/employee relationship	26
6.1.4 Retrieve employer/employee relationship data.....	27
6.1.5 Update and Create to reinstate an incorrectly terminated relationship... 27	
7 Appendix A—Glossary	28
8 Appendix B—Change log	30

1 Overview

1.1 This solution

Inland Revenue has a suite of digital services available for consumption by our service providers that support efficient, electronic business interactions with Inland Revenue. The Employment service described in this build pack document forms part of a suite of Gateway Services.

This is a stand-alone document intended to provide the technical details required to support the end-to-end onboarding of Gateway Services. It describes the architecture of the technical solution, schemas, end points, sample payloads to use in non-production environments, and also its interaction with other build packs that cover different aspects of Gateway Services. The associated onboarding documents describe the end-to-end business level solution, of which this build pack forms part.

1.2 Intended audience

The solution outlined in this document is intended to be used by technical and development staff. It describes the technical interactions, including responses, provided by the Employment service.

The reader is assumed to have a suitable level of technical knowledge in order to understand 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 at the end.

1.3 Supported onboarding services

Before using this build pack, ensure the relevant onboarding pack has been consulted to provide business level context.

The following Inland Revenue onboarding pack is supported by this build pack:

- Employment Activities (EA) via Gateway Services.

1.4 Related build packs

The following Inland Revenue build packs complement this one:

1.4.1 Identity and Access services build pack

The Identity and Access (IAS) services build pack describes the operations provided under Identity and Access services, which is another part of the Gateway Services suite. These services are used to authenticate access.

This Employment service build pack was written using information from version 1.5 of the Identity and Access services build pack.

1.4.2 Return service build pack

The Return service build pack describes the operations provided under the Return web service, which forms part of the Gateway Services suite. The operations offered to employers by this service include the ability to request the status or a copy of a previously-filed return, request a prepopulated return, file a new return and request the next filing obligation.

This Employment service build pack was written using information from version 0.8 of the Return service build pack.

1.5 Prerequisites

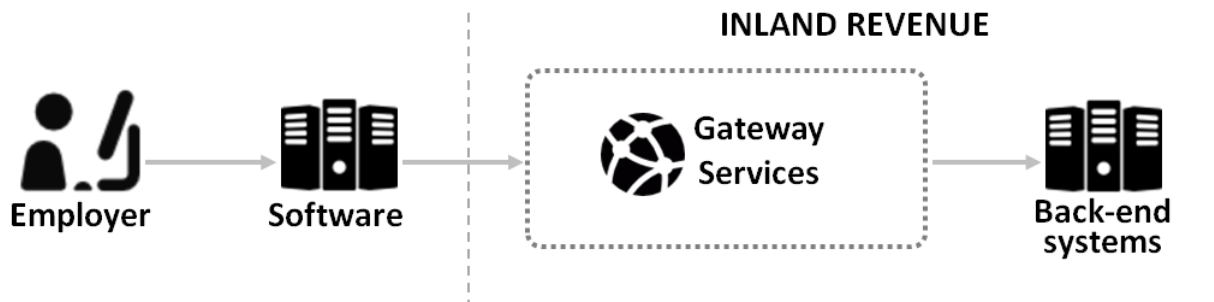
Party	Requirement	Description
Inland Revenue	Provide the Inland Revenue public certificate for mutual TLS.	Inland Revenue's public X.509 certificate to support TLS will be provided as part of connectivity testing.
Service provider	Acquire a X.509 certificate from a competent authority for the Test and Production environments.	This is required for secure authentication with Inland Revenue.

2 Solution design

2.1 Architecture

Inland Revenue is offering a suite of SOAP-based services in order to facilitate interactions with Inland Revenue via software packages. The Gateway Services suite will be used by approved software vendors 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 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. Any malformed XML will be rejected by the Gateway Services prior to any schema validation.

2.2 Service scope

The following operations are provided for the Employment service:

- **Create:** This operation will allow for the creation of an employer/employee relationship, as well as the submission of KS1/KS10 information.
- **Update:** This operation will allow for the updating of an employee/employer relationship, as well as for opting out of KiwiSaver.
- **Terminate:** This operation will be used for the termination (end dating) of an employee/employer relationship.
- **RetrieveList:** This operation can be used to retrieve a list of current employees linked to the requesting employer.

2.3 Messaging

All SOAP messages require a SOAP header containing **To:** and **Action:** parameters, as well as a SOAP body containing a structured XML payload.

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:ret="https://services.ird.govt.nz/GWS/Employment/"
  xmlns:emp="https://services.ird.govt.nz/GWS/Employment/:types/CreateRequest"
  xmlns:a="http://www.w3.org/2005/08/addressing">
  <soap:Header>
    <a:To>https://services.ird.govt.nz/Gateway/GWS/Employment </a:To>
    <a:Action>https://services.ird.govt.nz/GWS/Employment/Employment/someOperation</a:Action>
  </soap:Header>
  <soap:Body>
    <emp:Create>
      <emp:CreateRequestMsg>
        <cre:CreateRequestWrapper>
          <emp1:createRequest>
            <...request fields...>
          </emp1:createRequest>
        </cre:CreateRequestWrapper>
      </emp:CreateRequestMsg>
    </emp:Create>
  </soap:Body>
</soap:Envelope>
```

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">
  <s:Header>
    <a:Action s:mustUnderstand="1">
      https://services.ird.govt.nz/GWS/Employment/Employment/CreateResponse
    </a:Action>
  </s:Header>
  <s:Body>
    <CreateResponse xmlns="https://services.ird.govt.nz/GWS/Employment/">
      <CreateResult
        xmlns:b="https://services.ird.govt.nz/GWS/Employment/:types/CreateResponse"
        xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
        <b:CreateResponseWrapper>
          <employmentResponse xmlns="urn:www.ird.govt.nz/GWS:types/Common.v1">
            <statusMessage>
              <statusCode>0</statusCode>
              <errorMessage/>
            </statusMessage>
          </employmentResponse >
        </b:CreateResponseWrapper>
      </CreateResult>
    </CreateResponse>
  </s:Body>
</s:Envelope>
```

2.4 Security

An OAuth token is required in the HTTP header and can be acquired via an IAS call. Users will Gateway Services requests are access-controlled using an OAuth token that identifies the user making the request. Users will authenticate using their Inland Revenue myIR credentials. For instructions on how to acquire an OAuth token, review the Identity and access build pack. For TDS Real Time web service requests, an OAuth access token is required in the HTTP header.

Authorisation for using the Gateway Services is defined in the permissions set in myIR. Permissions will reflect those granted in myIR. For example, if a 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 Gateway Services use an HTTPS transport layer, with HTTP1.1 transport protocol supported.

The Gateway Services also use the SOAP version 1.2 protocol.

The SOAP service contract is published using WSDL version 1.1.

Transport layer encryption is mandatory and Gateway Services generally use the TLS version 1.2 specification.

Inland Revenue requires the following ciphers and key strengths to be used:

Encryption:	Advanced Encryption Standard (AES)	FIPS 197	256-bit key
Hashing:	Secure Hash Algorithm (SHA-2)	FIPS 180-3	SHA-256

There will be 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 involve mutual TLS certificates that need to be exchanged during the onboarding phase. 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**, there is a separate end point that does not use mutual TLS. For this service, certificates do not need to be exchanged during onboarding. On the desktop end point Inland Revenue has less ability to shield consumers of the service from heavy usage by others.

IMPORTANT: Please note that only the end points for cloud-based connections are currently available.

	End point for cloud-based connections	End point for desktop connections
Purpose	<ul style="list-style-type: none"> Primary preferred end point to connect to from service providers for Gateway Services. 	<ul style="list-style-type: none"> 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 setup certificate trust.
Client application type	<ul style="list-style-type: none"> Cloud applications. 	<ul style="list-style-type: none"> Desktop/native applications. For connecting from multiple decentralised clients.
Constraints	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> 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 offered to desktop clients.
Mutual TLS	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> Server-side certificates only.
Minimum TLS version	<ul style="list-style-type: none"> 1.2 	<ul style="list-style-type: none"> 1.2
URL	<ul style="list-style-type: none"> Contains .../gateway/.. 	<ul style="list-style-type: none"> Contains .../gateway2/..
Port	<ul style="list-style-type: none"> 4046 	<ul style="list-style-type: none"> 443 (Default https port)

	End point for cloud-based connections	End point for desktop connections
Web service consumer identification	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> Desktop clients will be given different client_id/client_secret credentials to cloud application clients.
Firewalling in production	<ul style="list-style-type: none"> No IP address restrictions. Access limited by certificate enrolment. 	<ul style="list-style-type: none"> No IP address restrictions.
Firewalling in non-production environments	<ul style="list-style-type: none"> No IP address restrictions. Access limited by certificate enrolment. 	<ul style="list-style-type: none"> Firewalled—IP whitelisting needed.

Delegated permissions: The services will allow one to retrieve all of the data for a customer that the calling user (as represented by the OAuth token) has access to. There may be additional accounts this identity does not have access to, those will not be mentioned. If an account or data in it is targeted by the request parameters but the user does not have permission an error will be returned. This access will depend on delegation permissions set up in myIR. If the token represents a user in a tax agency or other intermediary, then the agent-client linking is also considered.

3 Operations

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>

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.xsd
- Emp: Employment.xsd

The response structure for all employment requests will use the two default service response fields: **statusCode** and **errorMessage**. The identifier for this XML is **employmentResponse** in the Employment namespace.

For example:

```
<employmentResponse xmlns="urn:www.ird.govt.nz/GWS:types/Employment">
  <statusMessage xmlns="urn:www.ird.govt.nz/GWS:types/Common.v1">
    <statusCode>0</statusCode>
    <errorMessage>Success</errorMessage>
  </statusMessage>
</employmentResponse>
```

All operations for the Employment service will contain three standard header fields: **softwareProviderData** and **identifier** and **accountType**.

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. For this Employment service this will always be the account IRD number of the employer's EMP account.

For example:

```
<cmn:softwareProviderData>
  <cmn:softwareProvider>SoftwareProvider</cmn:softwareProvider>
  <cmn:softwarePlatform>SoftwarePlatform</cmn:softwarePlatform>
  <cmn:softwareRelease>v1</cmn:softwareRelease>
</cmn:softwareProviderData>

<cmn:identifier IdentifierValueType="ACCIRD">012345678</cmn:identifier>
<cmn:accountType>PSO</cmn:accountType>
```

Field	Description
softwareProvider	The company who developed the software
softwarePlatform	The software package that is making the request
softwareRelease	The version of the software package
IdentifierValueType	The ID type being submitted. For the Employment services this value will be ACCIRD.
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.
AccountType	The account type being submitted is PSO.

Proper use:

- All softwareProviderData fields will need to be the same as that which is provided to Inland Revenue at the time of onboarding
- The identifier is that of the tax payer on whose behalf the operations are being performed.

Example scenario:

- Employer with IRD 898989898 submits for employee IRD 121212121
 - Third party calls /Employment/Create/ with
`<cmn:identifier IdentifierValueType="ACCIRD">898989898 </cmn:identifier>`
`<cmn:accountType>PSO</cmn:accountType>`

3.1 Create

Create enables an employer to submit information to Inland Revenue in regard to a new employee; employee IRD number, employee name, EMS name, tax code, employment start date, employment finish date, employee date of birth, employee contact details, KS1 KiwiSaver enrolment information.

NOTE: If an employee meets the legislative requirements to opt out of KiwiSaver and wishes to do so and the employer has not yet notified Inland Revenue of this new employee, then:

- A *Create* request must be submitted AND
- An *Update* request must also be submitted, including the following fields:
 - optedOut
 - employeeBankAccountNumber
 - accountHolderName
 - OptedOutSignatureDate

In this scenario, it is possible that the *Create* request would not have had time to process and become effective before the *Update* request is sent. In this case, the *Update* request would receive an error response code indicating the *Create* request has not yet processed.

```

<emp1:createRequest>
  <emp1:header>
    <com:softwareProviderData>
      <com:softwareProvider></com:softwareProvider>
      <com:softwarePlatform></com:softwarePlatform>
      <com:softwareRelease></com:softwareRelease>
    </com:softwareProviderData>
    <com:identifier IdentifierValueType=""></com:identifier>
    <com:accountType></com:accountType>
  </emp1:header>
  <emp1:createBody>
    <emp1:employeeIRD></emp1:employeeIRD>
    <emp1:employeeName>
      <com:nameTitle></com:nameTitle>
      <com:nameFirst></com:nameFirst>
      <com:nameSurname></com:nameSurname>
      <com:nameMiddle></com:nameMiddle>
    </emp1:employeeName>
    <emp1:employeeNameOnEILine></emp1:employeeNameOnEILine>
    <!-- 1 to 4 repetitions:-->
    <emp1:taxCode></emp1:taxCode>
    <emp1:employmentStartDate></emp1:employmentStartDate>
    <emp1:employmentFinishDate></emp1:employmentFinishDate>
    <emp1:employeeDateOfBirth></emp1:employeeDateOfBirth>
    <emp1:employeeAddress>
      <com:streetAddress>
        <com:streetNumber></com:streetNumber>
        <com:streetName></com:streetName>
      </com:streetAddress>
      <!-- Optional:-->
      <com:unit>
        <com:type></com:type>
        <com:number></com:number>
      </com:unit>
      <com:townCity></com:townCity>
      <com:postCode></com:postCode>
      <com:country>NZ</com:country>
    </emp1:employeeAddress>
    <emp1:employeeEmailAddress></emp1:employeeEmailAddress>
    <emp1:employeeMobilePhoneNumber>
      <com:phoneType></com:phoneType>
      <com:country></com:country>
      <com:areaCode></com:areaCode>
      <com:number></com:number>
      <!-- Optional:-->
      <com:extension></com:extension>
    </emp1:employeeMobilePhoneNumber>
    <!-- Optional:-->
    <emp1:employeeDayPhoneNumber>
      <com:phoneType></com:phoneType>
      <com:country></com:country>
      <com:areaCode></com:areaCode>
      <com:number></com:number>
      <!-- Optional:-->
      <com:extension>?</com:extension>
    </emp1:employeeDayPhoneNumber>
    <emp1:kiwiSaverStatus></emp1:kiwiSaverStatus>
    <emp1:employeeKiwiSaverEligibility></emp1:employeeKiwiSaverEligibility>
  </emp1:createBody>
</emp1:createRequest>

```

Field	Required	Description
identifier	Required	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	Required	This value will need to be 'PSO' to represent the Employment account
employeeIRD	Required	If the employee doesn't have an IRD number, enter all zeros
employeeName	Required	Full employee name Title (optional), First Name (mandatory), Middle Name (optional), Surname (mandatory for individuals).
employeeNameOnEILine	Required	This is the name provided on the EI return
taxCode	Required	Multiple tax codes can be added in one submission
employmentStartDate	Optional	Format: YYYY-MM-DD
employmentFinishDate	Optional	If future Finish Date is known, place here and future termination will not be needed
employeeDateOfBirth	Optional	Format: YYYY-MM-DD
employeeAddress	Optional	Open address to allow for foreign addresses
employeeEmailAddress	Optional	Employee email address
employeeMobilePhoneNumber	Optional	Standard mobile field
employeeDayPhoneNumber	Optional	Standard phone field
kiwiSaverStatus	Required	Employee KiwiSaver status: <ul style="list-style-type: none"> • AK for KiwiSaver Member • CH for contribution holiday • OT for opted out • NM for Not currently a KiwiSaver Members • NK for not eligible for KiwiSaver
employeeKiwiSaverEligibility	Optional	Either NE for New Employee or EE for Existing Employee. Note that including this field is the equivalent of submitting a KS1 form.

3.2 Update

IMPORTANT NOTE:

When the Update operation is carried out, it completely replaces ALL the existing information on the employment relationship.

This means that where data has previously been supplied for a field, a subsequent Update with no data for that same field will result in the data being overwritten (removed).

For example, employee address information previously supplied would be overwritten if a subsequent Update operation updating that employee's tax code did not include address information.

Therefore any data previously provided to Inland Revenue for a field will need to be included in all subsequent Update operations for it to be retained.

For example:

If employee IRD 123-456-789 already has tax code M SL and tax code STC needs to be added. An update will need to include both M SL and STC.

```
<emp1:updateRequest>
  <emp1:header>
    <com:softwareProviderData>
      <com:softwareProvider></com:softwareProvider>
      <com:softwarePlatform></com:softwarePlatform>
      <com:softwareRelease></com:softwareRelease>
    </com:softwareProviderData>
    <com:identifier IdentifierValueType=""></com:identifier>
    <com:accountType></com:accountType>
  </emp1:header>
  <emp1:employeeIdentifier>
    <emp1:employeeIRD></emp1:employeeIRD>
    <emp1:employeeNameOnEILine></emp1:employeeNameOnEILine>
    <!--Optional:-->
    <emp1:employeeDateOfBirth></emp1:employeeDateOfBirth>
    <!--Optional:-->
    <emp1:employmentStartDate></emp1:employmentStartDate>
  </emp1:employeeIdentifier>
  <emp1:updateBody>
    <emp1:employeeIRD></emp1:employeeIRD>
    <emp1:employeeName>
      <com:nameTitle></com:nameTitle>
      <com:nameFirst></com:nameFirst>
      <com:nameSurname></com:nameSurname>
      <com:nameMiddle></com:nameMiddle>
    </emp1:employeeName>
    <emp1:employeeNameOnEILine></emp1:employeeNameOnEILine>
    <emp1:employmentStartDate></emp1:employmentStartDate>
    <!--Optional:-->
    <emp1:employeeDateOfBirth></emp1:employeeDateOfBirth>
    <!--1 to 4 repetitions:-->
    <emp1:taxCode></emp1:taxCode>
    <!--Optional:-->
    <emp1:employeeAddress>
```

```

    <com:streetAddress>
      <com:streetNumber></com:streetNumber>
      <com:streetName></com:streetName>
    </com:streetAddress>
    <!--Optional:-->
    <com:unit>
      <com:type></com:type>
      <com:number></com:number>
    </com:unit>
    <com:townCity></com:townCity>
    <com:postCode></com:postCode>
    <com:country>NZL</com:country>
  </emp1:employeeAddress>
  <!--Optional:-->
  <emp1:employeeEmailAddress></emp1:employeeEmailAddress>
  <!--Optional:-->
  <emp1:employeeMobilePhoneNumber>
    <com:phoneType></com:phoneType>
    <com:country></com:country>
    <com:areaCode></com:areaCode>
    <com:number></com:number>
    <!--Optional:-->
    <com:extension></com:extension>
  </emp1:employeeMobilePhoneNumber>
  <!--Optional:-->
  <emp1:employeeDayPhoneNumber>
    <com:phoneType></com:phoneType>
    <com:country></com:country>
    <com:areaCode></com:areaCode>
    <com:number></com:number>
    <!--Optional:-->
    <com:extension></com:extension>
  </emp1:employeeDayPhoneNumber>
  <emp1:kiwiSaverStatus></emp1:kiwiSaverStatus>
  <!--Optional:-->
  <emp1:employeeKiwiSaverEligibility></emp1:employeeKiwiSaverEligibility>
  <!--Optional:-->
  <emp1:optedOut></emp1:optedOut>
  <!--Optional:-->
  <emp1:employeeBankAccountNumber>
    <!--You have a CHOICE of the next 2 items at this level-->
    <com:nzBankStandard>
      <com:bank></com:bank>
      <com:branch></com:branch>
      <com:account></com:account>
      <com:suffix></com:suffix>
    </com:nzBankStandard>
    <com:nzBankCreditUnion>
      <com:bank></com:bank>
      <com:branch></com:branch>
      <com:account></com:account>
      <com:suffix></com:suffix>
    <!--Optional:-->
    <com:referenceNumber></com:referenceNumber>
  </com:nzBankCreditUnion>
  </emp1:employeeBankAccountNumber>
  <!--Optional:-->
  <emp1:accountHolderName>
    <com:nameTitle></com:nameTitle>
    <com:nameFirst></com:nameFirst>
    <com:nameSurname></com:nameSurname>
  </emp1:accountHolderName>
  <!--Optional:-->

```

```

    <emp1:optedOutSignatureDate></emp1:optedOutSignatureDate>
    <emp1:validRelationship></emp1:validRelationship>
  </emp1:updateBody>
</emp1:updateRequest>

```

Field	Required	Description
identifier	Required	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	Required	This value will need to be 'PSO' to represent the Employment account
employeeIdentifier	Required	Four fields (employeeIRD, employeeNameOnEILine, employeeDateOfBirth, employmentStartDate) used to identify the record which is to be updated. employeeIRD and employeeNameOnEILine are required fields that must match Inland Revenue's records in order to identify the appropriate employee. employeeDateOfBirth and employmentStartDate are optional, and will only be used if they are submitted in the payload.
employeeIRD	Required	If the employee doesn't have an IRD number, enter all zeros
employeeName	Required	Full employee name Title (optional), First Name (mandatory), Middle Name (optional), Surname (mandatory for individuals).
employeeNameOnEILine	Required	This is the name (up to 20 characters) provided on the EI return
employmentStartDate	Optional	Format: YYYY-MM-DD
employeeDateOfBirth	Optional	Format: YYYY-MM-DD
taxCode	Optional	Multiple tax codes can be added in one submission
employeeAddress	Optional	Open address to allow for foreign addresses
employeeEmailAddress	Optional	Employee email address for KS form
employeeMobilePhoneNumber	Optional	Standard mobile field for KS form. Contains phone type, country code (numeric), area code (three-digit numeric, beginning with 0), phone

Field	Required	Description
		number (numeric) and extension (numeric). Note that if the person is opting out of KiwiSaver, the phone number provided must be a valid NZ number, including area code and phone number.
employeeDayPhoneNumber	Optional	Standard phone field for KS form. Contains phone type, country code (numeric), area code (three-digit numeric, beginning with 0), phone number (numeric) and extension (numeric). Note that if the person is opting out of KiwiSaver, the phone number provided must be a valid NZ number, including area code and phone number.
kiwiSaverStatus	Required	Employee KiwiSaver status: <ul style="list-style-type: none"> • AK for KiwiSaver member • CH for Contribution Holiday • OT for Opted Out • NM for Not currently a KiwiSaver Member • NK for Not Eligible
employeeKiwiSaverEligibility	Optional	Either NE for New Employee or EE for Existing Employee. Note that including this field is the equivalent of submitting a KS1 form. This will not trigger a KS1 if the optedOut field (below) is set to 'true'.
optedOut	Optional	Setting this to 'true' is the equivalent of submitting a KS10 form
employeeBankAccountNumber	Optional	Only used for KiwiSaver opt-out but not required
accountHolderName	Optional	Standard Name Field for KS form
optedOutSignatureDate	Optional	Standard Date Field for KS form
validRelationship	Required	Indicates the validity of this employment relationship. If the record was created on accident, it must be invalidated

3.3 Terminate

Terminate enables an employer to submit information to Inland Revenue in regard to a departing employee; employee IRD number, employee name, employee date of birth, employee end date.

Once a termination date is known:

```
<emp1:terminateRequest>
  <emp1:header>
    <com:softwareProviderData>
      <com:softwareProvider></com:softwareProvider>
      <com:softwarePlatform></com:softwarePlatform>
      <com:softwareRelease></com:softwareRelease>
    </com:softwareProviderData>
    <com:identifier IdentifierValueType=""></com:identifier>
    <com:accountType></com:accountType>
  </emp1:header>

  <emp1:employeeIdentifier>
    <emp1:employeeIRD></emp1:employeeIRD>
    <emp1:employeeNameOnEILine></emp1:employeeNameOnEILine>
    <emp1:employeeDateOfBirth></emp1:employeeDateOfBirth>
    <emp1:employmentStartDate></emp1:employmentStartDate>
  </emp1:employeeIdentifier>
  <emp1:terminateBody>
    <emp1:employmentFinishDate></emp1:employmentFinishDate>
  </emp1:terminateBody>
</emp1:terminateRequest>
```

Field	Required	Description
identifier	Required	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	Required	This value will need to be 'PSO' to represent the Employment account
employeeIdentifier	Required	Four fields (employeeIRD, employeeNameOnEILine, employeeDateOfBirth, employmentStartDate) used to identify the record which is to be updated. employeeIRD and employeeNameOnEILine are required fields that must match Inland Revenue's records in order to identify the appropriate employee. employeeDateOfBirth and employmentStartDate are optional, and will only be used if they are submitted in the payload.
employmentFinishDate	Required	Format: YYYY-MM-DD

3.4 RetrieveList

This can be used to retrieve a full list of current employees (by not including an employee IRD number in the request) or retrieve one individual employee.

3.4.1 Request

```
<emp1:retrieveListRequest>
  <emp1:header>
    <com:softwareProviderData>
      <com:softwareProvider></com:softwareProvider>
      <com:softwarePlatform></com:softwarePlatform>
      <com:softwareRelease></com:softwareRelease>
    </com:softwareProviderData>
    <com:identifier IdentifierValueType=""></com:identifier>
    <com:accountType></com:accountType>
  </emp1:header>
  <emp1:retrieveListBody>
    <emp1:employeeIRD></emp1:employeeIRD>
  </emp1:retrieveListBody>
</emp1:retrieveListRequest>
```

Field	Required	Description
identifier	Required	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	Required	This value will need to be 'PSO' to represent the Employment account
employeeIRD	Optional	Enter an employee's IRD number to retrieve only records for that employee. Omitting this field will request every employee linked to the Employer identified in the header.

3.4.2 Response

```
<emp1:retrieveListResponse>
  <statusMessage xmlns="urn:www.ird.govt.nz/GWS:types/Common.v1">
    <statusCode></statusCode>
    <errorMessage></errorMessage>
  </statusMessage>
  <responseBody>
    <emp1:listReponse>
      <emp1:employee>
        <emp1:employeeIRD></emp1:employeeIRD>
        <emp1:employeeName></emp1:employeeName>
        <emp1:employeeNameOnEILine></emp1:employeeNameOnEILine>
        <emp1:taxCode></emp1:taxCode>
        <emp1:employeeDateOfBirth></emp1:employeeDateOfBirth>
        <emp1:employmentStartDate></emp1:employmentStartDate>
        <emp1:employmentFinishDate></emp1:employmentFinishDate>
      </emp1:employee>
      <emp1:employee>
        <emp1:employeeIRD></emp1:employeeIRD>
        <emp1:employeeName></emp1:employeeName>
      </emp1:employee>
    </emp1:listReponse>
  </responseBody>
</emp1:retrieveListResponse>
```

```

    <emp1:employeeNameOnEILine></emp1:employeeNameOnEILine>
    <emp1:taxCode></emp1:taxCode>
    <emp1:employeeDateOfBirth></emp1:employeeDateOfBirth>
    <emp1:employmentStartDate></emp1:employmentStartDate>
    <emp1:employmentFinishDate></emp1:employmentFinishDate>
  </emp1:employee>
  <emp1:employee>
    <emp1:employeeIRD></emp1:employeeIRD>
    <emp1:employeeName></emp1:employeeName>
    <emp1:employeeNameOnEILine></emp1:employeeNameOnEILine>
    <emp1:taxCode></emp1:taxCode>
    <emp1:employeeDateOfBirth></emp1:employeeDateOfBirth>
    <emp1:employmentStartDate></emp1:employmentStartDate>
    <emp1:employmentFinishDate></emp1:employmentFinishDate>
  </emp1:employee>
</emp1:listResponse>
</emp1:responseBody>
</emp1:retrieveListResponse>

```

Field	Required	Description
employeeIRD	Required	If the employee doesn't have an IRD number, enter all zeros
employeeName	Required	Full employee name Title (optional), First Name (optional), Middle Name (optional), Surname (optional)
employeeNameOnEILine	Required	This is the name (up to 20 characters) provided on the EI return
taxCode	Optional	Multiple tax codes can be added in one response
employeeDateOfBirth	Optional	Format: YYYY-MM-DD
employmentStartDate	Optional	Format: YYYY-MM-DD
employmentFinishDate	Optional	Format: YYYY-MM-DD

4 End points, schemas and WSDLs

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>

4.1 End points

The end points for the Digital Test Environment XZT:

Service	Environment	URL
Authentication	Cloud*	https://q.services.ird.govt.nz
	Desktop/native app	https://q.services.ird.govt.nz
Gateway Services	Cloud*	https://xzt.services.ird.govt.nz:4046/gateway/gws/employment/
	Desktop/native app	https://xzt.services.ird.govt.nz/gateway2/gws/employment/

The end points for the Digital Test Environment XZS:

Service	Environment	URL
Authentication	Cloud/desktop/native apps	https://q.services.ird.govt.nz
Gateway Services	Cloud*	https://xzs.services.ird.govt.nz:4046/gateway/gws/employment/
	Desktop/native app	https://xzs.services.ird.govt.nz/gateway2/gws/employment/

The end points for Production are as follows:

Service	Environment	URL
Authentication	Cloud/desktop/native apps	https://services.ird.govt.nz:443
Gateway Services	Cloud*	https://services.ird.govt.nz:4046/gateway/gws/employment/
	Desktop/native app	https://services.ird.govt.nz/gateway2/gws/employment/

*Please note that only the end points for cloud-based connections are currently available.

4.2 Schemas

The Employment service imports a common.xsd which has some data types specific to Inland Revenue. This common.xsd will be used in other gateway services outside of the /Employment/ namespace so it must be kept up-to-date, without numerous redundant versions remaining.

4.3 WSDLs

The Employment Gateway Service has one WSDL, which has a target namespace of <https://services.ird.govt.nz/GWS/Employment> and can be found at

<https://services.ird.govt.nz/GWS/Employment?singleWSDL>.

All WSDL messages follow this naming convention:

Employment_<operation>_InputMessage or Employment_<operation>_OutputMessage.

```
<wsdl:portType name="Employment">
  <wsdl:operation name="Create">
  <wsdl:operation name="Update">
  <wsdl:operation name="Terminate">
  <wsdl:operation name="RetrieveList">
<wsdl:service name=" Employment">
```

A development version of the WSDL is provided with this build pack. For easier WSDL consumption, the <xs:any> structure has been replaced with a reference to the corresponding element in the Employment.xsd. This will allow any tools that consume the WSDL to automatically pull in the data structures from the XSD. To use this, ensure the WSDL provided by Inland Revenue is in the same directory as Common.xsd and Employment.xsd.

Note: The WSDL hosted at the end point above will not contain these XSD references, only the static WSDL provided on our GitHub page.

5 Response codes

The response message from the Gateway Services will always include a status code and status message. These values will describe any successes or failures of a web service call. Following the status message will be the responseBody, which will return the operations response.

5.1 Generic gateway response status codes

This service applies account-level validation and some of the codes below reflect this.

Standard codes	Standard message	Description
-1	An unknown error has occurred	This error will be logged by the Gateway Services and evaluated the next business day
0	(Success)	This resembles a successful web service call
1	Authentication failure	Authentication failure means the token provided is not a valid token
2	Missing authentication token(s)	No OAuth token in HTTP header
3	Unauthorised access	The logon making the call does not have access to make the request on behalf of the client or agency. Access could not be confirmed due to OAuth token validation failing.
4	Unauthorised delegation	<p>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:</p> <ul style="list-style-type: none"> The submitted cmn:identifier has an invalid value The identifier type (IdentifierValueType attribute on cmn:identifier) supplied is invalid The AccountType supplied does not exist for that identifier All the values above are valid but the provided OAuth token does not have delegated access to that Customer or Account
5	Unauthorised vendor	The vendor provided is not authorised to use these suite of services
6	Authentication expired	<p>Token authentication has expired and needs to be refreshed.</p> <p>Note this will only be provided for a token that has been successfully used before. For an expired unused token 3 above will be returned.</p>

Standard codes	Standard message	Description
7	Account type not supported	Queries on Account types not supported in any gateway services web services will return this code. For April 2018 this will be any account type other than AIL, AIP, BPA, MPO, CRS, DWT, FAT, FBT, GMD, GSD, GST, IPS, NRT, PIE, PRS, PSO, EMP, RLT and RWT.
20	Unrecognised XML request	The XML submitted is not recognisable and no schema can be determined.
21	XML request failed validation	The XML structure did not meet the definition laid out by the schemas published by Inland Revenue
(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	When maximum concurrency has been exceeded by Service Provider this SOAP fault will be returned

5.2 Response codes specific to Employment service

Standard codes	Standard message	Description
100	Could not extract data from XML payload	The XML structure passes schema validation but the data is not valid
101	The provided information did not match with any employment relationship	The employment relationship that is attempting to be changed does not exist
102	The provided information was not specific enough to match with a single employment relationship	For employment relationships that have minimal data. Provided data must match current records.
103	The provided IRD number was invalid	The provided IRD Number was invalid
104	The specified account has no employees	The specified account has no employees
105	The specified employer IRD could not be linked to an EMP account	The specified employer IRD could not be linked to a EMP account
106	A relationship between this account and employee IRD already exists	A relationship between this account and employee IRD already exists

Standard codes	Standard message	Description
107	The cease date cannot be before the commence date	The cease date cannot be before the commence date
108	A provided tax code was invalid	A provided tax code was invalid
109	Two primary tax codes submitted for one person	Two primary tax codes submitted for one person
110	KiwiSaver eligibility should be omitted when opting out	KiwiSaver eligibility should be omitted when opting out
111	A Bank Account is required when a Bank Account Holder Name is provided	A Bank Account Holder Name was submitted without a Bank Account
112	A Bank Account Holder Name is required when a Bank Account is provided	A Bank Account was submitted without a Bank Account Holder Name
113	Opting out for KiwiSaver requires an opted out signature date	Opting out for KiwiSaver requires an opted out signature date
114	Opting out for a KiwiSaver requires employee address information	Street address, city and post code are all required when opting out
115	Opting in for KiwiSaver expects bank account to be omitted	Opting in for KiwiSaver expects bank account to be omitted
116	Opting in for KiwiSaver expects bank account holder to be omitted	Opting In for KiwiSaver expects bank account holder to be omitted
117	Opting in for KiwiSaver expects the opted out signature date to be omitted	Opting In for KiwiSaver expects the opted out signature date to be omitted
118	Employee cannot opt out of KiwiSaver during their first 12 days of employment	Employee cannot opt out of KiwiSaver during their first 12 days of employment
119	This employee has not been created yet, because the associated create request hasn't been processed	Employee cannot be updated until after the create request has been processed
120	This employee is locked for processing, because there is a request to update this record but it hasn't processed yet	Employee cannot be updated until the existing update requests have been processed
121	The provided employee IRD number is not valid	The provided employee IRD number is not valid
122	The provided submission created a request in error, please review payload	The provided submission created a request in error, please review payload
123	There already exists a request to create this employee, but it hasn't processed yet	There already exists a request to create this employee, but it hasn't processed yet

6 Processing flows

The following use cases show sequences of Gateway Services operations that *could* be used to achieve a specific business outcome. They do not comprise a comprehensive list of all required business outcomes, nor are they prescriptive or intended to inhibit software innovation in any way.

Additional information on use cases is available in the associated onboarding packs.

6.1 Use cases

6.1.1 Create and Update (new employee/KiwiSaver details)

Scenario 1:

1. The user wishes to submit Employee Details information for a new employee.
2. The user generates an Employee Details form, and fills out all the fields, including the KS1 enrolment fields.
3. Once the form is ready to submit, the user attempts to send the request.
4. Upon receipt of the request, the Employment service 'Create' operation is invoked.

Scenario 2:

1. The user wishes to submit KiwiSaver enrolment information for a recently joined employee as this was accidentally overlooked when they submitted their original employee details.
2. The user generates an Employee Details form, and fills out the required fields, making sure the 'optedOut' field is set to false.
3. Once the form is ready to submit, the user attempts to send the request.
4. Upon receipt of the request, the Employment service 'Update' operation is invoked.

Scenario 3:

1. The user wishes to submit KiwiSaver opt out information for a recently joined employee.
2. The user generates an Employee Details form, and fills out the required fields.
3. Upon receipt of the request, the Employment service 'Update' operation is invoked.

6.1.2 Update an employer/employee relationship

Scenario 1:

1. The user wishes to submit changed information for an employee, for example a change in tax code, correction to a Start date etc.
2. The user generates an Employee Details form, and fills out the required fields.
3. Upon receipt of the request, the Employment service 'Update' operation is invoked.

6.1.3 Terminate an employer/employee relationship

Scenario 1:

1. The user wishes to submit information for a departed/departing employee.
2. The user generates an Employee Details form, and fills out the remaining form fields.
3. Upon receipt of the request, the Employment service 'Terminate' operation is invoked.

6.1.4 Retrieve employer/employee relationship data

Scenario 1:

1. The user wishes retrieve employer/employee data that they have previously submitted for an employer.
2. The user runs RetrieveList to retrieve the data.
3. The user may choose to use the retrieved data to then submit changed information for one or more of the employees (using Update) or submit information for a departed/departing employee (using Terminate).

6.1.5 Update and Create to reinstate an incorrectly terminated relationship

Scenario 1:

1. The user has incorrectly terminated an employment relationship.
2. The user generates an Employee Details form, and submits a value of 0 in the validRelationship field.
3. Upon receipt of the request, the Employment service 'Update' operation is invoked and the relationship is invalidated.
4. The user then submits Employee Details information for that employee.
5. The user generates an Employee Details form, and fills out all the fields, including the KS1 enrolment fields.
6. Once the form is ready to submit, the user attempts to send the request.
7. Upon receipt of the request, the Employment service 'Create' operation is invoked (and this recreates the employer/employee relationship).

7 Appendix A—Glossary

Acronym/term	Definition
Activity statement	Formally known as the Statement of Activity—the name for the data that is filed for AIM.
AIM	Accounting Income Method—a method that businesses can use for reporting and paying provisional income tax. Participating businesses are required to file a Statement Of Activity.
Authentication	The process that verifies the identity of the party attempting to access IR.
Authorisation	The process of determining whether a party is entitled to perform the function or access a resource.
EA	Employment Activities—umbrella term for employment activities performed using the Return service (submission of Employment Information) and/or Employment service (submission of Employee Details) operations.
ED	Employee Details—data submitted by an employer to Inland Revenue relating to new, existing, or departing employees that is submitted via the Employment service.
EI	Employment Information—data submitted by an employer relating to deductions made for their employees for a payday.
eServices	START’s authenticated customer-facing portal.
Gateway	START’s web services gateway.
GST	Goods and Services Tax.
GWS	GateWay Services—the brand name for the suite of web services that Inland Revenue is providing. The Employment service is a Gateway Service.
HTTP(S)	Hyper Text Transmission Protocol (Secure)—the protocol by which web browsers and servers interact with each other. When implemented over TLS1.2 HTTP becomes HTTPS.
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.
IP	Internet Protocol—the principal communication protocol in the Internet protocol suite for relaying datagrams across networks.
NZISM	NZ Information Security Manual—the security standards and best practices for Government agencies. Maintained by the NZ Government Communications Security Bureau (GCSB).
OAuth2	An HTTPS based protocol for authorising access to a resource, currently at version 2.
SOAP	Simple Object Access Protocol—a set of standards for specifying web services. Gateway Services uses SOAP version 1.2.
SSL	Secure Sockets Layer certificates—used to establish an encrypted connection between a browser or user’s computer and a service or

Acronym/term	Definition
	website.
START	Simplified Taxation and Revenue Technology—Inland Revenue’s new core tax processing application. It is an implementation of the GenTax product from FAST Enterprises.
Statement of Activity	See Activity Statement
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.
URL	Universal Resource Locator—also known as a web address.
WSDL	Web Service Definition Language—an XML definition of a web service interface.
X.509 certificate	An international standard for encoding and describing a digital certificate. In isolation a public key is just a very large number, the X509 certificate to which it is bound identifies whose key it is, who issued it, when it expires etc. When a counterparty’s X509 digital certificate is received, the recipient takes their public key out of it and store the key in their own keystore. The recipient can then use this key to encrypt and sign the messages that they exchange with this counterparty.
XIAMS	External IAMS—an instance of IAMS that authenticates and authorises access by external parties (such as customers, trading partners etc), as opposed to internal parties (such as staff).
XML	Extensible Markup Language—a language used to define a set of rules used for encoding documents in a format that can be read by humans and machines.
XSD	XML Schema Definition—the current standard schema language for all XML data and documents.

8 Appendix B—Change log

This table lists all changes that have been made to this build pack document since the release of v1.0.

Version	Date of change	Document section	Description
	23/04/2018	3.2 Update	<ul style="list-style-type: none"> Made Bank Account details optional and reworded the field descriptions.
	17/04/2018	5.2 Response codes specific to Employment service	<ul style="list-style-type: none"> Changed codes 111 and 112 as bank information is optional on Opt Out
VERSION NUMBERS REMOVED HENCEFORTH	06/03/2018	5.2 Response codes specific to Employment service	<ul style="list-style-type: none"> New Employment service-specific response code 114 added: <i>Opting out for a KiwiSaver requires employee address information: Street address, city and post code are all required when opting out</i>
1.02	05/03/2018	3.1 Create 3.2 Update	<ul style="list-style-type: none"> Removed "(up to 20 characters)" from the employeeNameOnEILine field in these two sections, as schemas and WSDLs are where this information belongs. Also changed 'personalTitle' element to 'nameTitle' in example schemas
	22/02/2018	Entire doc	<ul style="list-style-type: none"> Pagination updated
		3 Operations	<ul style="list-style-type: none"> Clarified cmn:identifier usage
		5 Response codes	<ul style="list-style-type: none"> Updated descriptions for status codes 3,4
		5.1	<ul style="list-style-type: none"> Added code 7, SOAP exception, concurrency limit exceeded, 109
		5.2	<ul style="list-style-type: none"> Separated generic gateway codes from service specific codes.
1.01	26/01/2018	3 Operations	<ul style="list-style-type: none"> Line of code added to example XML: <cmn:accountType>PSO</cmn:accountType> Line for 'accountType' added to table of fields and descriptions to reflect PSO usage
		3.1 Create	<p>Paragraph added:</p> <p>In this scenario, it is possible that the <i>Create</i> request would not have had time to process and become effective before the <i>Update</i> request is sent. In this case, the <i>Update</i> request would receive an error response code indicating the <i>Create</i> request has not yet processed.</p>
		3.2 Update	<ul style="list-style-type: none"> Specific information added to

1.0	08/12/2017		employeeMobilePhoneNumber and employeeDayPhoneNumber lines in table of fields and descriptions.
		5.1 Response codes	<ul style="list-style-type: none"> Response codes added—numbers 118-123 Removed 109 and 114
		3.1 Create and 3.2 Update	Same changes made to both sections: <ul style="list-style-type: none"> Added text to employeeKiwiSaverEligibility entry in table of fields. Amended text in optedOut entry in table of fields.
		4 End points, schemas and WSDLs And 3 Operations	<p>Changed opening disclaimer statement, including URL:</p> <p>IMPORTANT: <i>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:</i> https://github.com/InlandRevenue/Gateway-Services</p>
	22/11/2017	6.1.1 Create and Update (new employee/Kiwi Saver details)	Scenario 2, bullet point #2—text changed to: <i>The user generates an Employee Details form, and fills out the required fields, making sure the 'optedOut' field is set to false.</i>
		Appendix – Sample payloads	This appendix was removed from the build pack, as it is available on the IR Gateway Services GitHub site: https://github.com/InlandRevenue/Gateway-Services
		All	Changed all instances of 'IR' to 'Inland Revenue' (spelled out in full)
		5.1 Response codes	Added two new entries to table of response codes: 107 and 108.
	02/11/2017	Two sections	Employee surname changed to 'optional, except for...' in table of fields and descriptions
		3.2 Update and 3.3 Terminate	<p>Added further explanatory sentences to employeeIdentifier line in Field/Required/Description tables in sections 3.2 and 3.3:</p> <p><i>employeeIRD and employeeNameOnEILine are required fields that must match IR's records in order to identify the appropriate employee.</i></p> <p><i>employeeDateOfBirth and employmentStartDate are optional, and will only be used if they are submitted in the payload.</i></p>
		3.2 Update	Updated wording to better highlight that previously submitted data will be overwritten if not included in subsequent Update operations.

	17/10/17	New section 6.1.5 added	Use case describing how to reinstate an incorrectly terminated employer/employee relationship
--	----------	---	---