# Technical interface – Application instructions for the submission and distribution of data

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**Incomes Register Unit**

**Version history**

| Version | Date | Specification |
|---|---|---|
| 1.1 | 8/10/2025 | A new version of the document has been published, combining the data content of the following previously valid documents:<br>• Technical interface – Submitting data to the Incomes Register 2021<br>• Technical interface – Distribution of data from the Incomes Register 2025<br>• Technical interface – Application guidelines 2024 |
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**CONTENTS**

# 1 INTRODUCTION

This document describes guidelines related to the implementation of the technical interface of the Incomes Register from the system integrator's perspective. The purpose of this document is to specify the guidelines for the technical implementation, with a sufficient level of detail to allow the parties to ensure that the technologies they choose meet the requirements of the Incomes Register's service interface. The parties can also specify and implement their own systems on the basis of this document.

The document describes the submission of data to the Incomes Register through the technical interface and the distribution of data from the Incomes Register through the technical interface and the e-service. The document provides a general description of the data content submitted to the Incomes Register, the services that receive the data and the services that distribute the data via the technical interface, More detailed descriptions of the data content, message structures, service use, the validation rules regarding the data, and the record schema formats are provided in separate documents.

Key concepts

- One-off subscription: An individual record subscription that covers a certain period of time.
- Recurrent subscription: A record subscription repeated regularly in accordance with the query and retrieval schedule.
- SFTP channel: A Secure File Transfer Protocol channel for the mass distribution of records.
- Real-time Web Service channel: An interface for real-time data distribution to individual requests.
- Real-time synchronous WS service request: Web Service calls to request data in real time.
- Synchronous feedback: Reply to a real-time service request.
- E-service: Incomes Register e-service for searching for and subscribing data.
- One-off subscription: An individual record subscription that covers a certain period of time.
- Recurrent subscription: A record subscription repeated regularly in accordance with the query and retrieval schedule.
- Query date and time: The time when a data query is performed in the Incomes Register.
- Query parameters: Conditions and rules according to which a data query is performed.
- IncludeAllVersions: Condition specifying whether the data query covers all report versions.
- Raw data: Original data submitted to the Incomes Register without combined total sum data.
- Sum level data: Combined data that the user must calculate for their own processes.
- Country code: The code that identifies the country, used as the query parameter.
- QueryProfile: Data access profile, according to which the record is compiled.
- QueryDataType: Record type, such as an earnings payment report.

## 2 READING INSTRUCTIONS

This section contains instructions for reading the tables included in the document.

Signature element data for XML messages:

| Record name | Type | V/M | Description |
|---|---|---|---|
| Signature | xsig:SignatureType | M | Element containing the signature. |

The 'Record name' column describes the names of the data content to be entered in the signature element.

The 'Type' column contains the data content type of the signature element.

The 'V/M' column indicates whether a parameter is mandatory (M) or voluntary (V).

The 'Description' column presents the type of the signature element in text format.

Uses and types of SFTP certificates:

| Purpose | Certificate type |
|---|---|
| Provider of earnings payment data | Data Providers SFTP Issuing CA v1 |
| Provider of benefits payment data | IR Benefit Data Providers SFTP Issuing CA v1 |
| Data user | IR Income Data Users SFTP Issuing CA v1 |

The 'Purpose' column describes the purposes of the parties that provide (Provider of earnings payment data, Provider of benefits payment data) and receive (Data user) the data.

The 'Certificate type' column lists the SFTP certificates suitable for different purposes.

Naming files

| Record | Directory | File name format | Example |
|---|---|---|---|
| Data to be submitted to the Incomes Register | IN | <DeliveryDataType>_<FileId>.xml | 100_87765434543.xml |

The 'Record' column contains three different record types: Data to be submitted to the Incomes Register, Processing feedback distributed from the Incomes Register and Records distributed from the Incomes Register.

The 'Directory' column indicates whether the directory is for submitting (IN) or retrieving (OUT) data.

The ‘File name format’ column presents the file name in the XML format.

The ‘Example’ column shows an example of a valid file name.

File name parts:

| File name part | Description |
|---|---|
| DeliveryDataType | Value from the code set "Record type, submitted to Incomes Register (DeliveryDataType)". |

The ‘File name part’ column presents a breakdown of the parts of the file name.

The ‘Description’ column presents the file name part in text format.

Web Service WSDL descriptions:

| Operation | Deferred / real-time | Request message | Response message | Specification |
|---|---|---|---|---|
| GetBenefitReportsOneIncomeEarner | Real-time | DataRequestToIR | BenefitReportsFromIR | Returns the benefits payment reports for a single income earner in accordance with the request message. |

The 'Operation' column lists all Web Service services available in the Incomes Register.

The 'Deferred / real-time' column indicates whether the messaging model of the channel service is 'Deferred' or 'Real-time'.

The 'Request message' column presents the service call delivered in the use situation.

The 'Response message' column presents the Incomes Register response message to the service call.

The 'Specification' column describes the operation in text format.

Restrictions on record sizes and numbers on different channels and permitted root elements:

| Service channel | Direction | Schema | Allowed root elements | Maximum record size | Maximum number of data (pcs) |
|---|---|---|---|---|---|
| SFTP | IN | InvalidationsToIR | InvalidationsRequestToIR | 50 MB | 10,000 cancellation data |

The 'Service channel' column indicates the available channels: SFTP, Web Service real-time, Web Service delayed and Web Service delayed (upload service).

The 'Direction' column indicates whether the directory is for submitting (IN) or retrieving (OUT) data.

The 'Schema' column indicates the schema of the messaging model.

The 'Allowed root elements' column specifies the record root element, which contains the other elements.

The 'Maximum record size' column indicates the size restrictions on the data to be submitted to the Incomes Register, as well as the records distributed from the Incomes Register (no restriction/ maximum record size expressed in numbers).

The 'Maximum number of data' column indicates the restrictions on the number of data to be submitted to the Incomes Register, as well as the records distributed from the Incomes Register (no restriction/ maximum data size expressed in numbers).

Record subscription data at the query time:

| Data element | Allowed value | Description |
|---|---|---|
| MainSubscription/ValidFrom | | Start date of the validity of the primary subscription. |
| MainSubscription/ValidUntil | | End date of the validity of the primary subscription. |
| MainSubscription/Schedule/RecurringDeliverySchedule/MonthlySchedule/Months | | Months in which the records subscribed to are queried.<br>Several months can be specified. |
| …/Month | 1,2,3, …12 | Number of the query month. |
| MainSubscription/Schedule/RecurringDeliverySchedule/MonthlySchedule/Days | | Days of the month on which the records subscribed to are queried.<br>Several days of the month can be specified. |
| …/Day | 1,2,3, …31, 32 | Day of the month of the query.<br>If the intention is to query the records on the last days of the specified months, specify value "32". |

The ‘Data element’ column presents the data elements given in the record subscription.

The ‘Allowed value’ column specifies the allowed values entered in the data element: true/false, and minimum and maximum values entered numerically.

Details of the item to be cancelled:

| Record type | SFTP | Web Service deferred | Web Service real-time |
|---|---|---|---|
| Cancellation of earnings payment reports (105) | several | several | one |
| Cancellation of employer's separate reports (106) | several | several | one |

The ‘Record type’ column indicates the record number and description of the data contained in the record.

The channel-specific columns (SFTP, Web Service Delayed, and Web Service Realtime) indicate the allowed number of items to be cancelled in that service channel.

| Data element | Description |
|---|---|
| DeliveryData/Items/Item/IRItemId | Incomes Register report reference |
| DeliveryData/Items/Item/ItemId | Payer’s report reference |
| DeliveryData/Items/Item/ItemVersion | Report version number |

The ‘Data element’ column describes the id and version details for the item.

The ‘Description’ column describes the data reported in the data element in text format.

Record status in the acknowledgement of receipt:

| Initial situation | Record status returned by the Incomes Register | Description |
|---|---|---|
| The record contains no message-level or record-level errors. | Processing (2) | The Incomes Register has received the record for processing. |
| The record contains message-level or record-level errors. | Rejected at reception (4) | The record and the data it contains have not been accepted for processing in the Incomes Register.<br>The acknowledgement of receipt includes the message-level errors and record-level errors.<br>The record submitter must resubmit the record with the correct data. |
| | Unknown (0) | The reception of the record failed.<br>The acknowledgement of receipt contains an itemised list of the errors.<br>The record submitter must resubmit the record. |

Record status in the processing feedback:

| Initial situation | Record status returned by the Incomes Register | Description |
|---|---|---|
| The record has been received.<br>The record contains message-level or record-level errors. | Rejected at reception (4) | The record and all items it contains have been rejected.<br>The processing feedback includes the message-level and record-level errors.<br>The record submitter must resubmit the record with the correct data. |
| The record has been received and accepted for processing. | Processing (2) | The record is being processed in the Incomes Register and the processing is not complete yet. |
| The record has been processed.<br>The record does not contain errors. | Valid (3) | The record and all data it contains has been saved in the Incomes Register.<br>The processing feedback includes the accepted items.<br>The processing feedback does not include errors. |

| | | |
|---|---|---|
| The record has been processed.<br>The record contains invalid items.<br>The saving of valid items has been requested in the record in the case it also contains invalid items. | Valid (3) | The record and the valid items it contains have been saved in the Incomes Register.<br>The processing feedback includes the accepted items.<br>The processing feedback includes the items rejected due to item-level errors.<br>The record submitter must resubmit the rejected items with the correct data. |
| The record has been processed.<br>The record contains invalid items.<br>The rejection of the entire record has been requested in the record in the case it contains invalid items. | Rejected during processing (5) | The record and all items it contains have been rejected.<br>The processing feedback includes the items rejected due to item-level errors.<br>The record submitter must resubmit the record with the correct data. |
| The request for processing feedback targets a record cancelled in the Incomes Register. | Cancelled (6) | The record and the data it contains have been previously cancelled in the Incomes Register. |
| | Unknown (0) | The record cannot be found in the Incomes Register or the request for processing feedback has failed due to a technical disruption, for example.<br>The processing feedback contains an itemised list of the errors. |

The ‘Initial situation’ column presents message-level and record-level error scenarios.

The ‘Record status returned by the Incomes Register’ column presents the record status and code.

The ‘Description’ column presents the record status returned by the Incomes Register in text format.

## 3 IDENTIFICATION AND ACCESS RIGHT TO THE INTERFACE

The identification of a party invoking the Incomes Register's technical interface is implemented either with a certificate or a PKI key pair connected to a certificate, depending on the service channel. Practices related to obtaining a certificate are described on the incomesregister.fi website under certificate service. In the Web Service channel, the party is identified using an SSL/TLS customer certificate.

In addition to a certificate, a username has also been delivered to a party using the SFTP channel. Identification is handled using SSH key identification, with the party using the username and the private key of the key pair generated during the certificate application process. The Incomes Register has the public key of the key pair in its possession.

A party submitting data must request access rights to the interface in the Incomes Register's e-service. In the application, the party's appointed representative announces the purpose of use of the technical interface and the channels the party will use, as well as approves the technical interface's terms of use.

The access rights of a party using data are determined based on a data permission.

### 3.1 TLS encryption setting

The Incomes Register's Web Service channel offers an HTTPS connection for the use of parties using the technical interface. TLS protocol version 1.2 must be used to establish the connection. The party's system must support one of the following cipher suites (combinations of encryption algorithms) of the TLS 1.2 protocol:

- TLS_ECDHE_ECDSA_WITH_AES_256_GCM_SHA384
- TLS_ECDHE_ECDSA_WITH_AES_128_GCM_SHA256
- TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384
- TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256
- TLS_DHE_RSA_WITH_AES_256_GCM_SHA384
- TLS_DHE_RSA_WITH_AES_128_GCM_SHA256
- TLS_ECDHE_ECDSA_WITH_AES_256_CBC_SHA384
- TLS_ECDHE_ECDSA_WITH_AES_128_CBC_SHA256
- TLS_ECDHE_RSA_WITH_AES_256_CBC_SHA384
- TLS_ECDHE_RSA_WITH_AES_128_CBC_SHA256
- TLS_DHE_DSS_WITH_AES_256_CBC_SHA256
- TLS_DHE_DSS_WITH_AES_128_CBC_SHA256

### 3.2 SFTP encryption setting

The Incomes Register offers an SSH connection for the use of the Incomes Register's SFTP channel. The party's system must use the SSH protocol version 2 to establish connection. The client software must support at least one algorithm in each of the following groups in order to establish the connection.

Key exchange algorithms:

- curve25519-sha256@libssh.org
- curve25519-sha256
- ecdh-sha2-nistp521
- ecdh-sha2-nistp384
- ecdh-sha2-nistp256
- diffie-hellman-group16-sha512
- diffie-hellman-group15-sha512
- diffie-hellman-group17-sha512
- diffie-hellman-group18-sha512

Server's public key:

- ssh-rsa
- rsa-sha2-512
- rsa-sha2-256

Encryption algorithms:

- aes256-gcm@openssh.com
- aes128-gcm@openssh.com
- aes256-ctr
- aes192-ctr
- aes128-ctr

Integrity algorithms:

- hmac-sha2-256
- hmac-sha2-256-etm@openssh.com
- hmac-sha2-512
- hmac-sha2-512-etm@openssh.com

# 4 STRUCTURE AND SIGNATURES OF XML MESSAGES

## 4.1 Structure

The structure of the records in XML format submitted to and distributed from the Incomes Register are described using XSD schemas (XML Schema Definition Language, http://www.w3.org/TR/xmlschema11-1).

## 4.2 Signature

The integrity and non-repudiation of the data submitted to and distributed from the Incomes Register are ensured with an electronic signature. The signature is implemented using the XML Enveloped Signature mechanism; its processing rules and structure are described in the document, "XML Signature Syntax and Processing" (http://www.w3.org/TR/xmldsig-core/).

The party signs the records it delivers to the Incomes Register with the certificate received from the Incomes Register's certificate service. The Incomes Register signs the records and response messages it generates with its own certificate. If the party so wishes, it can verify the XML signature created by the Incomes Register and the signature certificate used by the Incomes Register with the help of the certificate chain. The verification of the signature and the signature certificate allows the party to ensure that the message was sent by the Incomes Register and that no-one has altered the message after signing. The issuer certificates and the related certificate chains for the certificates issued by the certificate service can be downloaded from the www.incomesregister.fi website.

The subsections of this section define the procedure for generating a signature approved by the Incomes Register, and the required and allowed data contents of the signature. The use of canonicalisation, digest value calculation and signature calculation methods and 'transforms' not described in this document will lead to a failed signature verification and the rejection of the record.

### 4.2.1 Specifications related to signature generation

The signature of a record in XML format submitted to the Incomes Register must meet the following requirements:

1. The signature must be an Enveloped Signature, placed as the last child element of the document's root element. This place is also specified in the XML schema of each record type. The signature must be generated from the entire document.
2. A private key related to the X.509 certificate and allocated by the Incomes Register must be used as the signature key.
3. The SHA256 algorithm must be used in the generation of the digest calculated during signature generation.
4. The signature must be generated using the RSA-SHA256 algorithm.
5. The canonicalisation of the signature must use "Exclusive XML Canonicalization Version 1.0".
6. The signature certificate (with the public key) must be delivered with the signature in the KeyInfo/X509Data/X509Certificate element.

Regardless of the service channel, the record to be delivered to the Incomes Register is always what is signed, not the frame. When the Web Service channel is used, the signature is generated from the element that is located inside the Envelope/Body element and conforms to the Incomes Register schema. This element, signed according to the documentation, is then placed inside a SOAP Body element before it is sent to the Incomes Register. The signed record must not be changed during this stage.

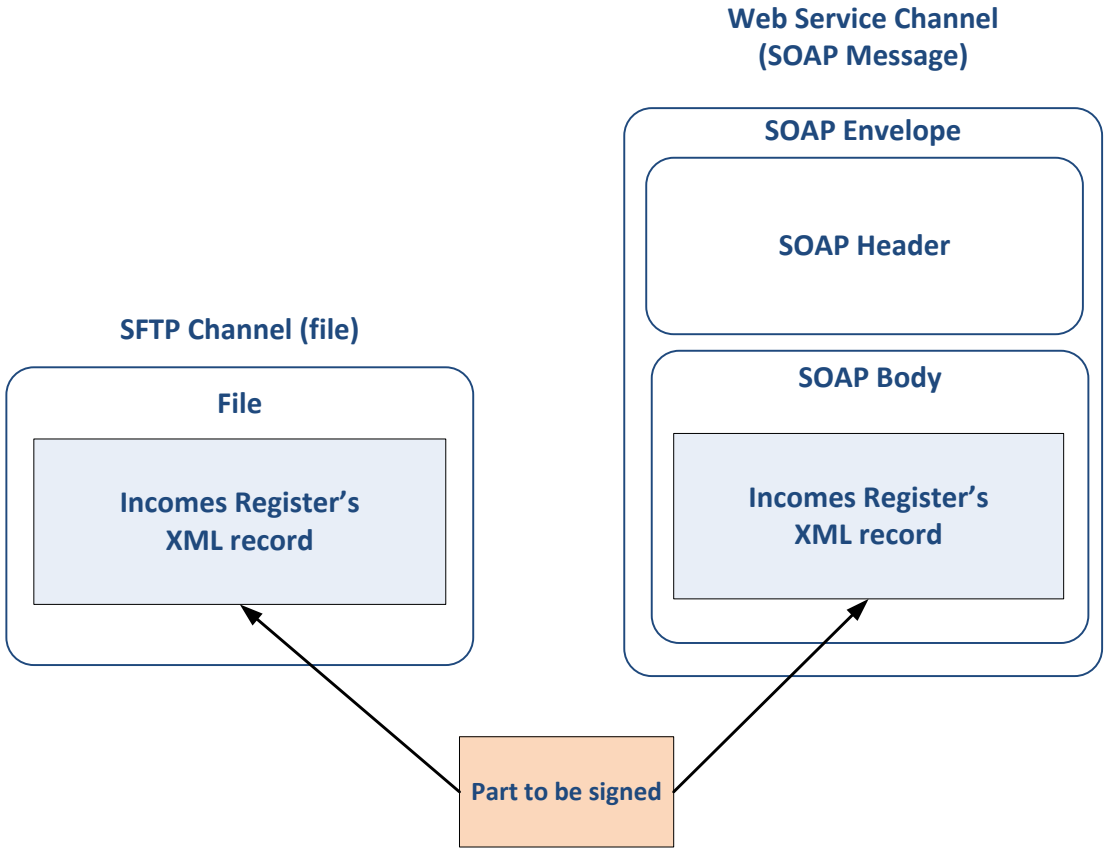


*Figure 1. Signature creation in service channels.*

### 4.2.2 Description of the signature element's data contents

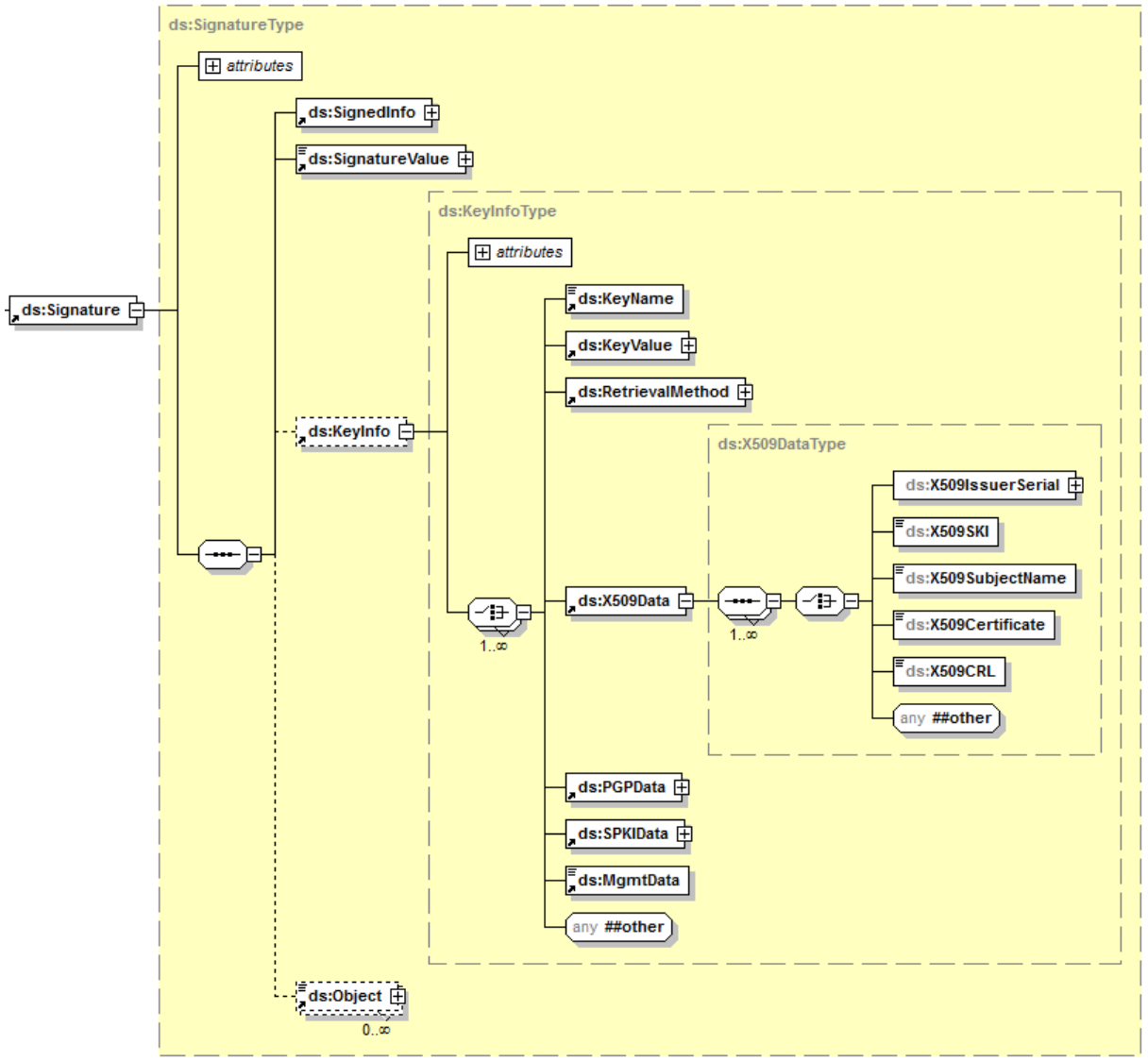


*Figure 2. Description of the signature element's data contents.*

**Element data:**

The data required by the Incomes Register to be included in the signature element is described in the table below.

| Data designation | Type | V/ M | Label |
|---|---|---|---|
| Signature | xsig:SignatureType | M | Element containing the signature. |
| SignedInfo | ds:SignedInfoType | M | Element containing the description of the signature generation method. |
| CanonicalizationMethod | ds:CanonicalizationMethodType | M | Element defining the canonicalisation algorithm.<br>An example of the value of the Algorithm attribute:<br>• http://www.w3.org/2001/10/xml-exc-c14n# |
| SignatureMethod | ds:SignatureMethodType | M | Element defining the algorithm generating the signature. There can be only one of these elements.<br>An example of the value of the Algorithm attribute:<br>• http://www.w3.org/2001/04/xmldsig-more#rsa-sha256 |
| Reference | ds:ReferenceType | M | Element defining the algorithm generating the signature digest. There can be only one instance of this element.<br>The value of the URI attribute must be blank (URI = "") which means that the signature applies to the entire document. |
| Transforms | ds: TransformsType | M | Element defining the transforms performed before the signature digest is calculated. There can be only one instance of this element. |
| Transform | ds:TransformType | M | Elements defining the transform performed before the digest calculation. There must be at least one element, the first of which must be a Transform element conforming to the Enveloped Signature specification. An example of the value of the Algorithm attribute:<br>• http://www.w3.org/2000/09/xmldsig#enveloped-signature |
| DigestMethod | ds:DigestMethodType | M | Element defining the algorithm used in the digest calculation. There can be only one instance of this element.<br>An example of the value of the Algorithm attribute:<br>• http://www.w3.org/2001/04/xmlenc#sha256 |
| DigestValue | ds:DigestValueType | M | Element containing the digest. |
| SignatureValue | ds:SignatureValueType | M | Element containing the actual signature. |
| KeyInfo | ds:KeyInfoType | M | Element containing information on the signature key. Although this element is not mandatory according to the schema, the Incomes Register requires the presence of this element. Only an X509Data element may be entered as its contents. |

| Data designation | Type | V/M | Label |
|---|---|---|---|
| X509Data | ds:X509DataType | M | Element containing information on the signature key. At a minimum, an X509Certificate element must be entered as its contents. |
| X509Certificate | base64Binary | M | Element containing the Base64-encoded signature certificate. |

*Table 1. The data content to be entered in the signature element.*

# 5 SERVICE CHANNELS

The services in the technical interface of the Incomes Register can be used via three different channels:

- SFTP, deferred;
- Web Service, real-time; and
- Web Service, deferred.

The choice of which channel to use is based on need.

## 5.1 SFTP channel

The SFTP (SSH File Transfer Protocol) channel is primarily intended for use in situations where there is a large amount of data to be submitted to the Incomes Register. The data is transferred in XML files in such a manner that a single file may contain an XML message of only one schema.

### 5.1.1 SFTP home directory

An SFTP home directory is created in the Incomes Register for each party submitting and/or receiving files, containing In and Out directories for the party's files. The party uploads the files into the In directory and downloads the files created by the Incomes Register for the party from the Out directory.

For uploading and downloading files, the party needs a user account and an SFTP certificate that is linked to the party's SFTP home directory in the Incomes Register. The Incomes Register has SFTP certificates of different types for earnings payment data providers, benefits payment data providers and data users (see the table below).

| Purpose of use | Certificate type |
|---|---|
| Provider of earnings payment data | Data Providers SFTP Issuing CA v1 |
| Provider of benefits payment data | IR Benefit Data Providers SFTP Issuing CA v1 |
| Data user | IR Income Data Users SFTP Issuing CA v1 |

A party may have a maximum of three SFTP home directories in the Incomes Register, one for each of the purposes described in the table above.

When a party sends a record subscription to the Incomes Register via the SFTP channel, the record will be distributed into the SFTP home directory into which the record subscription was uploaded. When a party submits a signed record subscription via the upload service, the SFTP home directory used for the distribution of the record is selected based on the type of the certificate used in the record subscription's signature. When a party (record subscription creator) is authorised to act on behalf of the payer (record owner) and the party has been granted a separate authorisation by the payer, the payer's records 312 and 313 to be shared at the interface are shared via the SFTP folder of the record subscription creator (DeliveryDataCreator). This only applies to the situation where a 'Technical interface SFTP (Service provider acting on behalf of the payer)' (DeliveryChannelCode=7) has been specified as the distribution channel. When a party submits a record subscription via the e-service and requests the record to be delivered via the SFTP channel, the record is delivered to the SFTP home directory matching the subscriber's user role.

**Example: Party acts as a provider of earnings payment data**

If a party (payer) submits earnings payment records to the Incomes Register and requests summary records of the payer's earnings payment data in XML format with a record subscription submitted via the technical interface, the records delivered and distributed via the party's SFTP home directory are as depicted in the figure below:

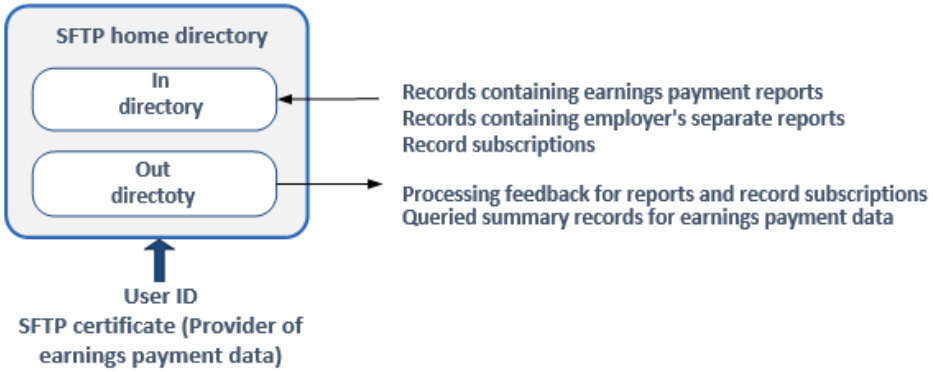


*Figure 3. The records delivered and distributed via the party's SFTP home directory.*

If the payer submits earnings payment reports for several suborganisations to the Incomes Register, all records are handled via the same In and Out directories.
The files submitted to the Incomes Register must be named in such a manner that the processing feedback files intended for each individual suborganisation can be identified when retrieving the files from the Incomes Register. Files containing processing feedback can be identified using <FileId> strings appearing in the name of the record submitted to the Incomes Register, as the <FileId> string is copied to the name of the file containing the processing feedback (see Section File naming later in this document). Records generated for a party based on a record subscription (such as a summary record of a payer's earnings payment data) can be identified based on the <MainSubscriptionId> string appearing in the file name (the subscriber's primary subscription reference in the record subscription).

**Example: A party acts as a provider of earnings and benefits payment data and as a user of Incomes Register data**

If a party submits both earnings payment records (the organisation's own earnings payment data) and benefits payment records to the Incomes Register and uses Incomes Register data as a data user, the party will have three SFTP home directories in the Incomes Register. The records submitted and distributed via the directories are as depicted in the figure below:

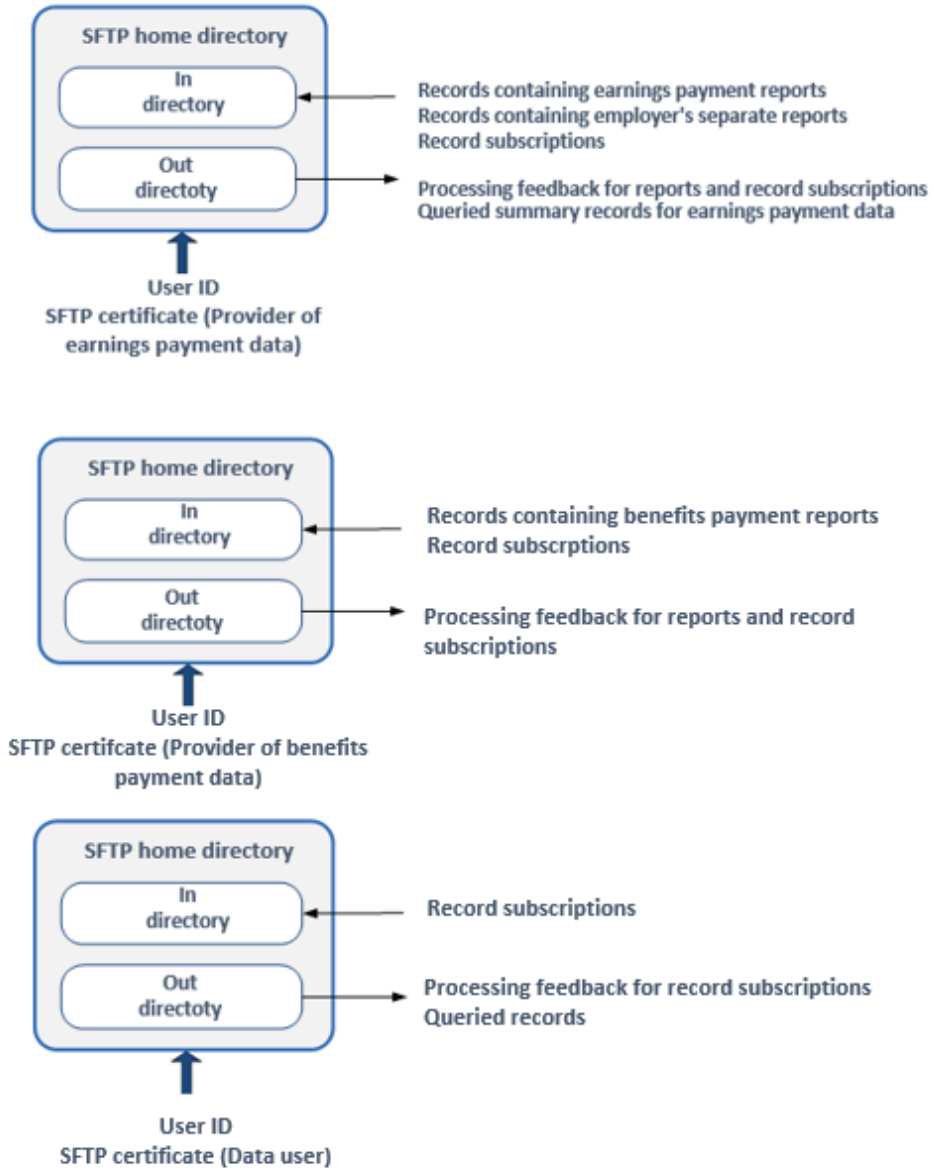


*Figure 4. The records delivered and distributed via the party's SFTP home directory.*

### 5.1.2 Uploading files into the SFTP In directory

When a party uploads a file into the In directory, the party must name the file using the "tmp" file extension (see Section File naming later in this document). After a successful file transfer, the party changes the file extension to "xml". This ensures that the file is not processed by the Incomes Register while the upload is still incomplete.

The Incomes Register generates feedback on record processing that the party can download after the processing delay following the time of the upload. The processing feedback contains information on the correct and incorrect data in the record, as well as an itemised list of any errors detected during processing. The feedback file is saved in the party's Out directory.

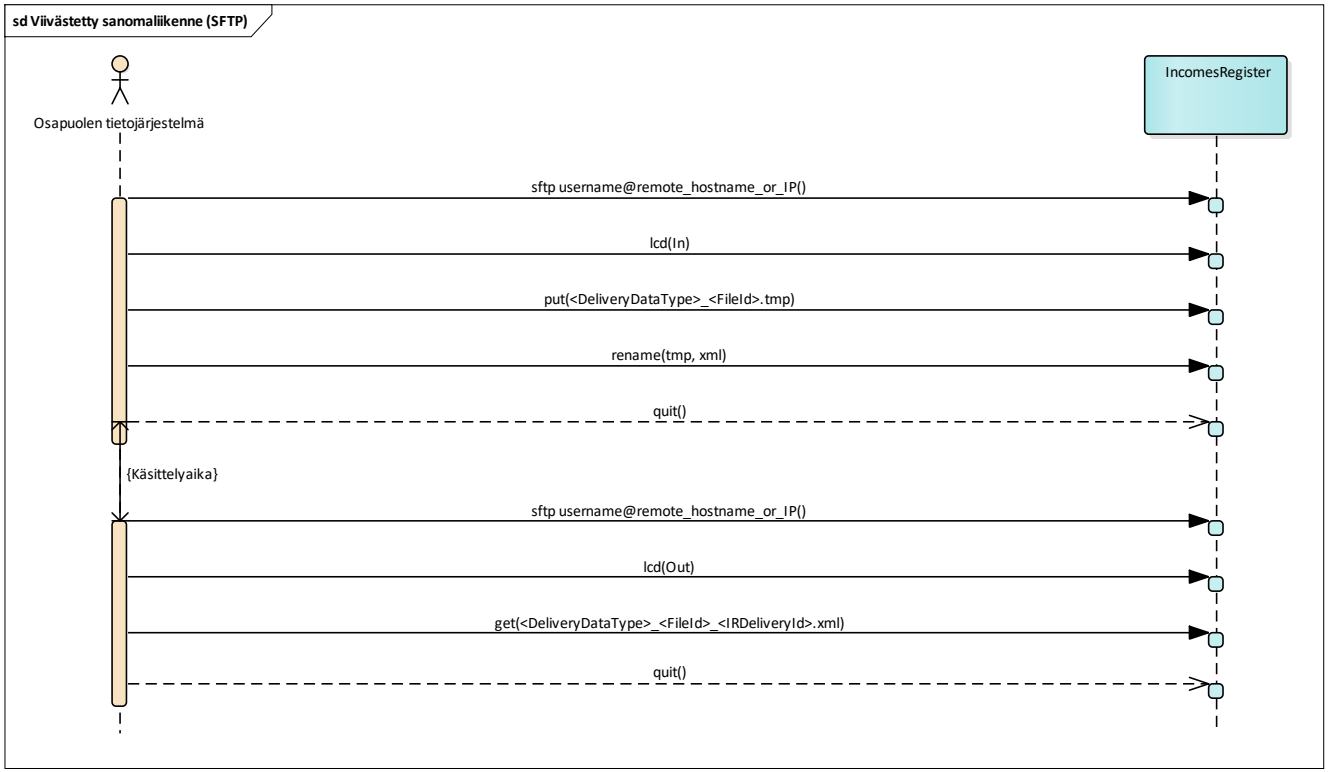


*Figure 5. Sequence diagram of the messaging model in the SFTP channel.*

A file saved in the In directory of the SFTP interface is removed from the directory as soon as its processing begins in the Incomes Register.

If the party does not name the file using the "xml" file extension within 7 days of the file's generation, the Incomes Regsister will delete the file. If the file has been named otherwise against the instructions, processing feedback will be generated containing an error message, provided that forming processing feedback is technically possible.

### 5.1.3 File distribution via the SFTP Out directory

The Incomes Register will deliver files distributed via the SFTP interface into the party's SFTP Out directory. Processing feedback distributed via the SFTP channel and records generated based on a record subscription and distributed via the SFTP interface are delivered into the directory. When the Incomes Register uploads the files related to a record being distributed into the Out directory, it names the files using the "tmp" file extension. After a successful upload, the Incomes Register renames the files using the "xml" file extension. The party downloads files with the "xml" file extension from the Out directory.

The Incomes Register will split the records in XML format, generated based on a record subscription and distributed via the SFTP interface, into a multipart file. The splitting ensures that a query does not generate a file that is difficult to handle due to technical issues arising from its large size.

The multipart file is generated in compliance with the schema of the distributed record, which means that the schema of an individual file being distributed is the same regardless of whether a single file or a multipart file is generated by the query. Each part of the multipart file is signed as a separate file.

The parts of the multipart file are numbered sequentially starting from 1. The total number of parts in the multipart file and the sequential number of the part file are added at the end of the name of the file being distributed from the Incomes Register. After renaming, the file names are of the following format: <QueryDataType>_<MainSubscriptionId>_<SubscriptionId>_<sequential number of the query>_<IRQueryId>_<total number of part files>_<sequential number of the part file>.xml (see Section File naming later in this document). If only a single file is generated by the query, its name is of the following format: <QueryDataType>_<MainSubscriptionId>_<SubscriptionId>_<sequential number of the query>_<IRQueryId>_1_1.xml.

The sequential numbers of queries run in ascending order. However, the numbering may not always run continuously, so there may be numbers missing in between series of numbers.

The maximum size of one part of a multipart file is 100 MB. The part files may be of different sizes, and a part file may be smaller in size than 100 MB.

If a distributed record contains reports, they are sorted into the part files according to the report version's creation timestamp (CreatedTimestamp), starting from the oldest. If a record subscription has requested all versions of a report to be queried, they may be placed in different part files in accordance with the order of their timestamps. If a distributed record contains log data, it is sorted into the part files according to the creation time of the log event (Timestamp).

All parts of a multipart file generated by one query have the same query metadata. In the distribution schemas, the Number of queried items value distributed in the Query summary data group is the total number of queried items in all of the part files.

The Incomes Register will upload the part files generated during the query into the party's SFTP Out directory with "tmp" file extensions one by one as described above. Once the entire multipart file has been successfully uploaded, the Incomes Register changes the file extension(s) to "xml". Because the part files are uploaded and renamed one by one, they are not available in the Out directory at exactly the same time. The party must download the number of part files indicated in the name of the file in the <total number of part files> section from the Incomes Register.

The timestamp of a part file is the time when the part file was saved in the Out directory. The timestamps are not necessarily in the order of the sequential numbering of the part files, i.e. a part file with a larger sequential number may have been saved in the Out directory earlier than a part file with a smaller sequential number.

It is recommended that the party delete files saved in the Out directory. If the party does not delete the files, they are deleted by the Incomes Register after their retention period is over.

### 5.1.4 File naming

File naming is described in Tables 2 and 3.

| Record | Directory | File name format | Example |
|---|---|---|---|
| Data to be submitted to the Incomes Register | IN | <DeliveryDataType>_<FileId>.xml | 100_87765434543.xml |
| Processing feedback distributed from the Incomes Register | OUT | <DeliveryDataType>_<FileId>_<IRDeliveryId>.xml | 100_87765434543_850166cc02fa4a038da5ee36b990b07a.xml |
| Records distributed from the Incomes Register | OUT | <QueryDataType>_<MainSubscriptionId>_<SubscriptionId>_<sequential number of the query>_<IRQueryId>_<total number of part files>_<sequential number of the part file>.xml | 300_2367756AC4_SUB1_12_d41f67294769429db2891693a2b84055_7_5.xml |

*Table 2. Naming of the files submitted to and distributed from the Incomes Register.*

| File name part | Description |
|---|---|
| DeliveryDataType | Value from the code set "Record type, submitted to Incomes Register (DeliveryDataType)". |
| FileId | A free-form reference assigned by the record sender to the file, uniquely identifying the file in the In directory. The maximum length is 40 characters.<br>The allowed characters for this value are the numerals 0-9, the letters a-z and A-Z, and the special characters "_" and "-". |
| IRDeliveryId | Incomes Register's record reference that is a unique identifier assigned by the Incomes Register to the record. |
| QueryDataType | Value from the code set "Record type, distributed from the Incomes Register (QueryDataType)". |
| MainSubscriptionId | Subscriber's primary subscription reference. |
| SubscriptionId | Subscriber’s secondary subscription reference. |
| IRQueryId | Incomes Register's query reference that is a unique identifier assigned by the Incomes Register to the queried record. |

| | |
|---|---|
| Sequential number of the query | The sequential number of queries for the primary subscription. The numbering begins from 1. The sequential numbering runs in ascending order but not necessarily continuously, so there may be numbers missing in between series of numbers. |
| Total number of part files | The total number of parts in a multipart file generated during the record query. |
| Sequential number of the part file | The sequential number of a part file generated during the record query. The numbering begins from 1. |

*Table 3. Parts of the file name.*

## 5.2 Web Service channel

The Web Service channel of the Incomes Register is implemented as a SOAP 1.1 interface (Simple Object Access Protocol, http://www.w3.org/TR/2000/NOTE-SOAP-20000508/). The implementation is divided into deferred (asynchronous) and real-time (synchronous) services.

**Real-time services** are intended for the processing of individual data items (e.g. a single earnings or benefits payment report), when the usage situation requires an immediate processing response (e.g. a customer service situation).

**Deferred services** are intended for use when uploading data sets containing multiple items. In this context, deferred service means a dialogue between the information systems, where the execution of a function requires two separate service invocations. In the first service invocation, the party submits the record to the Incomes Register. Feedback for record processing is retrieved with the second service invocation. The individual service invocations are all synchronous in nature.

The services are described using the WSDL 1.1 description language (Web Service Description Language, http://www.w3.org/TR/wsdl). The WSDL description can be utilised to define the service and message references of the client application invoking the service.

When sending records via the Web Service channel, the following HTTP Headers must be set:

- SOAPAction: "enter the value of the soapAction field defined in the WSDL description of the service in question"
- Content-Type: text/xml;charset=UTF-8

### 5.2.1 Sending messages in the Web Service channel

In **deferred data transfer,** a party submits data to the Incomes Register and receives an acknowledgement message (AckFromIR). The acknowledgement message contains information on any errors that occurred during the reception of the data. If no errors occurred in message reception, the processing feedback for the reception can be queried after the processing delay, using the GetDeliveryDataStatus service.

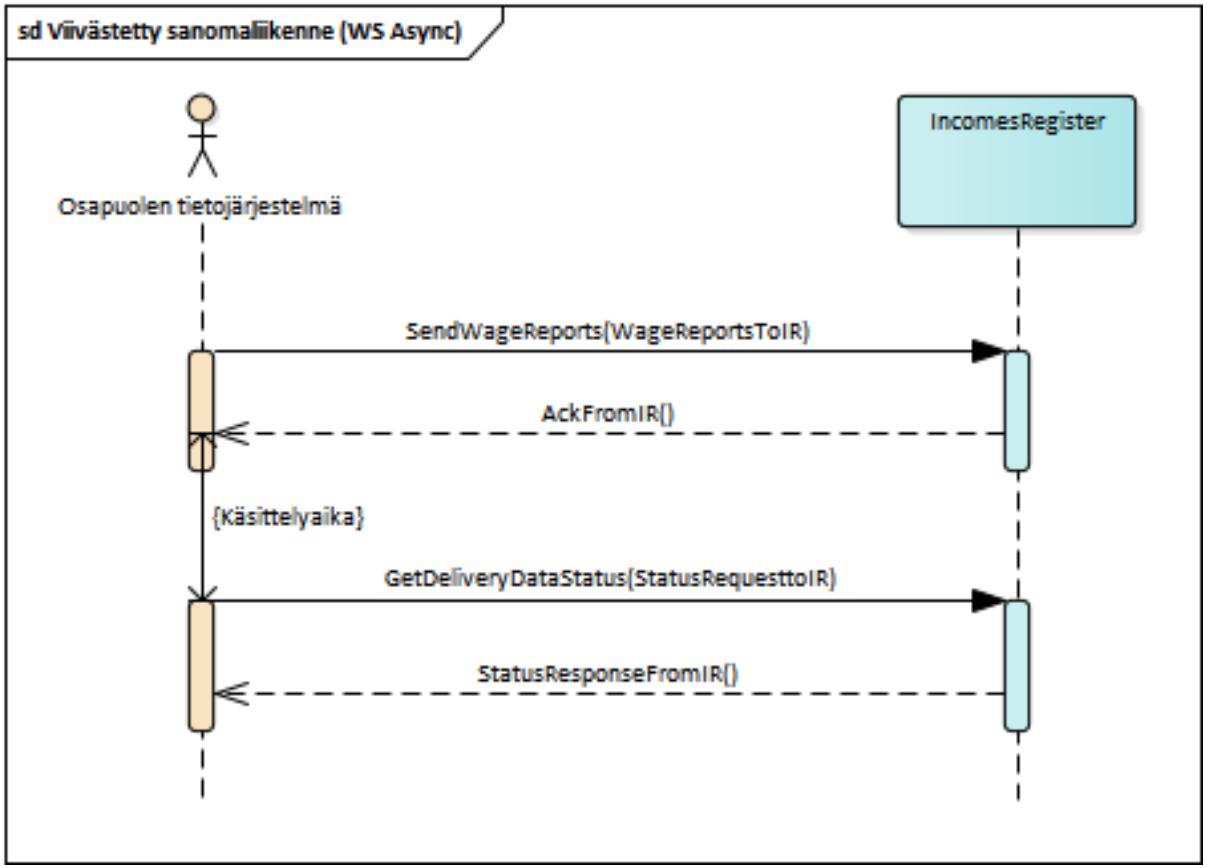


*Figure 6. Sequence diagram of the messaging model in the deferred Web Service channel.*

The above figure presents the sequence diagram of the deferred Web Service channel on a general level when earnings payment reports are submitted to the Incomes Register. The messaging model is similar when benefits payment reports are submitted (operation SendBenefitReports, schema BenefitReportsToIR).

In **real-time Web Services,** the Incomes Register responds to a service invocation with processing feedback (StatusResponseFromIR). The processing feedback contains information on the correct and incorrect data in the record, as well as an itemised list of any errors detected during processing.

### 5.2.2 Web Services

See below for all Web Services of the Incomes Register. Each service is described in its own WSDL description.

**BenefitReportQueryService:**

| Operation | Deferred / real-time | Request message | Response message | Description |
|---|---|---|---|---|
| GetBenefitReportsOneIncomeEarner | Real-time | DataRequestToIR | BenefitReportsFromIR | Returns the benefits payments reports for a single income earner in accordance with the request message. |
| GetBenefitReportsOnePayerOneIncomeEarner | Real-time | DataRequestToIR | BenefitReportsFromIR | Returns the benefits payment reports generated by a single payer for a single income earner in accordance with the request message. |
| GetBenefitReportsOneIRReportId | Real-time | DataRequestToIR | BenefitReportsFromIR | Returns the benefits payment report related to a single Incomes Register report reference in accordance with the request message. |

**BenefitReportService:**

| Operation | Deferred / real-time | Request message | Response message | Description |
|---|---|---|---|---|
| SendBenefitReport | Real-time | BenefitReportsToIR | StatusResponseFromIR | Processing of a record containing a single benefits payment report. |
| SendBenefitReports | Deferred | BenefitReportsToIR | AckFromIR | Processing of a record containing several benefits payment reports. |

**EchoService:**

| Operation | Deferred / real-time | Request message | Response message | Description |
|---|---|---|---|---|
| SendEcho | Real-time | Echo | Echo | A service that can be used to test the operation of the connection and authentication. The service returns the received message to the service invoker as the response. |

**InvalidationService:**

| Operation | Deferred / real-time | Request message | Response message | Description |
|---|---|---|---|---|
| SendInvalidation | Real-time | InvalidationsToIR | StatusResponseFromIR | Processing of a record containing an individual cancellation. |
| SendInvalidations | Deferred | InvalidationsToIR | AckFromIR | Processing of a record containing several cancellations. |

**PayerSummaryReportQueryService:**

| Operation | Deferred / real-time | Request message | Response message | Description |
|---|---|---|---|---|
| GetPayerSummaryReportsOnePayer | Real-time | DataRequestToIR | PayerSummaryReportsFromIR | Returns the employer's separate reports from one payer in accordance with the request message. |
| GetPayerSummaryReportsOnePolicyNo | Real-time | DataRequestToIR | PayerSummaryReportsFromIR | Returns the employer's separate reports related to a single pension policy number in accordance with the request message. |

**PayerSummaryReportService:**

| Operation | Deferred / real-time | Request message | Response message | Description |
|---|---|---|---|---|
| SendPayerSummaryReport | Real-time | PayerSummaryReportsToIR | StatusResponseFromIR | Processing of a record containing a single employer's separate report. |
| SendPayerSummaryReports | Deferred | PayerSummaryReportsToIR | AckFromIR | Processing of a record containing several employer's separate reports. |

**StatusService:**

| Operation | Deferred / real-time | Request message | Response message | Description |
|---|---|---|---|---|
| GetDeliveryDataStatus | Deferred | StatusRequestToIR | StatusResponseFromIR | Returns processing feedback containing information on the correct and incorrect data in the record, as well as an itemised list of any errors detected during processing. |

**SubscriptionService:**

| Operation | Deferred / real-time | Request message | Response message | Description |
|---|---|---|---|---|
| ProcessSubscription | Real-time | SubscriptionsToIR | StatusResponseFromIR | Processing of a record containing a single record subscription. |
| SendSubscription | Deferred | SubscriptionsToIR | AckFromIR | Processing of a record containing a single record subscription. |

**WageReportQueryService:**

| Operation | Deferred / real-time | Request message | Response message | Description |
|---|---|---|---|---|
| GetWageReportsOneIncomeEarner | Real-time | DataRequestToIR | WageReportsFromIR | Returns the earnings payments reports for a single income earner in accordance with the request message. |
| GetWageReportsOnePayer | Real-time | DataRequestToIR | WageReportsFromIR | Returns the earnings payment reports generated by a single payer in accordance with the request message. |
| GetWageReportsOnePayerOneIncomeEarner | Real-time | DataRequestToIR | WageReportsFromIR | Returns the earnings payment reports generated by a single payer for a single income earner in accordance with the request message. |
| GetWageReportsOnePolicyNo | Real-time | DataRequestToIR | WageReportsFromIR | Returns the earnings payment reports related to a single pension policy number in accordance with the request message. |

**WageReportService:**

| Operation | Deferred / real-time | Request message | Response message | Description |
|---|---|---|---|---|
| SendWageReport | Real-time | WageReportsToIR | StatusResponseFromIR | Processing of a record containing a single earnings payment report. |

| Operation | Deferred / real-time | Request message | Response message | Description |
|---|---|---|---|---|
| SendWageReports | Deferred | WageReportsToIR | AckFromIR | Processing of a record containing several earnings payment reports. |

*Table 4. Web Services of the Incomes Register.*

## 6 RECORD SIZE AND ALLOWED ROOT ELEMENTS

The records to be submitted to the Incomes Register and records distributed from the Incomes Register have the size and number limitations described below. Also see below for a description of the root elements allowed in the different channels.

- An http-level error is returned in the Web Service channel if maximum record size is exceeded.
- An error message is returned in the processing feedback if maximum data number is exceeded (MessageError).
- Maximum size has been determined for the size of the SFTP channel transfer directory (operator-specific). An sftp transfer error is returned when submitting a record to the Incomes Register if maximum directory size is exceeded.

| Service channel | Direction | Schema | Allowed root elements | Maximum record size | Maximum number of data (pcs) |
|---|---|---|---|---|---|
| SFTP | IN | InvalidationsToIR | InvalidationsRequestToIR | 50 MB | 10,000 cancellation data |
| SFTP | IN | PayerSummaryReportsToIR | PayerSummaryReportsRequestToIR | 50 MB | 10,000 employer's separate reports |
| SFTP | IN | SubscriptionsToIR | SubscriptionsRequestToIRAsync | 50 MB | 1 record subscription, containing no more than 10,000 secondary subscription query criteria (total number of all secondary subscriptions related to the primary subscription) |
| SFTP | IN | WageReportsToIR | WageReportsRequestToIR | 50 MB | 10,000 earnings payment reports |
| SFTP | IN | BenefitReportsToIR | BenefitReportsRequestToIR | 50 MB | 10, 000 benefits payment reports |
| SFTP | OUT | LogDataFromIR | LogDataFromIR | no limitation | no limitation |
| SFTP | OUT | PayerSummaryReportsFromIR | PayerSummaryReportsFromIR | no limitation | no limitation |
| SFTP | OUT | StatusResponseFromIR | StatusResponseFromIR | no limitation | no limitation |
| SFTP | OUT | WageReportsFromIR | WageReportsFromIR | no limitation | no limitation |
| SFTP | OUT | BenefitReportsFromIR | BenefitReportsFromIR | no limitation | no limitation |
| Web Service real-time | IN | InvalidationsToIR | InvalidationRequestToIR | 1 MB | 1 cancellation data |
| Web Service real-time | IN | PayerSummaryReportsToIR | PayerSummaryReportRequestToIR | 1 MB | 1 employer's separate report |
| Web Service real-time | IN | SubscriptionsToIR | SubscriptionsRequestToIR | 1 MB | 1 record subscription, containing no more than 100 secondary subscription query criteria (total number of all secondary subscriptions related to the primary subscription) |
| Web Service real-time | IN | WageReportsToIR | WageReportRequestToIR | 1 MB | 1 earnings payment report |

| Service channel | Direction | Schema | Allowed root elements | Maximum record size | Maximum number of data (pcs) |
|---|---|---|---|---|---|
| Web Service real-time | IN | BenefitReportsToIR | BenefitReportRequestToIR | 1 MB | 1 benefits payment report |
| Web Service real-time | IN | DataRequestToIR | PayerSummaryReportsOnePayerRequestToIR<br>PayerSummaryReportsOnePolicyNoRequestToIR<br>WageReportsOneIncomeEarnerRequestToIR<br>WageReportsOnePayerRequestToIR<br>WageReportsOnePayerOneIncomeEarnerRequestToIR<br>WageReportsOnePolicyNoRequestToIR | 1 MB | 1 ”record subscription” with no more than 20 query criteria |
| Web Service real-time | OUT | StatusResponseFromIR | StatusResponseFromIR | no limitation | no limitation |
| Web Service real-time | OUT | PayerSummaryReportsFromIR | PayerSummaryReportsFromIR | no limitation | 150 employer's separate reports |
| Web Service real-time | OUT | WageReportsFromIR | WageReportsFromIR | no limitation | 150 earnings payment reports |
| Web Service real-time | OUT | BenefitReportsFromIR | BenefitReportsFromIR | no limitation | 150 benefits payment reports |
| Web Service deferred, upload service | IN | InvalidationsToIR | InvalidationsRequestToIR | 50 MB | 10,000 cancellation data |
| Web Service deferred, upload service | IN | PayerSummaryReportsToIR | PayerSummaryReportsRequestToIR | 50 MB | 10,000 employer's separate reports |
| Web Service deferred, upload service | IN | SubscriptionsToIR | SubscriptionsRequestToIRAsync | 50 MB | 1 record subscription, containing no more than 10,000 secondary subscription query criteria (total number of all secondary subscriptions related to the primary subscription) |
| Web Service deferred, upload service | IN | WageReportsToIR | WageReportsRequestToIR | 50 MB | 10,000 earnings payment reports |
| Web Service deferred, upload service | IN | BenefitReportsToIR | BenefitReportsRequestToIR | 50 MB | 10, 000 benefits payment reports |
| Web Service deferred | IN | StatusRequestToIR | StatusRequestToIR | 10 kB | 1 record query |
| Web Service deferred | OUT | AckFromIR | AckFromIR | no limitation | no limitation |
| Web Service deferred | OUT | StatusResponseFromIR | StatusResponseFromIR | no limitation | no limitation |

*Table 5. Root elements allowed in the different channels.*

# 7 VERSIONING

The aim is to implement the versioning of the Incomes Register's technical interface in such a manner that the system retains backwards compatibility.

A change to the technical interface means one or more of the following:

- Change to the service
  - service addition
  - service operation addition
- Change to the data content
  - change to a message structure
  - addition of a message structure.

**Changes to the service** involve the addition of a new service or service operation to the existing WSDL namespace. Such changes can also be implemented directly for a new WSDL namespace. The URLs for the services are based on the following model: https://incomes-register-address/service-version/service-name.svc.

**Changes to the data content** are implemented, if possible, in such a way that an existing schema is complemented with new data that is non-mandatory for the schema. This keeps the namespace unchanged, allowing a party to submit data in accordance with the old schema.

If the change applies to a schema used in data distribution, data users must update their systems to utilise the new schema, if they require the new data.

# 8 ERROR FEEDBACK

This section describes the general principles of the technical interface's error messages returned by the Incomes Register as a response to a message sent to the Incomes Register (a message containing a record or a service request sent to the Incomes Register).

## 8.1 Web Service channel

### 8.1.1 HTTP errors

Errors detected before the processing of the SOAP framework are returned to the invoker in the HTTP status code (HTTP/1.1: Status Code Definitions).

The use of the Incomes Register's Web Services requires authentication with a customer certificate. If authentication fails, the Incomes Register returns the HTTP error code 401 (Unauthorized).

### 8.1.2 SOAP errors

The Incomes Register returns SOAP-level errors in accordance with the SOAP 1.1 Fault structure (https://www.w3.org/TR/2000/NOTE-SOAP-20000508/#_Toc478383507) and with the HTTP status code 500 (Internal Server Error).

A SOAP Fault can be returned, for example, in situations where the SOAP framework is invalid. A SOAP-level errors is returned, for example, when the received message cannot be parsed into an XML document, or the document fails the schema check. The recommendation is that the sending system should perform a schema validation on the message before sending the message to the Incomes Register.

In all identified situations, the SOAP Fault error feedback will include the error code assigned by the Incomes Register to the error, and the description of the error code. The error codes for identified situations and their descriptions will be published as part of the error codes of the Incomes Register's technical interface.

The structure of the error message for SOAP is different from the usual message structure; the signature is returned in the header.

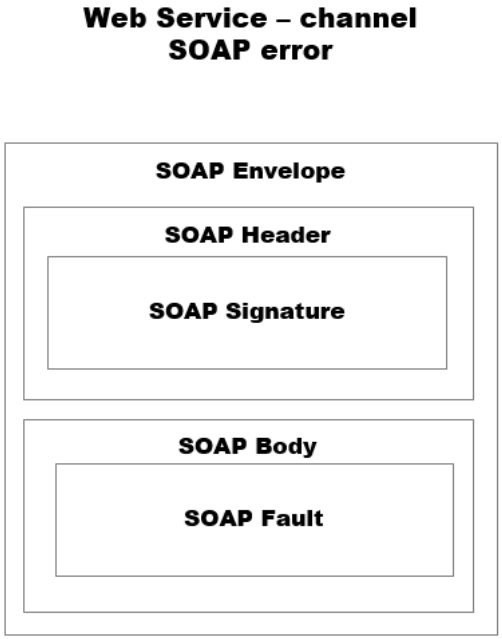


*Figure 7. The structure of the error message for SOAP.*

### 8.1.3 Business errors

In business error situations, the Incomes Register returns the error messages in the error structures of the message returned to the sender. The error structure contains the error code, an English description of the error, and the identifying information of the element containing the error. For a more detailed description of the error structure, see the Section "Error structures of returned message".

## 8.2 SFTP channel

Errors occurring at SFTP protocol level in accordance with the standard are not discussed in this document.

The Incomes Register generates processing feedback (StatusResponseFromIR.xsd) for all records received via the SFTP channel, containing the detected technical and business errors. The processing feedback can be retrieved via the SFTP channel after the record processing has finished. Over the SFTP channel, the Incomes Register returns error messages in the errors structures of the processing feedback, described in the Section "Error structures of returned message".

## 8.3 Error structures of returned message

### 8.3.1 Message-level errors (MessageErrors)

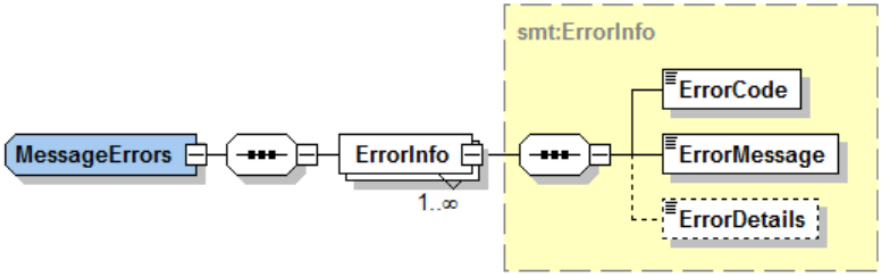


*Figure 8. Message-level errors.*

This data group is used to return technical and authorisation errors. The error code (ErrorCode) and error code description (ErrorMessage) are returned for message-level errors. Identifying information on the error (ErrorDetails) will not be returned in connection with message-level errors.

If message-level errors are detected in a record submitted to the Incomes Register, the record is not processed further in the Incomes Register. In addition to message-level errors, the processing feedback cannot therefore contain any other errors (record-level errors, rejected items and the errors related to them).

Message-level errors include:

- Record is not a valid XML document.
- Schema check failed.
- The electronic signature of the record is invalid.
- Other unexpected error.

In the Web Service channel, message-level errors are also returned as part of the SOAP Fault error message, in which case no separate feedback message will be generated of them.

### 8.3.2 Record-level errors (DeliveryErrors)

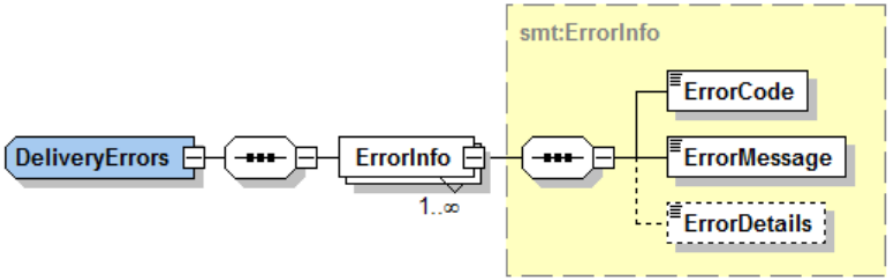


*Figure 9. Record-level errors.*

This data group is used to return errors related to the contents of record-level data. The error code (ErrorCode) and error code description (ErrorMessage) are returned for record-level errors. Identifying information on the error (ErrorDetails) will not be returned in connection with message-level errors.

Record-level errors apply to all items in the record. If there are record-level errors in the record, all items of the record are invalid and will not be saved in the Incomes Register. In such a case, the invalid items are not separately delivered in the "Rejected items" data group.

### 8.3.3 Item-level errors (ItemErrors)

An item means and item submitted within a record; it can be, for example, an individual earnings payment report/benefits payment report or an individual record subscription. Invalid items are returned inside the InvalidItems data group. The data of each item includes the Item-level errors data group, in which information on the errors the item contains is returned.

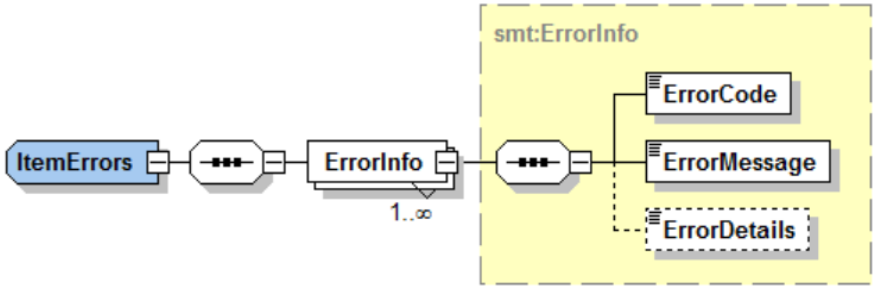


*Figure 10. Item-level errors.*

This data group is used to return errors related to the contents of rejected items. The error code (ErrorCode), error code description (ErrorMessage) and the identifying information on the error (ErrorDetails) are returned for item-level errors.

An XPath referring to the element that caused the error in the request message (in a record submitted to the Incomes Register) is returned in the feedback message element containing the identifying information on the error (ErrorDetails).

The element (an individual data item or a data group) that caused the error is identified in the feedback message in such a manner that, with the help of the identifying information, a party's system is able to unambiguously identify the invalid element in the message submitted to the Incomes Register. For example, the presentation method enables a party's system to indicate the invalid item to the end user, via the party's user interface, on the basis of the error message.

XPath offers a path to each element in the tree structure of the XML message. An example of a path referring to the payer's last name in an employer's separate report:

/psrtir:PayerSummaryReportRequestToIR/DeliveryData/Payer/PayerBasic/LastName

If an element can be repeated in a message, the path presentation will include an index. An example of a path referring to the first report in an earnings payment record, with the income earner's identifier type specified second:

/wrtir:WageReportRequestToIR/DeliveryData/Reports/Report[1]/IncomeEarner/IncomeEarnerIds/Id[2]/Type

It is recommended that the same tree structure be used in the user interface of the party's system, in which case the paths can be directly used to refer to data displayed on the screen. If the tree structure is not used in the user interface as such, each UI element should at least include information on its location in the structure of the XML message, so that the required references are easy to create.

# 9 DATA SUBMITTING AND DISTRIBUTION

## 9.1 Data submitting channels

Data may be submitted to the Incomes Register via the following channels:

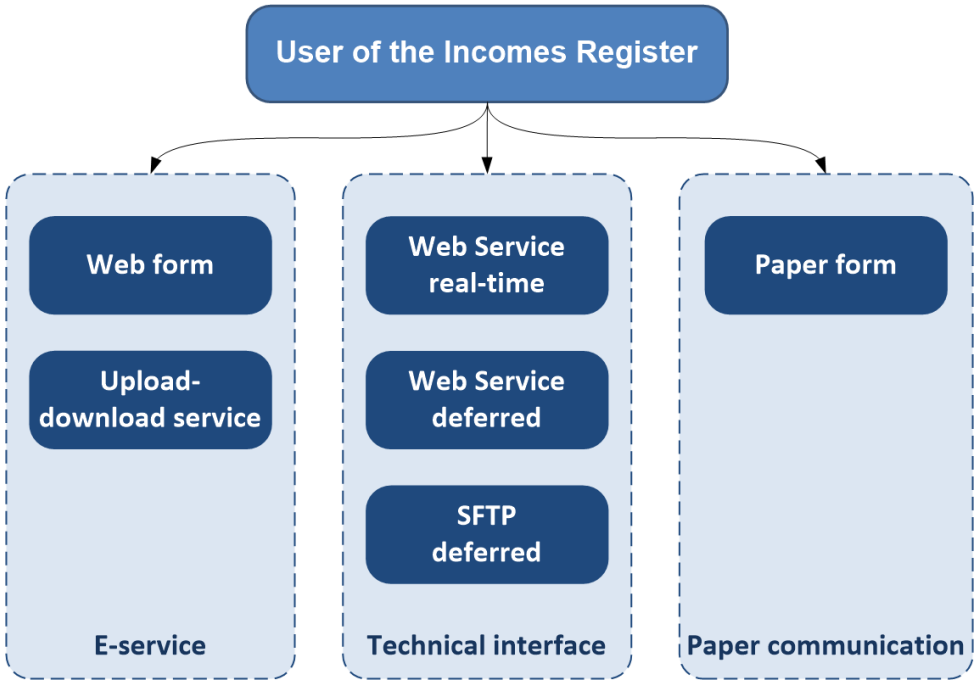


*Figure 11. Data submitting channels.*

Users can use the e-service web forms and the upload service to submit data to the Incomes Register in accordance with the data access rights of their user profiles. The technical interface options for submitting to the Incomes Register are SFTP, deferred Web Service or real-time Web Service. The Web Service interface is also referred to as the WS interface in this description. The Incomes Register also accepts earnings payment data and record subscriptions submitted on a paper form.

Both payers and data users use the data reception services of the Incomes Register's technical interface. Payer submit earnings payment reports, employer's separate reports and benefits payment reports to the Incomes Register. Both payers and data users can submit record subscriptions to the Incomes Register.

Reports, record subscriptions and cancellation data are submitted to the Incomes Register as ***records***. Table 6 presents the data submitting channels for the different types of data.

| Data to be submitted to the Incomes Register | Submitting channels | |
|---|---|---|
| Earnings payment report<br>Employer's separate report<br>Benefits payment report<br>(new, replacement and cancellation report) | E-service | Web form, one report at a time |
| | | Upload service |
| | Technical interface | WS real time, one report at a time |
| | | WS deferred |
| | | SFTP deferred |
| Record containing earnings payment reports<br>Record containing employer's separate reports<br>Record containing benefits payment reports<br>(cancellation of a record) | E-service | Web form |
| | | Upload service |
| | Technical interface | WS real time, one record at a time |
| | | WS deferred, one record at a time |
| | | SFTP deferred, one record at a time |
| Record subscription<br>(new subscription, cancellation of subscription) | E-service | Web form |
| | | Upload service, one record subscription at a time |
| | Technical interface | WS real time, one record subscription at a time |
| | | WS real time, one record subscription at a time |
| | | SFTP deferred, one record subscription at a time |
| Record subscription<br>(subscription maintenance) | E-service | Web form |
| Record containing a record subscription<br>(cancellation of a record) | E-service | Web form |
| | | Upload service |
| | Technical interface | WS real time, one record at a time |
| | | WS deferred, one record at a time |
| | | SFTP deferred, one record at a time |
| Basic details of a party<br>(maintenance of basic details) | E-service | Web form |

*Table 6. Data submitting channels.*

In addition to what was presented in the table, earnings payment reports, employer's separate reports and record subscriptions can also be submitted to the Incomes Register on a paper form.

### 9.2 Data distribution channels

Data is distributed from the Incomes Register via the following channels:

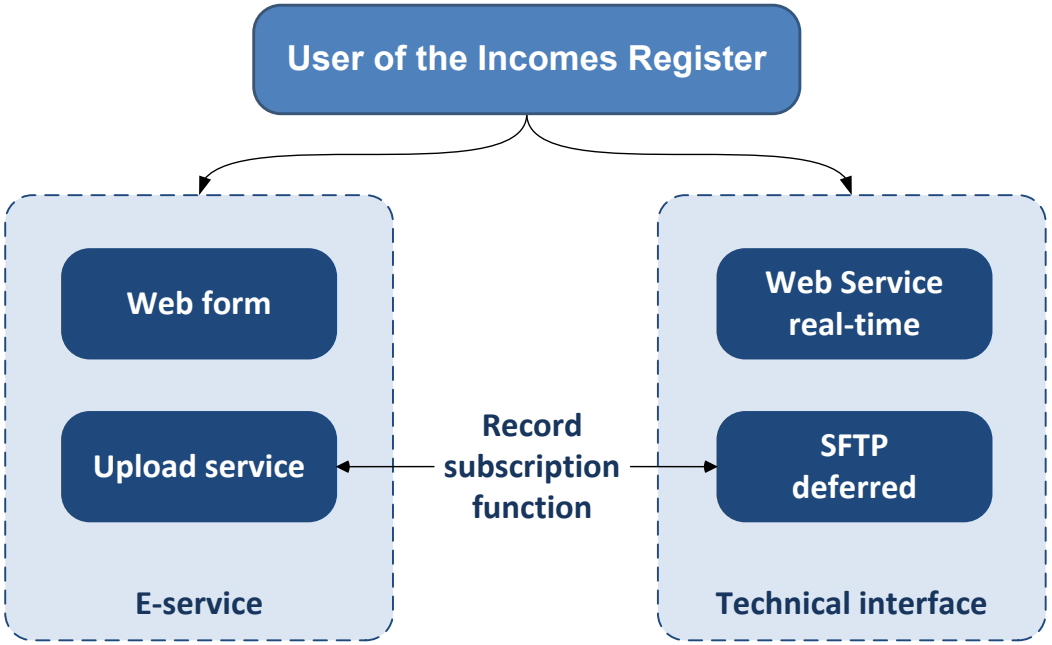


*Figure 12. Data distribution channels.*

In the e-service, users of the Incomes Register's services can retrieve data from the Incomes Register in accordance with their user roles and data access rights. Data can be queried in real time using the web forms of the e-service. In the e-service, you can also view data on ordered records and download requested transcripts.

Via the technical interface, data is distributed through the SFTP interface as well as real-time Web Services. Records subscribed to in advance using the record subscription function can be retrieved via the SFTP interface. Limited data sets, for example, the earnings payment reports or benefits payment reports for a single income earner from a specific time range, can be retrieved using real-time Web Service requests. The Web Service interface is also referred to as the WS interface in this description.

Letters and printed transcripts can also be delivered in paper form by the Incomes Register.

## 9.3 Schema structures

The Incomes Register's technical interface accepts records in XML format. Records containing different types of data have their own schema structures.

### 9.3.1 Submitting data

The schemas for submitting data are presented in Table 7.

| Data to be submitted to the Incomes Register | Schema |
|---|---|
| Earnings payment report (new, replacement) | WageReportsToIR |
| Earnings payment report (cancellation) | InvalidationsToIR |
| Record containing earnings payment reports (cancellation) | InvalidationsToIR |
| Employer's separate report (new, replacement) | PayerSummaryReportsToIR |
| Employer's separate report (cancellation) | InvalidationsToIR |
| Record containing employer's separate reports (cancellation) | InvalidationsToIR |
| Benefits payment report (new, replacement) | BenefitReportsToIR |
| Benefits payment report (cancellation) | InvalidationsToIR |
| Record containing benefits payment reports (cancellation) | InvalidationsToIR |
| Record subscription (new) | SubscriptionsToIR |
| Record subscription (cancellation) | InvalidationsToIR |
| Record containing a record subscription (cancellation) | InvalidationsToIR |

*Table 7. Schemas for submitting data.*

### 9.3.2 Distribution of data

The schemas for data distribution are presented in Table 8.

| Data distributed from the Incomes Register | Schema |
|---|---|
| Earnings payment reports | WageReportsFromIR |
| Employer's separate reports | PayerSummaryReportsFromIR |
| Summary of payer's earnings payment data | WageReportSummaryFromIR |
| Benefits payment reports | BenefitReportsFromIR |
| Log data | LogDataFromIR |

*Table 8. Data distribution schemas.*

### 9.4 General structure of a record containing incomes payment reports

The structural differences between records containing **earnings payment reports** submitted *to the Incomes Register* and records containing earnings payment reports distributed *from the Incomes Register* are presented in Figure 13. In a record submitted by a payer to the Incomes Register, the record details and payment details (pay period details, payer details) are provided only once and apply to all reports in the record. Records distributed from the Incomes Register containing earnings payment reports typically comprise reports submitted to the Incomes Register in many different records, so the payment details are report-specific in records distributed to data users. Similarly, the general record details forwarded to data users are report-specific.

The record distributed to a data user also contains record-specific general query details, such as data on the time and parameters of the query, as well as query summary data.

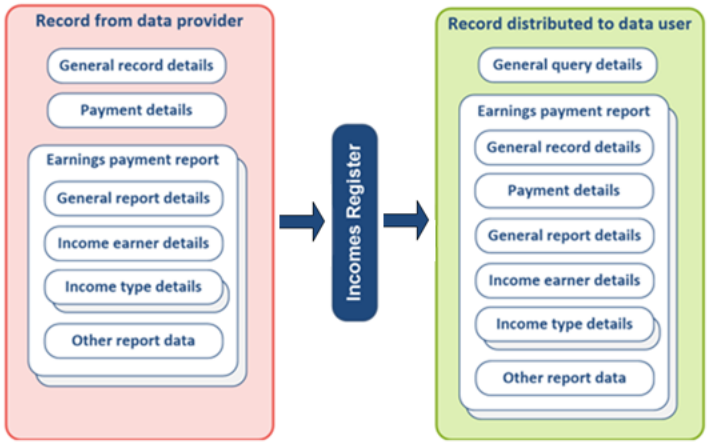


*Figure 13. General structure of a record containing earnings payment reports*

The structure of the record containing **employer's separate reports** or **benefits payment reports** submitted *to the Incomes Register* as well as the structure of the record containing employer's separate reports or benefits payment reports distributed *from the Incomes Register* match the structure of the record containing earnings payment reports. In the record submitted to the Incomes Register, the record details and payment details (e.g. payer details) are only provided once and will apply to all reports in the record. Records containing reports distributed from the Incomes Register typically comprise reports submitted to the Incomes Register in many different records, so the general record details and payment details are report-specific in records distributed to data users.

### 9.5 Data Submitting and distribution via the SFTP interface

#### 9.5.1 Submitting data via the SFTP interface

The principle of submitting data via the SFTP interface is presented in Figure 14.

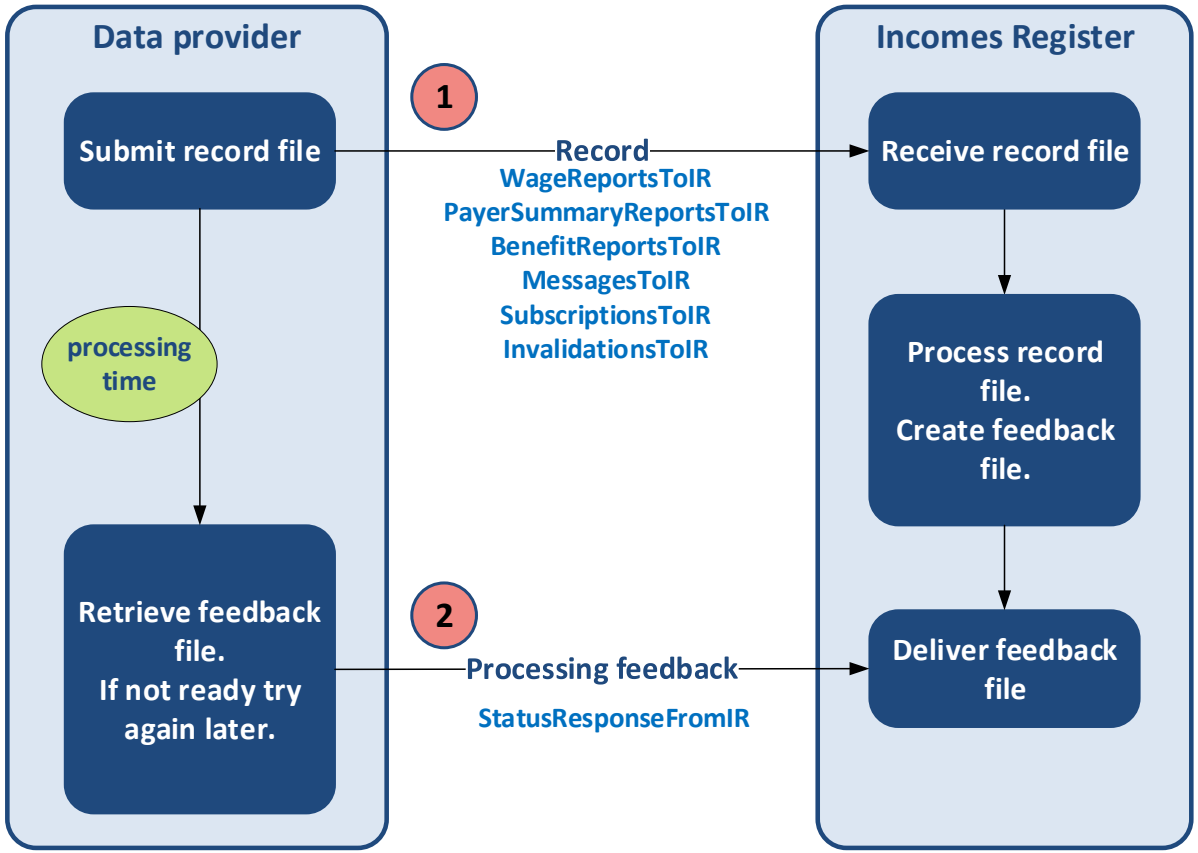


*Figure 14. Submitting data via the SFTP interface.*

The data provider creates a record file and submits it to the Incomes Register.

The Incomes Register receives the record file and processes the data contained in the file. The Incomes Register creates a processing feedback file (see the section ”Processing feedback”). The processing feedback contains information on the correct and incorrect data in the record, as well as an itemised list of any errors detected during processing. The Incomes Register saves the feedback file in the Incomes Register for retrieval by the data provider.

The data provider retrieves the feedback file. The record processing delay in the Incomes Register should be taken into account when deciding the time of retrieval. The data provider should be prepared for the possibility that if the feedback file has not been completed by the retrieval time, retrieval will have to be re-attempted after some time has passed.

### 9.5.2 Distribution of data via the SFTP interface

The principle of data distribution via the SFTP interface is presented in Figure 15.

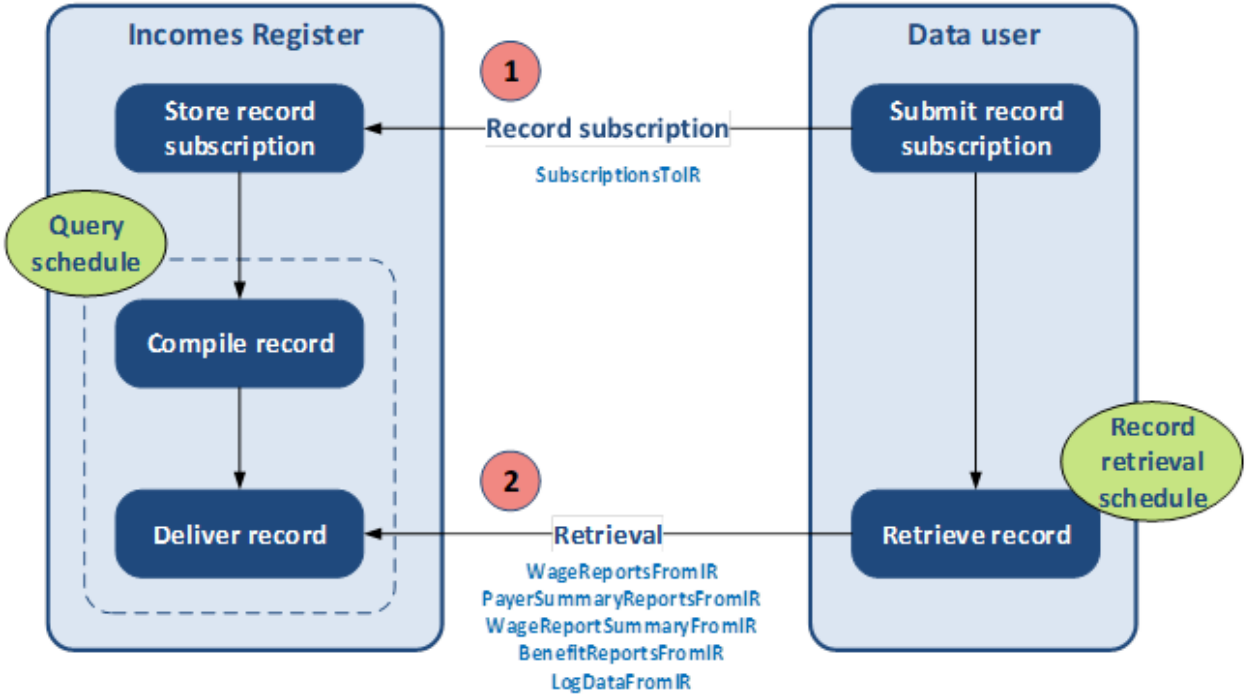


*Figure 15. Distribution of data via the SFTP interface*

The data user submits a record subscription to the Incomes Register. The record subscription can be submitted via the technical service interface or saved in the e-service.

The Incomes Register launches a data query in accordance with the query schedule specified in the record subscription. The Incomes Register compiles the record and saves it in the Incomes Register for retrieval by the data user.

The data user retrieves the record in accordance with the record retrieval schedule. The retrieval schedule must be harmonised with the selection schedule and must take into account the period of time required for the compilation of the record in the Incomes Register. The data user should be prepared for the possibility that if the record has not been prepared by the time of retrieval, retrieval will have to be re-attempted after some time has passed.

If the record subscription is a recurrent subscription, the compilation, distribution and retrieval of the record are repeated regularly in accordance with the query and retrieval schedule.

## 9.6 Data submitting and distribution via the Web Service interface

### 9.6.1 Submitting data via the deferred Web Service interface

The principle of submitting data via the deferred Web Service interface is presented in Figure 16.

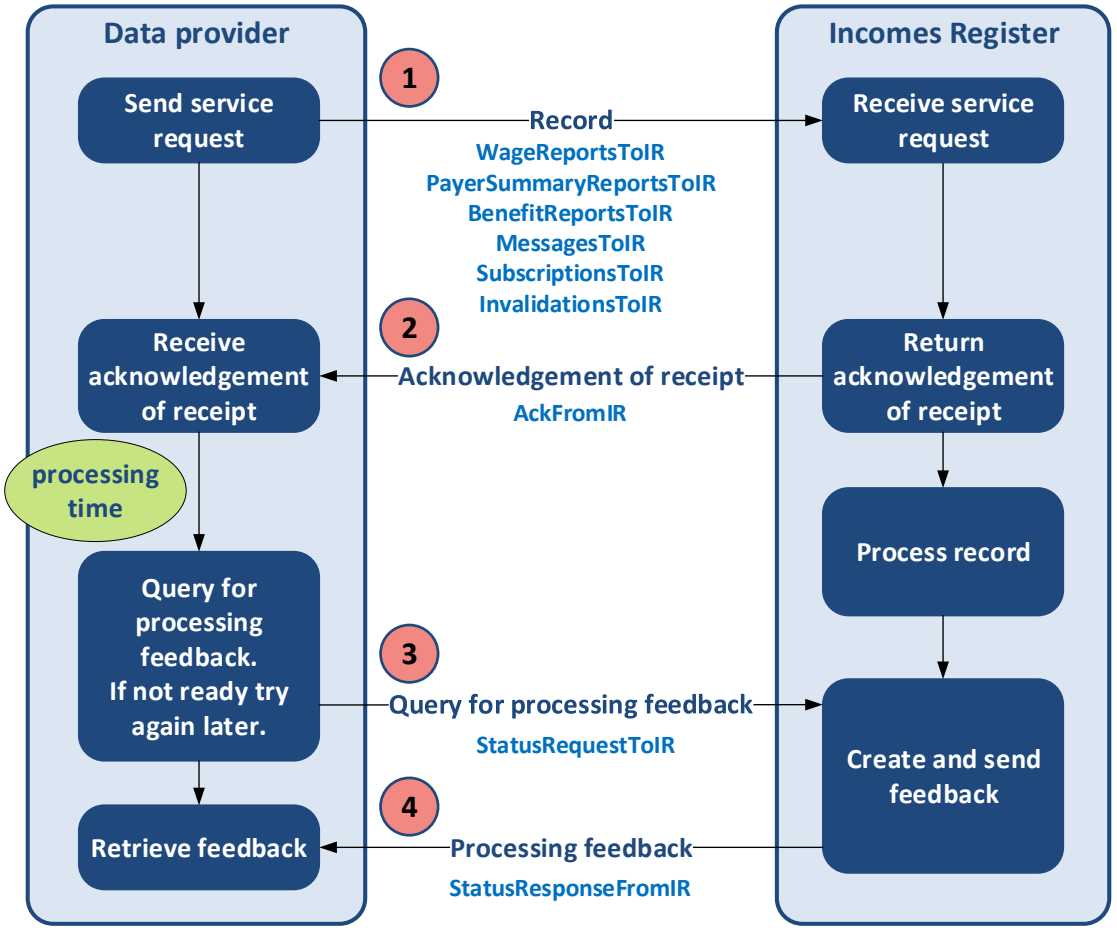


*Figure 16. Submitting data via the deferred Web Service interface.*

The data provider sends the record to the Incomes Register's technical interface using a WS service request (deferred). The Incomes Register sends a synchronous acknowledgement of receipt as a response to the service request (see the section ”Acknowledgement of receipt”). The acknowledgement of receipt contains an itemised list of any errors detected upon receiving the service request.

The Incomes Register processes the record.

The data provider sends a query for the processing feedback to the Incomes Register's technical interface using a WS service request (see the section ”Query for the processing feedback”). The Incomes Register generates the processing feedback and sends it synchronously to the data provider (see the section ”Processing feedback”). If the Incomes Register has already processed the record, the processing feedback will contain information on the correct and incorrect data in the record, as well as an itemised list of any errors detected during processing. If the Incomes Register has not yet processed the record, the processing feedback will state that the processing of the record is still ongoing. In such a case, the data provider will have to resend the query for processing feedback after some time has passed.

The deferred WS interface can be used as an alternative to the SFTP interface.

### 9.6.2 Submitting data via the real-time Web Service interface

The principle for submitting data via the real-time Web Service interface is presented in Figure 17.

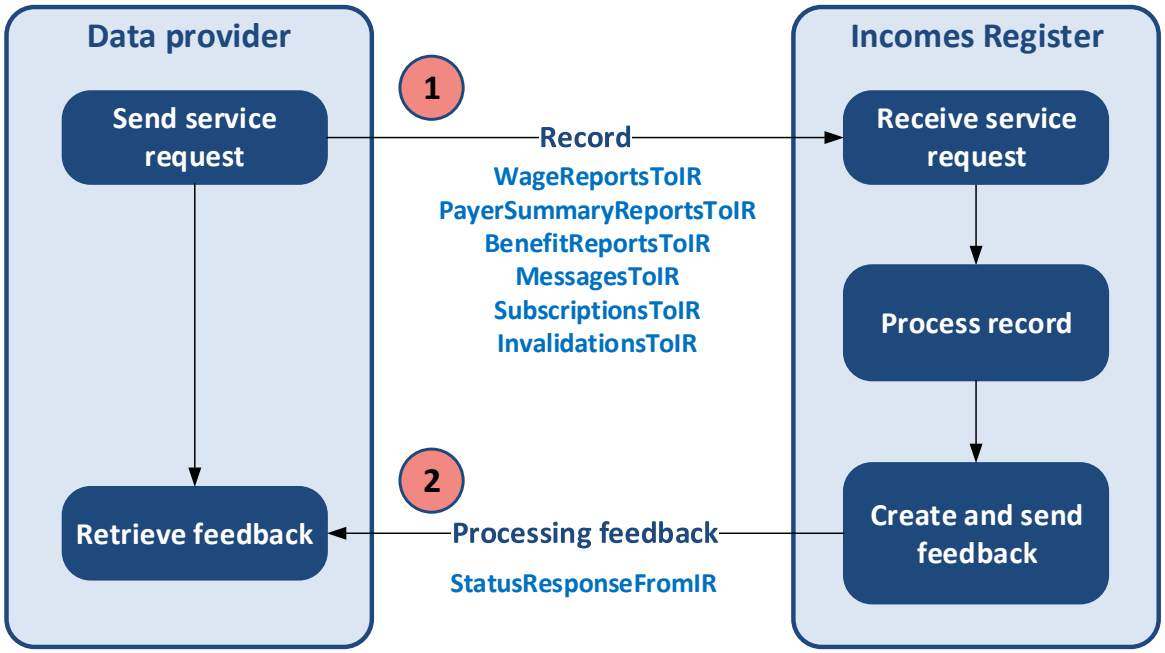


*Figure 17. Submitting data via the real-time Web Service interface.*

The data provider submits the record to the Incomes Register's technical interface using a WS service request (real-time).

The Incomes Register receives the service request and processes the record. The Incomes Register creates the processing feedback and sends it to the data provider (see the section "Processing feedback"). The processing feedback contains information on the correct and incorrect data in the record, as well as an itemised list of any errors detected during processing. The data provider receives a synchronous response to the service request.

### 9.6.3 Distribution of data via the real-time Web Service interface

The principle of data distribution via the real-time Web Service interface is presented in Figure 18.

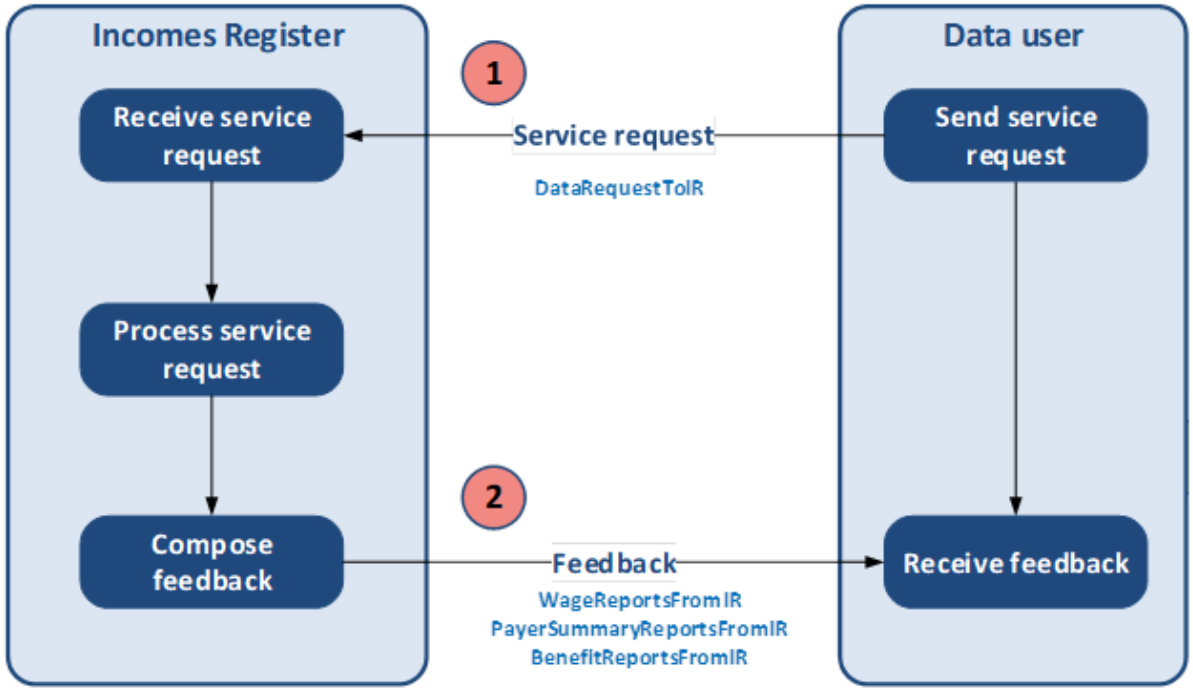


*Figure 18. Distribution of data via the real-time Web Service interface.*

The data user sends a real-time synchronous WS service request to the technical interface of the Incomes Register. The real-time WS interface is intended for use in situations where the need for information is direct and specific. Real-time services can be used, for example, when integrating the data user's own user interface application with Incomes Register services in order to retrieve up-to-date information to the data user's own user interface.

The Incomes Register receives a service request, selects the data requested, and compiles a response for the subscriber. The data user receives synchronous feedback as a reply to the service request.

# 10 GENERAL INFORMATION ON SUBMITTING AND DISTRIBUTION DATA

## 10.1 General information on submitting data

### 10.1.1 General record details

Data is submitted to the Incomes Register via the technical interface as **records**. This section presents some general record details included in the schema. See the schema description for the full data contents record type specifically.

**Record type (DeliveryDataType)**

The record type indicates what data the record contains (new and replacement earnings payment reports, new and replacement employer's separate reports, new and replacement benefits payment reports, a record subscription, various cancellation data).

**Record owner's record reference (DeliveryId)**

The record owner (DeliveryDataOwner, see section "Data provider") uniquely identifies the records submitted to the Incomes Register using the record owner's record reference. The reference must identify the record owner's records *record type specifically* (DeliveryDataType).

*Examples:*

The owner of a record containing earnings payment reports (DeliveryDataType=100) is the same as the payer. Two records containing earnings payment reports from the same payer cannot be submitted to the Incomes Register using the same record owner's record reference.

The owner of a record containing employer's separate reports (DeliveryDataType=101) is the same as the payer. Two records containing employer's separate reports from the same payer cannot be submitted to the Incomes Register using the same record owner's record reference.

The owner of a record containing benefits payment reports (DeliveryDataType=102) is the same as the payer. Two records containing benefits payment reports from the same payer cannot be submitted to the Incomes Register using the same record owner's record reference.

The owner of a record containing cancellations of earnings payment reports (DeliveryDataType=105) is the same as the payer. Two records containing cancellations of earnings payment reports from the same payer cannot be submitted to the Incomes Register using the same record owner's record reference.

The owner of a record containing cancellations of benefits payment reports (DeliveryDataType=107) is the same as the payer. Two records containing cancellations of benefits payment reports from the same payer cannot be submitted to the Incomes Register using the same record owner's record reference.

The submitter of the record can use the record owner's record reference to allocate the acknowledgement of receipt and processing feedback from the Incomes Register to the submitted record.

**Rule for processing invalid data (FaultyControl)**

This rule is used to control the processing of a record in the event that it contains both valid and invalid data. Based on the rule, the record as a whole may be rejected if it contains invalid data or, alternatively, the valid data can be saved in the Incomes Register while only the invalid data is rejected.

If, for example, a record containing earnings payment reports or benefits payment reports requests the saving of valid reports should the record also contain invalid reports, the Incomes Register saves the reports with valid data contents and rejects the reports found to contain invalid data.

**Production environment (ProductionEnvironment)**

This information states whether the record is intended for the production environment or the test environment. The information is used to prevent the accidental reception of a record in the wrong environment.

### 10.1.2 Data provider

The data provider is described in the general record details with three separate data items: record owner, record creator and record submitter.

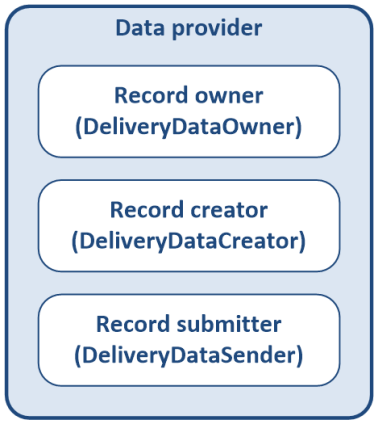


*Figure 19. Details of the data provider.*

**Record owner (DeliveryDataOwner)**

The record owner is the organisation that owns the data contained in the record.

The owner of a record containing earnings payment reports, employer's separate reports, benefits payment reports and their cancellations is the same as the payer. If the payer does not have a customer ID, the record creator (DeliveryDataCreator) is entered as the record owner.

The owner of a record containing record subscriptions and their cancellations is the organisation that submitted the record subscription. Record subscription queries use the data access rights of the record owner.

**Record creator (DeliveryDataCreator)**

The record creator is the operator that produced the record file. The record creator can be the payer or the payer's service provider.

The record creator must sign the record electronically using a certificate issued by the Incomes Register authority. If the record creator is a different party than the record owner, the record creator must have the authorisation of the Incomes Register to submit records.

**Record submitter (DeliveryDataSender)**

The record submitter is the operator that submitted the record file to the Incomes Register. The record submitter can be the payer or the payer's service provider. According to the current specification, the record submitter must be the same as the record creator (the original specification prepared for a need for three actors).

#### 10.1.3 Processing order of records

The Incomes Register processes the records in their order of arrival. Records submitted via the SFTP interface are processed in the order in which the record files were received. Records submitted via the Web Service interface are processed in the order in which the service requests were received. The time at which the record has been fully transferred to the Incomes Register is considered to be the time of reception of a file or a service request.

If different records have interdependencies from the perspective of data processing, the record submitter must ensure that the next record is not submitted to the Incomes Register before the Incomes Register has acknowledged the receipt of the previous record. If, for example, a record containing new earnings payment reports or benefits payment reports is submitted to the Incomes Register, a second record containing replacements or cancellations of the same reports must not be submitted before an acknowledgement of receipt has been received for the first record.

#### 10.1.4 Division of records

A record to be submitted to the Incomes Register cannot be divided into parts. If there is a large amount of data, it must be submitted in separate records, each with its own record reference.

#### 10.1.5 Codesets

The codes linked to the data content of the technical interface messages are described in separate documents.

### 10.2 General information on data distribution

#### 10.2.1 Customer's identifying data

##### 10.2.1.1 Identifier country code as a query criterion

If the customer specified as the record query criterion has been identified by a Finnish identifier (Business ID or a Finnish Personal Identification Number) in the record subscription or the WS service request, the country code potentially specified as a query criterion with regard to the identifier will not be taken into account as a query criterion when querying the record. If the customer specified as a query criterion has been identified in the record subscription or the WS service request by some other identifier, the identifier's country code will be taken into account as a query criterion in the query.

**Example 1:**

The income earner's identifier has been specified in the record subscription as the earnings payment report's query criterion:

- Customer identifier type: Finnish Personal Identification Number
- Customer identifier: 010180-XXX
- Identifier country code: FI

or alternatively the income earner's identifier:

- Customer identifier type: Finnish Personal Identification Number

- Customer identifier: 010180-XXX

Based on the record subscription, the earnings payment reports in which the income earner has been identified by the Finnish Personal Identification Number 010180-XXX are queried. In both cases, the reports queried for the record will include both the earnings payment reports for which a country code is provided in connection with the income earner's Finnish Personal Identification Number as well as the earnings payment reports for which a country code is not provided.

**Example 2:**

The income earner's identifier has been specified in the record subscription as the earnings payment report's query criterion:

- Customer identifier type: Foreign Personal Identification Number
- Customer identifier: 60077802430970
- Identifier country code: ES

Based on the record subscription, the earnings payment reports in which the income earner has been identified by the foreign Personal Identification Number 60077802430970 are queried. Only the earnings payment reports in which the country code ES has been provided in connection with the income earner's foreign Personal Identification Number are queried for the record.

#### 10.2.1.2 Business ID and a Finnish Personal Identification Number for the same customer

If both the Finnish Personal Identification Number and Business ID of the same customer are saved in the Incomes Register, the register will not link data reported under these different identifiers. The Incomes Register will provide the data users only the income data in accordance with the identifier (payer/income earner) specified as the query criterion.

The data user must make separate queries if they need income data reported for the income earner under both the Finnish Personal Identification Number and the Business ID linked to it. Correspondingly, the data user must make separate queries if they need income data with the Business ID as the payer or the Personal Identification Number linked to the Business ID as the payer. This data can be requested on the same record subscription.

#### 10.2.1.3 Substitute payer

If a payer is specified as the query criterion for a record containing earnings payment reports in a record subscription or a WS service request and nothing else is determined in connection with the record content, the record will include the earnings payment reports, where:

- the payer specified as the query criterion has been reported as the payer (the Payer data group), or
- the payer specified as the query criterion has been reported as the employer (the SubstitutePayer data group).

#### 10.2.1.4 Data access rights

The Incomes Register distributes data in accordance with the data users' data access rights.

The data access profiles of the data users and the data released via the technical interface in compliance with such profiles are defined in the data access rights of the Incomes Register. The data access profiles are named and the data distributed based on them is defined party-specifically. There is no limitation to the party-specific number of data access profiles. As many data access profiles with different contents as are needed to meet the needs of the data user organisation's business processes and the related data access rights can be created for each data user organisation. Records can then be subscribed to in accordance with these profiles via the technical interface.

Separate data access profiles are defined for different data sets. Separate party-specific data access profiles are specified for the data contents of the earnings payment report, the employer's separate report and the benefits payment report.

In a record subscription, the subscriber must specify the identifier of the data access profile according to which the record should be compiled. Correspondingly, a Web Service interface service request must include the data access profile according to which the service should return the data.

The principle of data access profiles is illustrated in Figure 5. The figure displays the profiles pertaining to the report's data content (profiles with simplified data content) for the data user organisations A and B (the principle of the data access profiles is similar for earnings payment reports, employer's separate reports and benefits payment reports). The profile lists the data released to each user organisation in accordance with the profile. Since the data access profile used by the organisation filters the data distributed and disclosed to data users, under certain conditions the content of some reports can be limited. In the figure, data user organisation A has three data access profiles, the data contents of which can be freely defined within the organisation's data access rights. In principle, two different organisations can have profiles with the same name, but organisation-specific data contents (profile Z in the figure).

The data access rights of a user organisation can also be affected by the *data contents*. For example, the *value* of the reason code for absences reported on an earnings payment report will determine whether the reason code is distributed to a user organisation, if the reason code is included in the profile applied to the query.

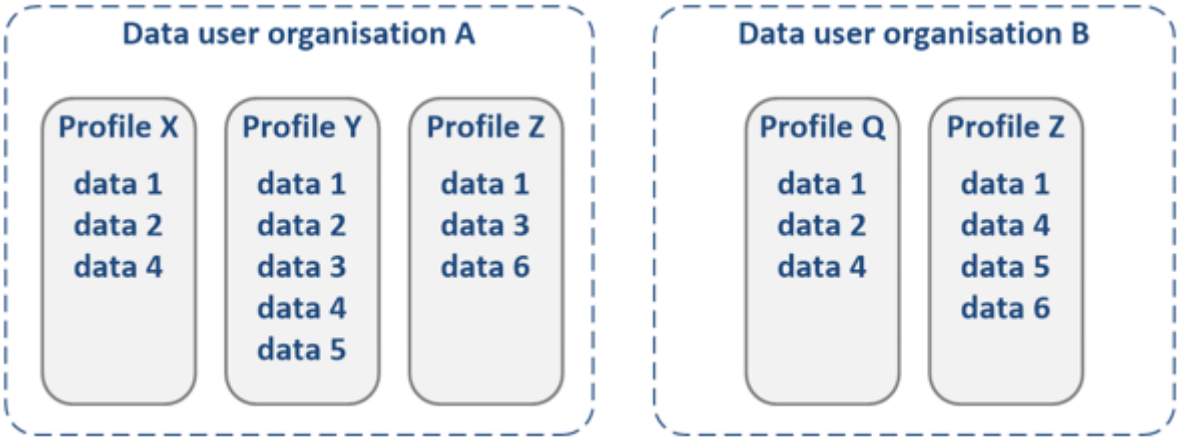


*Figure 20. Data release in accordance with data access profiles.*

The data released to a party is also affected by party-specific restrictions related to, for example, the income earner's age.

### 10.2.2 Data identifying information

#### 10.2.2.1 Earnings payment report, employer's separate report, benefits payment report

Below, a report will refer to an earnings payment report, employer's separate report or benefits payment report. The principle of identifying information and replacing or cancelling the report is the same for all report types.

The payer uniquely identifies the report using a payer's report reference (ReportId). The payer's report reference uniquely and report type-specifically identifies all reports submitted by a specific payer. The payer may use the same payer's report reference, for example, in an earnings payment report and a benefits payment report because they have different report types.

The Incomes Register assigns a unique *Incomes Register report reference* (IRReportId) to the report. The Incomes Register report reference uniquely identifies all reports in the Incomes Register. It is recommended that data users use the Incomes Register report references as the identifying information of reports in their own systems.

The Incomes Register assigns *version number* 1 (ReportVersion) to a new report. The *status* of the new report is ”Valid”.

Together, the Incomes Register report reference and version number uniquely identify the report version.

When a payer maintains the report data and submits a *replacement* report to the Incomes Register, the Incomes Register creates a new version of the report and assigns it a version number one greater than the version number of the replaced report. The Incomes Register report reference and the payer's report reference remain unchanged from the previous version of the report. The status of the new report version is “Valid”.

When a payer submits a *cancellation* report to the Incomes Register, the Incomes Register creates a new version (with identical data content to the previous report version) and assigns it a version number one greater than the version number of the cancelled report. The Incomes Register report reference and the payer's report reference remain unchanged from the previous version of the report. The status of the new version of the report is "Cancelled".

The earlier versions of the report are not maintained in connection with a replacement or a cancellation. This being the procedure, data users can subscribe to new and revised reports from the Incomes Register – such as a recurrent subscription queried daily – and the Incomes Register is able to query the report versions submitted to the Incomes Register within the desired time period based on the timestamps for change.

The status and identifying information of a report in connection with the replacement and cancellation of the report are illustrated in Figure 21.

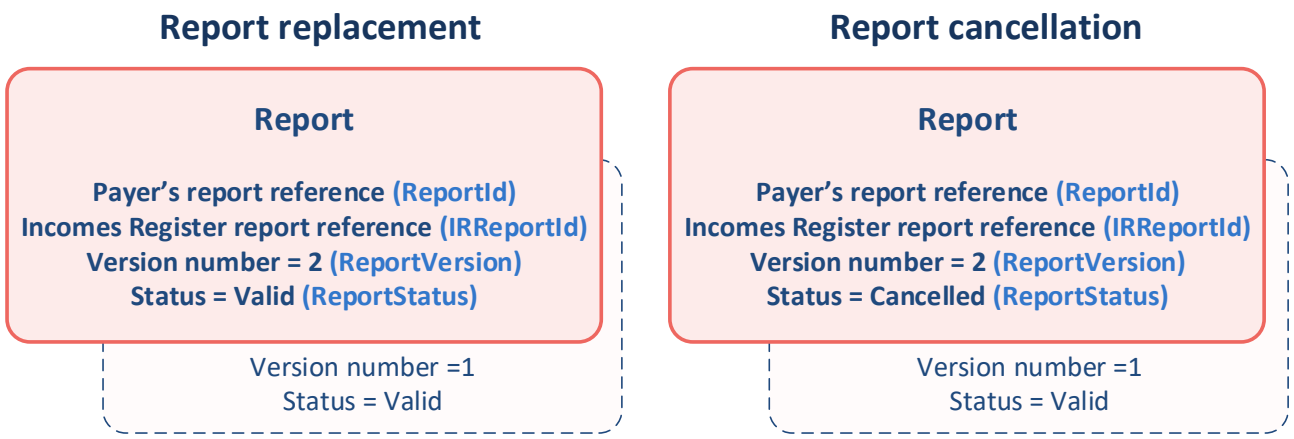


*Figure 21. The identifying information and version numbering of a report.*

When downloading a report to its own system via the technical interface, the data user must check whether there is already a report with the same Incomes Register report reference in its system:

- If no previously downloaded report with the same Incomes Register report reference is found, the data user saves the report. The version number of the downloaded report may be greater than 1, if the report has not been distributed to the data user before, and several versions of the report have been created in the Incomes Register. The version number can also be greater than 1 if the data user did not have data access rights to the previous versions of the report.
- If a previously downloaded report with the same Incomes Register report reference is found, the data user must check that the report version now being downloaded *has a greater version number* than the report version already found in the user's system.
    - If the version number is greater, the data user saves the new report version in their system (the new version replaces the old version).
    - If the version number is equal to (or less than) the version number of the existing report, the version being downloaded is the same as the existing version (or an expired version). The data user does not save the version in its own system.

The status of the report version distributed by the Incomes Register can be "Valid" or "Cancelled".

#### 10.2.2.2 E-service access log data

The Incomes Register uniquely identifies the access log events with *Incomes Register log event references* (IRLogEventId).

When downloading log events via the technical interface to their own system, the recipient should check whether there is already a log event in their system with the same Incomes Register access log event reference. If such a log event is found, the recipient does not need to save the log events, because the access log data never changes.

#### 10.2.2.3 Derived data

The principle behind the distribution of data via the technical interface is that the Incomes Register distributes the data as it was submitted to the Incomes Register (taking account of the data access rights of the data users).

According to this principle, the contents of the incomes payment reports distributed by the Incomes Register to data users are identical to those of reports submitted by the payers; the Incomes Register does not distribute any other data derived from the report data. The Incomes Register does not add up the report data in the records distributed via the technical interface; instead, data users themselves must generate the totals and other derived data required in their processes from the "raw data" provided by the Incomes Register. However, there can be sum level data in what are referred to as reconciliation records, distributed via the technical interface.

#### 10.2.2.4 Codesets

The codes linked to the data content of the technical interface messages are described in separate documents.

# 11 SELECTING THE CHANNEL AND RECOMMENDATIONS

## 11.1 Selecting the submitting channel for incomes payment reports

**The SFTP interface and the deferred WS interface** can be used to submit data volumes of different sizes. Either of these must be used when submitting medium-sized or large data volumes and when the submitting party does not require any real-time feedback on submitting the data.

As the Incomes Register processes data submitted via the SFTP interface and the deferred WS interface at the same rate, the selection of the channel depends on the data provider's technical solution.

**The real-time WS interface** is intended for use in situations where the data volume submitted to the Incomes Register is small and immediate processing feedback is needed. Real-time services can be used, for example, in the integration of the data provider's own user interface application with the Incomes Register's services, allowing the user to receive real-time feedback on the data submitted to the Incomes Register. The real-time WS interface is not intended for use in situations where a large quantity of data is submitted to the Incomes Register at any one time. For example, if a large number of earnings payment reports is generated when running payroll, the reports must be submitted to the Incomes Register either via the deferred WS interface or the SFTP interface.

**The web form of the Incomes Register's e-service** is intended for completing, correcting, and cancelling individual income payment reports. **The upload service** is intended for submitting records with a small number of reports. The e-service instructions describe when income payment reports should be submitted to the Incomes Register using the web form and when using the upload service and what needs to be taken into consideration.

### 11.1.1 Recommendations related to submitting data

#### 11.1.1.1 The number of reports in records

The Incomes Register recommends that the party submitting records parameterise the number of reports in records in their own system, i.e. define modifiable limits for the permitted number of reports in records. If thousands of reports are submitted to the Incomes Register, it is recommended that they be submitted in records consisting of approximately 3,000 reports. Even if the number of reports is smaller than the permitted quantity, the maximum file size set for records cannot be exceeded.

#### 11.1.1.2 Submitting times for records

If a very large number of reports needs to be submitted to the Incomes Register, such as more than 100,000 reports during a single day, it is recommended that the party submitting the reports contact the Incomes Register to set up a time for submitting the reports. The Incomes Register will recommend a submitting time to avoid any congestion and possibly resulting delays. Contacting the Incomes Register is always recommended when submitting large numbers, even if a large number of reports needs to be sent once, not repeatedly.

#### 11.1.1.3 Parallel submitting of data

If several records need to be submitted to the Incomes Register using a single SFTP account, it is recommended that the records be submitted one after the other. It is recommended that only one session at a time should be opened using a single SFTP identifier, a file should be sent and renamed, after which the next file can be sent.

#### 11.1.1.4 Retrieving feedback on records

After records have been submitted, it is recommended that a request for processing feedback be initiated no earlier than five minutes after submission. This recommendation applies to the deferred WS interface and the SFTP interface. On days when the Incomes Register is congested, i.e. large numbers of reports are received, processing the records

submitted may take several minutes. If processing feedback is not yet complete when it is requested the first time, it is recommended that the request not be repeated more frequently than every five minutes. If processing feedback is not received within two hours, please contact the Incomes Register Unit by completing the observation form.

### 11.2 Selecting the data distribution channel

Data is distributed from the Incomes Register via three different channels:

- SFTP channel
- real-time Web Service channel
- e-service

These channels are intended for different uses. All channels share the same data content, while what varies is the amount of data that can be returned at any one time. Another difference is whether data about one or more items can be retrieved at the same time. When selecting the data distribution channel and the method of use, the properties of the channels and these recommendations of the Incomes Register must be addressed.

The Incomes Register provides services for the mass distribution of data, extensive data searches, and individual requests. Even though the services are divided into real-time and subscription-based services, there is no significant difference in the service response times in many situations.

#### 11.2.1 SFTP channel and records distributed based on record subscriptions

By means of a record subscription, a payer or data user can subscribe to reports saved in the Incomes Register. Records distributed to the SFTP channel on the basis of a record subscription are made available for retrieval in the subscribing organisation’s SFTP folder. A record subscription can be submitted to the Incomes Register via the SFTP channel, Web Service channel, or the e-service’s upload service, or it can be generated using the e-service’s subscription form. Records conforming to the subscription are queried in accordance with the schedule and delivered to the retrieval folder. A record subscription can be a one-off or recurrent subscription.

The SFTP channel is suitable for the retrieval of data when

- data requests are recurrent, i.e. requests for similar data are placed repeatedly
- a subscription concerns several income earners or payers
- a large amount of data is returned through records.

If the need for data related to a person or company persists, it is recommended that the SFTP channel be used and a recurrent subscription (valid indefinitely or for a fixed term) or one-off subscription be placed. A one-off subscription always needs to be repeated when needed.

When the record subscription creator is authorised to act on behalf of the payer (record owner) and the record creator has been granted a separate authorisation by the payer, the payer’s records 312 and 313 to be shared at the interface are shared via the SFTP folder of the record subscription creator (DeliveryDataCreator). This only applies to the situation where a ‘Technical interface SFTP (Service provider acting on behalf of the payer)’ (DeliveryChannelCode=7) has been specified as the distribution channel.

#### 11.2.2 Using secondary subscriptions in record subscriptions

A record subscription consists of a primary subscription and secondary subscriptions. It is recommended that only one secondary subscription be used in a single record subscription. If data about several items is needed at the same time, the data must be subscribed to using a single record subscription. The subscription must address the maximum quantities defined in the query parameters and the Incomes Register's recommendations.

For example, if a single subscription needs to include data about several income earners or payers, it is recommended that a single primary subscription and a single secondary subscription be used (i.e. no separate primary subscriptions or several secondary subscriptions under a single primary subscription). Query criteria for a secondary subscription connected to the primary subscription include the identifiers of the desired income earners or payers and other related query criteria. All items added to a single subscription always have a single query time range for changes, which is defined in the primary subscription. Instead, other query criteria for income earners or payers, such as the time range of payment date provided separately for each income earner, may also differ from each other within a single subscription.

The record subscriber must note that the Incomes Register provides records which have been subscribed to through a single secondary subscription in query files named according to the secondary subscription in question. If data about several payers or income earners has been subscribed to through a secondary subscription, it will be delivered in the same query files.

Several secondary subscriptions can be connected to a single record subscription, but this is not recommended. Several secondary subscriptions should only be used if the records subscribed to through secondary subscriptions must be received at the same time. In this case, it should be noted that the query records provided for the first secondary subscription are only delivered after the final secondary subscription has been completed. The use of more than five secondary subscriptions under a single record subscription is not recommended at all.

#### 11.2.2.1 The number of query criteria in a record subscription

At most 10,000 query criteria can be set for a record subscription (maximum quantities are described in the document Technical interface – Application guidelines). However, it is recommended that at most 3,000–5,000 income earner or payer identifiers be provided for a single secondary subscription as a query criterion. It is recommended that any higher quantities be divided into separate primary subscriptions.

Query criteria also include record-specific limitations, for example, regarding different time ranges and their use. These limitations are described separately for each record later in this document.

The Incomes Register recommends that you specify the query time range for changes every time you make a subscription. If you do not specify it, the query time range for changes in the case of earnings payment data will be 1 January 2019–query time and in the case of benefits payment data 1 January 2021–query time.

#### 11.2.2.2 Retrieving records

The record query date and time are determined in accordance with the query schedule. The generated record is queried and generated into a file after this date and time and delivered to the subscribing organisation's SFTP folder for retrieval. The elapsed time is affected by the volume of queried data, the complexity of the search and current loads in the system. The retrieval of records should not be attempted before the query date and time in accordance with the query schedule. If records are not ready for retrieval at the retrieval time, it is recommended that the retrieval is not attempted more frequently than every five minutes.

#### 11.2.2.3 Services in the real-time Web Service channel

Real-time service requests, i.e. the real-time Web Service channel, can be used to search for data related to individual items. The object of the data search may be an individual income earner or payer. The Web Service channel is suitable for the retrieval of data when the need for the data is immediate and only applies to one item at a time. For example, such a situation could involve the data user's own system when the system user prepares an application or decision related to an individual income earner or payer in the user interface.

If data related to a single item is needed repeatedly, these requests should be placed via the SFTP channel. Furthermore, in situations where the data user processes several items using similar search terms in their own process, these requests must be connected to a single secondary subscription and the record subscription must be placed through the SFTP

channel. These situations include a daily recurring need to search for income data about a certain income earner or certain income earners or data about income paid by payers. If a single need applies to several items, these requests must also be connected to the same secondary subscriptions as described in Section 5.1.1.

#### 11.2.2.4 E-service

Individual data can also be searched for using the e-service's search. The e-service's data search works best when data is needed infrequently and, for example, when individual data related to a payer or income earner is needed. When searching for data, it should be noted that the Incomes Register displays the data from reports. The search result is a list of reports, for which no summaries are generated. The reports found can be browsed one report at a time using the user interface. If a large number of reports are found, browsing will be time-consuming. The e-service's search function is described in the e-service instructions.

PDF or CSV reports generated on the basis of record subscriptions can also be retrieved from the e-service.

# 12 SUBMITTING REPORTS TO THE INCOMES REGISTER

## 12.1 General

Reports (Earnings payment report, employer's separate report and benefits payment report) are submitted to the Incomes Register as **records** that may contain several reports. When a record is submitted via the real-time Web Service interface, it can only contain one report.

The report can be a new report or a substitute report. Both new and substitute reports can be submitted in the same record. However, there can only be one instance of any individual report in the record. A new report and its substitute report cannot be submitted in the same record. Neither can more than one substitute report for the same report be submitted in the same record.

The schema of a record that contains new and substitute earnings payment reports in all submitting channels of the technical interface is **WageReportsToIR**, of a record that contains employer's separate reports is **PayerSummaryReportsToIR** and of a benefits payment reports is **BenefitReportsToIR**. The content of the schemas is described in the documents "Data delivery – Schemas – Earnings payment reports", "Data delivery – Schemas – Employer's separate reports" and "Data delivery – Schemas – Benefits payment reports". The same schemas are also used when submitting records via the e-service's upload service. This section describes the schema structure on a general level and presents some individual data items included in the schema. The full data contents are presented in the schema description.

Reports to be cancelled must be submitted with their own schema (see the section "Submitting cancellation data to the Incomes Register").

## 12.2 Record data

The general structure of a record containing earnings payment reports and submitted to the Incomes Register is presented in Figure 22, employer's separate reports in Figure 23 and benefits payment reports in Figure 24.

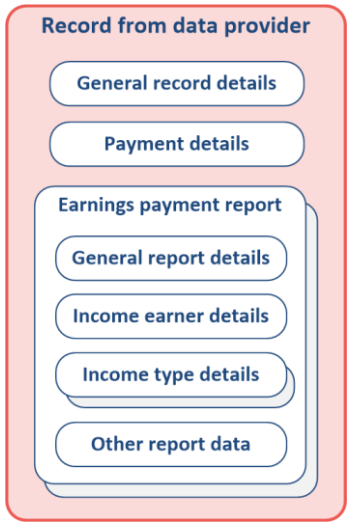


*Figure 22. Structure of a record containing earnings payment reports.*

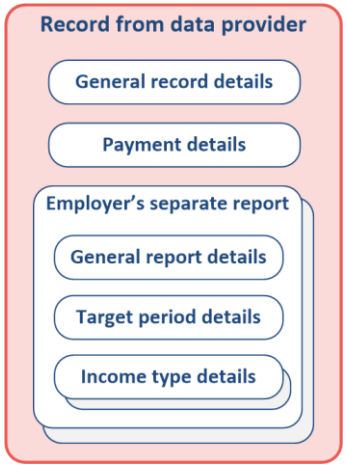


*Figure 23. Structure of a record containing employer's separate reports.*

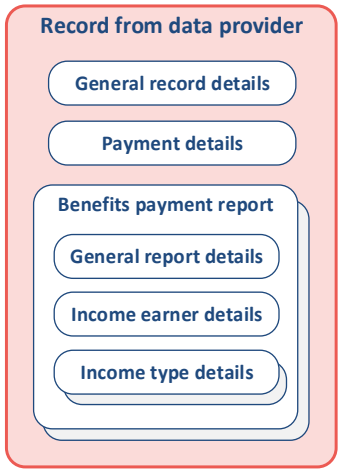


*Figure 24. Structure of a record containing benefits payment reports.*

### 12.2.1 General record details

The general record details are included in the record only once, and they apply to all reports submitted in the record. The general record details are presented in the section "General information on submitting data, General record details". The type of a record (DeliveryDataType) containing earnings payment reports is 100, the type of a record (DeliveryDataType) containing employer's separate reports is 101 and the type of a record (DeliveryDataType) containing benefits payment reports is 102.

### 12.2.2 Payment details

Payment details are included in the record only once, and they apply to all reports submitted in the record. Payment details include, for example, payer details, payment period details, and the details of the contact persons for the record.

### 12.2.3 General report details

The general report details are provided report-specifically in the record. The general details include the following information.

**Action type (ActionCode)**

The action type indicates whether the report is a new or replacement report.

**Incomes Register report reference (IRReportId)**

The Incomes Register assigns a unique Incomes Register report reference to the report. The reference uniquely identifies every report submitted to the Incomes Register. The reference is returned to the submitter with the record processing feedback.

The Incomes Register report reference can be used to allocate a replacement report to a report previously submitted to the Incomes Register. A replacement report can also be allocated to a previously submitted report using a payer's report reference.

**Payer's report reference (ReportId)**

The payer uniquely identifies a new earnings payment report using a payer's report reference. The payer's report references of all earnings payment reports submitted by the payer in question must be unique. If the payer submits more than one earnings payment report using the same reference, the Incomes Register will return an error.

The payer can allocate the Incomes Register's acknowledgement of receipt and processing feedback to the submitted report with the report reference.

The report reference can be used to allocate a replacement report to a report previously submitted to the Incomes Register. A replacement report can also be allocated to a previously submitted report using the Incomes Register report reference.

**Report version number (ReportVersion)**

The Incomes Register assigns version number 1 to a new earnings payment report, while the version number assigned to a replacement report is one higher than the version number of the report that was replaced. The version number is returned to the submitter with the record processing feedback.

The version number can be used when allocating a replacement report to a report previously submitted to the Incomes Register. If a version number is not used when submitting a replacement report, the Incomes Register will always perform the action on the latest version of the report. If the report has changed as a result of some other process or user action, the replacement may overwrite the changes made earlier (in another process). When using a version number in allocating a replacement, you can ensure that any changes made in a different process are not inadvertently overwritten and the replacement is made on the version intended by the submitter of the action.

### 12.2.4 Income earner details

The income earner details include information such as the income earner's identifier, name and address details.

### 12.2.5 Reporting period details

The reporting year and month of the report are specified in the reporting period details.

### 12.2.6 Income type details

Income type details include the income type code and other data to be reported income type specifically. One report may contain several income types.

### 12.2.7 Other report data

Other report data include information on absences and working abroad.

### 12.2.8 Replacement report

When a payer submits a new earnings payment report to the Incomes Register, the Incomes Register assigns version number 1 to the report. The status of the new report will be "Valid".

When the payer submits a replacement report to the Incomes Register, either the payer's report reference or the Incomes Register report reference must be included in the report. Both references may also be included. If the payer's report reference is provided in the report, it will be used to find the report to be replaced in the Incomes Register.

Correspondingly, if the Incomes Register report reference is provided in the report, it will be used to find the report to be replaced. If both report references are provided in the replacement report, they will both be used to find the report to be replaced (the AND operator).

If a version number is provided in the replacement report, it will be used to find the report to be replaced, in addition to the report reference data. The Incomes Register will check the version number provided in the replacement report against the latest version of the report in question in the Incomes Register. If an attempt is made to replace an outdated version of a report or a cancelled report, the Incomes Register will return an error.

The Incomes Register will replace the report by saving a new version of the report with the replacement data. The version number of the replacement report will be one higher than the version number of the replaced report. The payer's report reference and the Incomes Register report reference will remain unchanged. The status of the replacement report version will be "Valid". The data in the report version to be replaced will no longer be maintained.

The procedure for replacing an earnings payment report in the Incomes Register is illustrated in Figure 25.

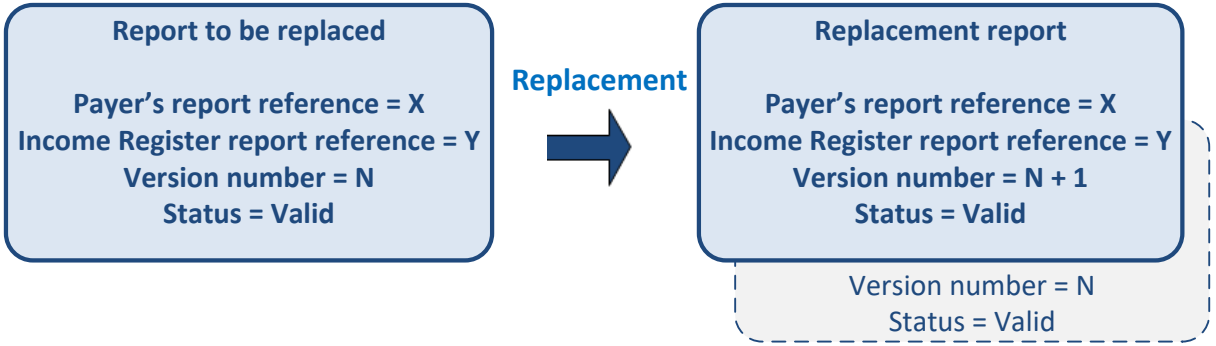


*Figure 25. Replacing an earnings payment report in the Incomes Register.*

# 13 SUBMITTING A RECORD SUBSCRIPTION TO THE INCOMES REGISTER

## 13.1 General

Record subscriptions are submitted to the Incomes Register as **records** that may contain only a single record subscription. The schema of a record that contains a record subscription is **SubscriptionsToIR** in all submitting channels of the technical interface. The contents of the schema are described in the document, "Data delivery – Schemas – Record subscriptions". The same schema is also used when submitting a record subscription via the e-service's upload service. This section describes the schema structure on a general level and presents some individual data items included in the schema. The full data contents are presented in the schema description.

A record subscription consists of a primary subscription and secondary subscriptions connected to it. A secondary subscription specifies the information on the subscribed record and the record query criteria. All secondary subscriptions connected to the primary subscription have the same validity period and are queried at the same time. During each query, a separate record is generated for each secondary subscription.

A record subscription can be cancelled or ended via the technical interface. The cancellation or ending is done with its own schema (see the section "Submitting cancellation data to the Incomes Register").

Other data of the record subscription cannot be maintained via the technical interface. A record subscription can be cancelled or ended in the e-service. Its last validity end date can also be set in the e-service.

## 13.2 Record data

The structure of a record containing a record subscription, to be submitted to the Incomes Register, is presented on a general level in Figure 26.

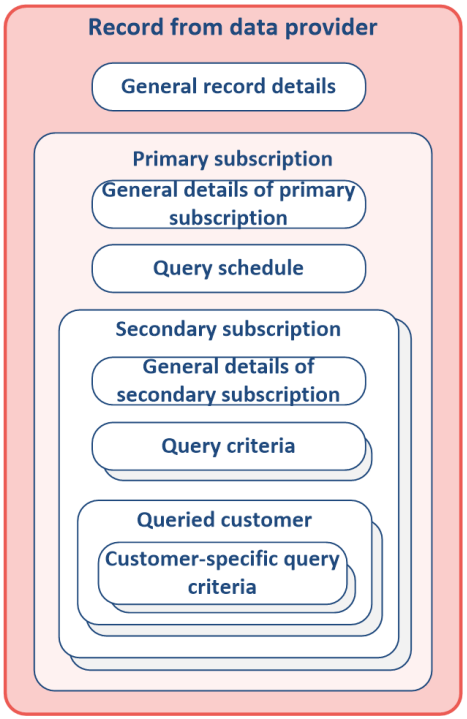


*Figure 26. Structure of a record containing a record subscription.*

### 13.2.1 General record details

The general record details are presented in the section "General information on submitting data, General record details". The type of a record (DeliveryDataType) containing a record subscription is 103.

Unlike other materials, the material order does not contain **Rule for processing invalid data (FaultyControl)** information.

### 13.2.2 General details of a primary subscription

The general details of a primary subscription include the following information.

**Subscriber's primary subscription reference (MainSubscriptionId)**

The subscriber uniquely identifies the primary subscription with the subscriber's primary subscription reference. All primary subscriptions submitted by the subscriber in question must have a unique subscriber's primary subscription reference. If the subscriber submits more than one record subscription using the same subscriber's primary subscription reference, the Incomes Register will return an error.

With the reference, the subscriber can allocate the Incomes Register's acknowledgement of receipt and processing feedback to the primary subscription they sent.

**Record subscription type (SubscriptionType)**

A record subscription is either a one-off or recurrent subscription.

A one-off subscription is queried in accordance with the query schedule specified in the primary subscription only once. All secondary subscriptions connected to the primary subscription are queried simultaneously. A one-off subscription is used if the need for the query of the records subscribed to is 'one time only' or if the subscriber wishes to specify different query criteria for different queries.

In a recurrent subscription, a query is made repeatedly in accordance with the query schedule during the validity period of the primary subscription. All secondary subscriptions connected to the primary subscription are queried simultaneously. The query scheduling alternatives for a recurrent subscription are described in the Query schedule section.

The record queries of a recurrent subscription use the same query criteria in each query, Query criteria involving chronological filtering, which are automatically updated by the system during the query for the next query, form the exception to this.

**Distribution channel (DeliveryChannelCode)**

The distribution channel to which the queried records are delivered. All records queried based on secondary subscriptions connected to the primary subscription are delivered to the same distribution channel. The distribution channel of records generated based on record subscriptions and distributed via the technical interface is SFTP. Some records – e.g. transcripts in PDF format – can be subscribed to for retrieval from the file upload service.

**Validity start date (ValidFrom)**

The type of the record subscription is *one-off subscription*: Secondary subscriptions connected to the primary subscription are queried on the start date of validity at the query time specified in the query schedule.

The type of the record subscription is *recurrent subscription*: The first query for the secondary orders connected to the primary subscription is performed at the next scheduled query time following the validity start date. If, for example, the query is scheduled to be performed each Friday at 19:00, and the validity start date 1 January 2019 is a Tuesday, the first query will be performed on the first Friday following 1 January 2019 at 19:00.

**Validity end date (ValidUntil)**

The type of the record subscription is *one-off subscription*: The information is not relevant.

The type of the record subscription is *recurrent subscription*: If the primary subscription should remain valid until further notice, the validity end date is left blank. The last query for the secondary orders connected to the primary subscription is performed at the last scheduled query time before the validity end date.

The end date of the validity period can be maintained via the e-service.

**Start and end of query time range for changes (ModifiedTimespanStart, ModifiedTimespanEnd)**

If the record type specified in a secondary subscription connected to the primary subscription requires the entry of a query time range for changes as a query criterion, the record will only include new and changed data submitted to the Incomes Register on or after the date and time specified by the start of the query time range for changes. Correspondingly, the record will only include new and changed data submitted to the Incomes Register before the date and time specified by the end of the query time range for changes (the end time excluded).

The query time range for changes specified in the primary subscription is used in the queries of all secondary subscriptions connected to the primary subscription; this means that all records will include the changes made during the same time range.

*One-off-subscription*:

- The start and end of the query time range for changes (if the end has been specified) must be before the query time. The query time means the start date of the validity of the primary subscription and the time of day of the query defined in the query schedule.
- If the end of the query time range for changes has been specified in the primary subscription, the record will include new and changed data submitted to the Incomes Register during the time range defined by the start and end of the query time range for changes (excluding the end time).
- If the end of the query time range for changes has not been specified in the primary subscription, the record will include new and changed data submitted to the Incomes Register during the time range between the start of the query time range for changes and the query time (the query time excluded). The query time means the start date of the validity of the primary subscription and the time of day of the query defined in the query schedule.

*Recurrent subscription*:

- The start of the query time range for changes specified for the primary subscription must be before the first scheduled query time. The end of the query time range for changes cannot be specified in the primary subscription.
- In the first query, the record will include the new and changed data submitted to the Incomes Register during the time range defined by the start of the query time range for changes and the first scheduled query time (the query time excluded).
- In subsequent queries, the record will include the new and changed data submitted to the Incomes Register during the time range defined by the end of the previous query time range for changes (the end time included) and the scheduled query time (the query time excluded).

*Example:*

The intention is that the record is queried once per day and contains all earnings/benefits payment reports submitted to the Incomes Register since it started operations on 1 January 2019. Submit a primary subscription (recurrent subscription) and a connected secondary subscription with the "Earnings payment reports – all income earners"/"Benefits payment reports – all income earners" record type.

When the record subscription is submitted, the start of the query time range for changes in the primary subscription is specified as 1 January 2019 at 00:00. The query is scheduled at 22:00 every day. The primary subscription will be valid from 1 January 2019 until further notice.

The first query will be initiated in the Incomes Register on 1 January 2019 at 22:00. The record will include the new and changed earnings/benefits payment reports submitted to the Incomes Register in the time range from 00:00 on 1 January 2019 to 22:00 on 1 January 2019 (excluding the end time).

The second query will be initiated in the Incomes Register on 2 January 2019 at 22:00. The record will include the new and changed earnings/benefits payment reports submitted to the Incomes Register in the time range from 22:00 on 1 January 2019 to 22:00 on 2 January 2019 (excluding the end time).

Daily queries will continue as above during the entire validity period of the primary subscription.

### 13.2.3 Query schedule

The query schedule is described in the section "Query schedule information".

### 13.2.4 General details of a secondary subscription

The general details of a secondary subscription include the following information.

**Subscriber’s secondary subscription reference (SubscriptionId)**

The subscriber uniquely identifies the secondary subscription with the subscriber's secondary subscription reference. The reference uniquely identifies the secondary subscriptions connected to a single primary subscription. If the subscriber submits more than one secondary subscription connected to the same primary subscription using the same subscriber's secondary subscription reference, the Incomes Register will return an error.

**Record type (QueryDataType)**

The type of record subscribed to, e.g. "Earnings payment reports – all income earners" or "Benefits payment reports – all income earners".

**Data access profile (QueryProfile)**

The data access profile determines the data (e.g. in an earnings payment report/employer's separate report/benefits payment report) included by the query in the subscriber’s (DeliveryDataOwner) record. Records can only be subscribed to in compliance with the data access profiles defined in the Incomes Register for the party.

**Query all report versions (IncludeAllVersions)**

This entry controls whether to include only the latest version of the reports submitted to the Incomes Register during the specified query time range for changes, or to include all report versions submitted to the Incomes Register within the specified query time range for changes. This information is only used in record subscriptions for income data.

**Record schema version (QueryDataSchemaVersion)**

The schema version of the queried record.

#### 13.2.5 Query criteria

The query criteria are record type specific, and they are described in connection with the presentation of the queried records in the document, "Technical interface – Distribution of data from the Incomes Register".

#### 13.2.6 Queried customers

The information on the queried customers is record type specific, and it is described in connection with the presentation of the queried records in the document, "Technical interface – Distribution of data from the Incomes Register".

### 13.3 Query schedule information

#### 13.3.1 One-off subscription

A one-off subscription is queried in accordance with the scheduled query time only once. All secondary subscriptions connected to the primary subscription are queried simultaneously and from the same query time range for changes. The query time determines the earliest point in time (date and time) at which the query is be initiated. The Incomes Register initiates the query as soon as possible after the specified query time.

Query time information in an one-off subscription:

| Data element | Allowed value | Label |
|---|---|---|
| MainSubscription/ValidFrom | | Date of the query |
| MainSubscription/Schedule/OnetimeDeliverySchedule/Time | | Time of the query |

*Table 9. Query time information in an one-off subscription.*

### 13.3.2 Recurrent subscription

A recurrent subscription is queried repeatedly in accordance with the specified query times during the validity period of the primary subscription. All secondary subscriptions connected to the primary subscription are queried simultaneously and from the same query period for modified reports. The query time determines the earliest point in time at which the query is initiated in the Incomes Register. The Incomes Register initiates the query as soon as possible after the specified query time.

The query schedule for a recurrent subscription is one of the following:

- daily schedule
- weekly schedule
- monthly schedule.

*According to the **daily schedule,** the query is performed daily at the times specified in the query schedule during the validity period of the primary subscription.* There must be at least one time, and there can be several per day. The minimum time between queries is record type specific.

A daily schedule can be used in situations such as the following:

- The intention is to query the records every day at 21:00. One query time is defined for the primary subscription.
- The intention is to query the records every day at 9:00, 15:00 and 21:00. Three query times are defined for the primary subscription.

The data of the query times in accordance with a daily schedule in a recurrent subscription:

| Data element | Allowed value | Label |
|---|---|---|
| MainSubscription/ValidFrom | | Start date of the validity of the primary subscription. |
| MainSubscription/ValidUntil | | End date of the validity of the primary subscription. |
| MainSubscription/Schedule/RecurringDeliverySchedule/DailySchedule/queriestartTime | | Query times.<br>Several times can be given. |
| …/Time | | Query time. |

*Table 10. The data of the query times in accordance with a daily schedule in a recurrent subscription.*

*According to the **weekly schedule,** the query is made on weekdays at the times defined in the query schedule during the validity period of the primary subscription*. Query times cannot be defined day-specifically; the query is performed at the same time on each day. There must be at least one time, and there can be several per day. The minimum time between queries is record type specific.

A weekly schedule can be used in situations such as the following:

- The intention is to query the records every Friday at 21:00. The query day is specified as Friday and the query time as 21:00.
- The intention is to query the records every day from Monday to Friday at 13:00 and 23:00. Monday, Tuesday, Wednesday, Thursday and Friday are specified as the query days, with two query times.

The data of the query times in accordance with a weekly schedule in a recurrent subscription:

| Data element | Allowed value | Label |
|---|---|---|
| MainSubscription/ValidFrom | | Start date of the validity of the primary subscription. |
| MainSubscription/ValidUntil | | End date of the validity of the primary subscription. |
| MainSubscription/Schedule/RecurringDeliverySchedule/WeeklySchedule | | Weekdays on which the records subscribed to are queried.<br>Several days can be given. |
| …/Monday | true, false | Enter the value "true", if you wish to query the records subscribed to on Mondays. |
| …/Tuesday | true, false | Enter the value "true", if you wish to query the records subscribed to on Tuesdays. |
| …/Wednesday | true, false | Enter the value "true", if you wish to query the records subscribed to on Wednesdays. |
| …/Thursday | true, false | Enter the value "true", if you wish to query the records subscribed to on Thursdays. |
| …/Friday | true, false | Enter the value "true", if you wish to query the records subscribed to on Fridays. |
| …/Saturday | true, false | Enter the value "true", if you wish to query the records subscribed to on Saturdays. |
| …/Sunday | true, false | Enter the value "true", if you wish to query the records subscribed to on Sundays. |
| MainSubscription/Schedule/RecurringDeliverySchedule/WeeklySchedule/queriestartTime | | Query times.<br>Several times can be specified. |
| …/Time | | Query time. |

*Table 11. The data of the query times in accordance with a weekly schedule in a recurrent subscription.*

*According to the **monthly schedule,** a query is made in accordance with the months, days of the month and times defined in the query schedule during the validity period of the primary subscription*. The days of the month of the query cannot be specified month-specifically; the query is performed on the same days of the month each month. Query times cannot be defined day-specifically; the query is performed at the same time on each specified day of the month. There must be at least one time, and there can be several per day. The minimum time between queries is record type specific.

The monthly schedule can be used in situations such as the following:

- The intention is to query the records on the 15th day of each month at 21:00. All months are specified as query months (1, 2, 3, … 12). The 15th day of the month is specified as the day of the month of the query and the time as 21:00.
- The intention is to query the records on the 15th and the last days of June and December at 22:00. Months 6 and 12 are specified as the query months. The days of month of the query are specified as day 15 and day "32" (the last day of the month), and the query time as 22:00.

The data of the query times in accordance with a monthly schedule in a recurrent subscription:

| Data element | Allowed value | Label | |
|---|---|---|---|
| MainSubscription/ValidFrom | | | Start date of the validity of the primary subscription. |
| MainSubscription/ValidUntil | | | End date of the validity of the primary subscription. |
| MainSubscription/Schedule/RecurringDeliverySchedule/MonthlySchedule/Months | | | Months in which the records subscribed to are queried.<br>Several months can be specified. |
| …/Month | | 1,2,3, …12 | Number of the query month. |
| MainSubscription/Schedule/RecurringDeliverySchedule/MonthlySchedule/Days | | | Days of the month on which the records subscribed to are queried.<br>Several days of the month can be specified. |
| …/Day | | 1,2,3, …31, 32 | Day of the month of the query.<br>If the intention is to query the records on the last days of the specified months, specify value "32". |
| MainSubscription/Schedule/RecurringDeliverySchedule/MonthlySchedule/queriestartTime | | | Query times.<br>Several times can be specified. |
| …/Time | | | Query time. |

*Table 12. The data of the query times in accordance with a monthly schedule in a recurrent subscription.*

# 14 SUBMITTING CANCELLATION DATA TO THE INCOMES REGISTER

## 14.1 General

Cancellation data is submitted to the Incomes Register as **records**. A cancellation record may contain cancellations of earnings payment reports (several in one cancellation record), cancellations of employer's separate reports (several in one cancellation record), cancellations of benefits payment reports (several in one cancellation record), a cancellation of a record subscription (one record subscription at a time), a cancellation of a record containing earnings payment reports/employer's separate reports/benefits payment reports (one record at a time), or a cancellation of a record containing a record subscription (one record at a time).

The schema of a cancellation record to be submitted to the Incomes Register is **InvalidationsToIR** in all submitting channels of the technical interface. The contents of the schema are described in the document, "Data delivery – Schemas – Cancellation data". The same schema structure is used in all cancellations done via the technical interface, regardless of what kind of data (reports, a record subscription, a record) the cancellation concerns. The same schema is also used when submitting cancellation data via the e-service's upload service. This section describes the schema structure on a general level and presents some individual data items included in the schema. The full data contents are presented in the schema description.

A cancellation is irreversible, and a cancelled item can no longer be maintained. If, for example, the cancellation of an earnings payment report or a benefits payment report needs to be undone, a new report must be submitted to the Incomes Register.

## 14.2 Record data

A description of the structure of a record containing cancellation data, to be delivered to the Incomes Register, is presented in Figure 27.

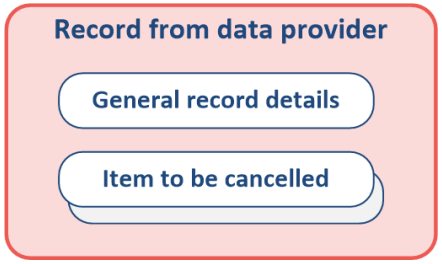


*Figure 27. Structure of a record containing cancellation data.*

### 14.2.1 General record details

The general record details are included in the record only once, and they apply to all items to be cancelled submitted in the record. The general record details are presented in the section "General information on submitting data, General record details".

The type of the record (DeliveryDataType) indicates what types of items to be cancelled the record contains. The record type is one of the following:

- Cancellation of earnings payment reports (105)

- Cancellation of employer's separate reports (106)
- Cancellation of benefits payment reports (107)
- Cancellation of a record subscription (108)
- Cancellation of a record containing earnings payment reports (109)
- Cancellation of a record containing employer's separate reports (110)
- Cancellation of a record containing benefits payment reports (111)
- Cancellation of a record containing a record subscription (112).

### 14.2.2 Items to be cancelled

A cancellation record may contain only one type of items to be cancelled. For example, cancellations of both earnings payment reports and employer's separate reports cannot be submitted in the same record.

The item to be cancelled uniquely identifies the data to be cancelled. The items to be cancelled are described in the following section.

## 14.3 Details of the item to be cancelled

There can be one or several items to be cancelled depending on the record type and the submitting channel of the cancellation record. The allowed number of items to be cancelled is presented, by type of record and channel, in the following table.

| Record type | SFTP | Web Service deferred | Web Service real-time |
|---|---|---|---|
| Cancellation of earnings payment reports (105) | several | several | one |
| Cancellation of employer's separate reports (106) | several | several | one |
| Cancellation of benefits payment reports (107) | several | several | one |
| Cancellation of a record subscription (108) | one | one | one |
| Cancellation of a record containing earnings payment reports (109) | one | one | one |
| Cancellation of a record containing employer's separate reports (110) | one | one | one |
| Cancellation of a record containing benefits payment reports (111) | one | one | one |
| Cancellation of a record containing a record subscription (112) | one | one | one |

*Table 13. The allowed number of items to be cancelled by type of record and channel.*

### 14.3.1 Cancellation of reports

If the record type is "Cancellation of earnings payment reports" (105), "Cancellation of employer's separate reports" (106) or "Cancellation of benefits payment reports" (107), the details of the item to be cancelled are specified as follows:

| Data element | Label |
|---|---|
| DeliveryData/Items/Item/IRItemId | Incomes Register report reference |
| DeliveryData/Items/Item/ItemId | Payer's report reference |
| DeliveryData/Items/Item/ItemVersion | Report version number |

*Table 14. Cancellation of reports.*

The payer's report reference or the Incomes Register report reference must be provided when cancelling an earnings payment report/employer's separate report/benefits payment report. Both references may also be included. If the payer's report reference was used as an identifier for the report to be cancelled, it will be used to find the report to be cancelled from the Incomes Register. Correspondingly, if the Incomes Register report reference was specified as the identifier, it will be used to find the report. If both report references were provided as identifiers in the item details, they will both be used to find the report to be cancelled (the AND operator).

If a version number is also provided in the details of the item to be cancelled, it will also be used to find the report to be cancelled, in addition to the report reference data. The Incomes Register will check the version number provided *against the latest version of the report to be cancelled in the Incomes Register*. If an attempt is made to cancel an outdated version, the Incomes Register will return an error.

If the report version number is not provided in the details of the item to be cancelled, the Incomes Register will find the latest report version that matches the provided report reference data for cancellation.

The Incomes Register will check that the report found using the reference data and version number (if any) *is still valid*. If an attempt is made to cancel a report that has already been cancelled, the Incomes Register will return an error.

The Incomes Register cancels the report by saving a new report version with identical data content to the version to be cancelled. The status of the new version is "Cancelled", and its version number is one higher than the previous version’s. The previous report versions will not be maintained. The report versioning in the Incomes Register taking place during cancellation is illustrated in Figure 28.

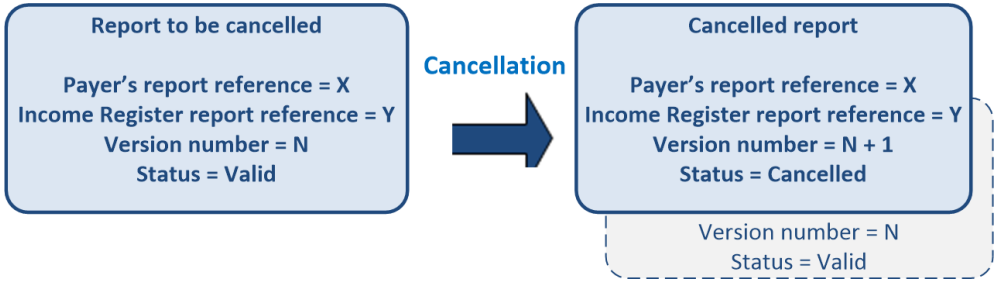


*Figure 28. Cancellation of a report in the Incomes Register.*

### 14.3.2 Cancellation of a record subscription

If the record type is "Cancellation of a record subscription" (108), the details of the item to be cancelled are specified as follows:

| Data element | Label |
|---|---|
| DeliveryData/Items/Item/IRItemId | Incomes Register primary subscription reference |
| DeliveryData/Items/Item/ItemId | Subscriber's primary subscription reference |

*Table 15. Cancellation of a record subscription.*

If the subscriber's primary subscription reference was used as the identifier for the primary subscription in the details of the item to be cancelled, it is used to find the primary subscription to be cancelled from the Incomes Register. Correspondingly, if the Incomes Register primary subscription reference was used as the identifier, it will be used to find the primary subscription. If both references were provided as identifiers in the item details, they will both be used to find the primary subscription to be cancelled (the AND operator).

The Incomes Register will check that the primary subscription to be cancelled is still valid. If an attempt is made to cancel a primary subscription that has already been cancelled, the Incomes Register will return an error.

The cancellation of a record subscription will either cancel or end the subscription. The Incomes Register will check whether any record queries have been made based on the primary subscription to be cancelled.

If no record queries have been made based on the primary subscription, the record subscription will be cancelled. The status of the primary subscription will be changed to “Cancelled”. All subscriptions connected to the primary subscription will be cancelled. No queries will be made on the basis of the primary subscription after the cancellation.

If record queries have been made based on the primary subscription, the record subscription will end on the current date. The status of the primary subscription will be changed to “Ended”. When a record subscription ends on the current date, its record queries scheduled for the current date will be carried out as scheduled.

### 14.3.3 Cancellation of a record containing reports

If the record type is "Cancellation of a record containing earnings payment reports" (109), "Cancellation of a record containing employer's separate reports" (110) or "Cancellation of a record containing benefits payment reports" (111), the details of the item to be cancelled are specified as follows:

| Data element | Label |
|---|---|
| DeliveryData/Items/Item/IRItemId | Incomes Register record reference |
| DeliveryData/Items/Item/ItemId | Record supplier's (payer's) record reference |

*Table 16. Cancellation of a record containing reports.*

If the payer's record reference was used as the identifier for the record in the details of the item to be cancelled, it is used to find the record to be cancelled from the Incomes Register. Correspondingly, if the Incomes Register record reference was used as the identifier, it will be used to find the record. If both references were provided as identifiers in the details of the item to be cancelled, they will both be used to find the record to be cancelled (the AND operator).

The Incomes Register will check that the record to be cancelled is still valid. If an attempt is made to cancel a record that has already been cancelled, the Incomes Register will return an error.

The Incomes Register will find the latest versions of the reports included in the record to be cancelled. Any report versions found that are still valid will be cancelled. The Incomes Register cancels a report by saving a new report version with data content that is identical to the latest version. The status of the new version is "Cancelled", and its version number is one higher than the previous version's. The Incomes Register will not make changes to any reports in the record to be cancelled that have already been cancelled.

The Incomes Register updates the status of the record to be cancelled to "Cancelled".

#### 14.3.4 Cancellation of a record containing a record subscription

If the record type is "Cancellation of a record containing a record subscription" (112), the details of the item to be cancelled are specified as follows:

| Data element | Label |
|---|---|
| DeliveryData/Items/Item/IRItemId | Incomes Register record reference |
| DeliveryData/Items/Item/ItemId | Record supplier's (subscriber's) record reference |

*Table 17. Cancellation of a record containing a record subscription.*

If the subscriber's record reference was used as the identifier for the record in the details of the item to be cancelled, it is used to find the record to be cancelled from the Incomes Register. Correspondingly, if the Incomes Register record reference was used as the identifier, it will be used to find the record. If both references were provided as identifiers in the details of the item to be cancelled, they will both be used to find the record to be cancelled (the AND operator).

The Incomes Register will check that the record to be cancelled is still valid. If an attempt is made to cancel a record that has already been cancelled, the Incomes Register will return an error.

The Incomes Register finds a primary subscription included in the record to be cancelled. If the primary subscription is still valid, the Incomes Register checks that no queries have been made based on it. If queries have been made on the basis of the primary subscription, the Incomes Register will return an error.

If the primary subscription was still valid, the Incomes Register updates the primary subscription's status to "Cancelled".

The Incomes Register updates the status of the record to be cancelled to "Cancelled".

*Note:* The difference between the cancellation of a record subscription (DeliveryDataType = 108) and the cancellation of a record containing a record subscription (DeliveryDataType = 112) is that in the cancellation of just a record subscription, the record containing the subscription remains valid. In practice, this does not matter, because a record can contain only a single record subscription that is cancelled in both cases.

# 15 ACKNOWLEDGEMENT OF RECEIPT

## 15.1 General

If a record is submitted to the Incomes Register via the *deferred Web Service interface*, the Incomes Register will send an acknowledgement of receipt to the record submitter using the **AckFromIR** schema. The contents of the schema are described in the document, "Data delivery – Schemas – Acknowledgement of receipt". This section describes the schema structure on a general level and presents some individual data items included in the schema. The full data contents are presented in the schema description.

## 15.2 Details of an acknowledgement of receipt

The structure of an acknowledgement of receipt is presented in Figure 29.

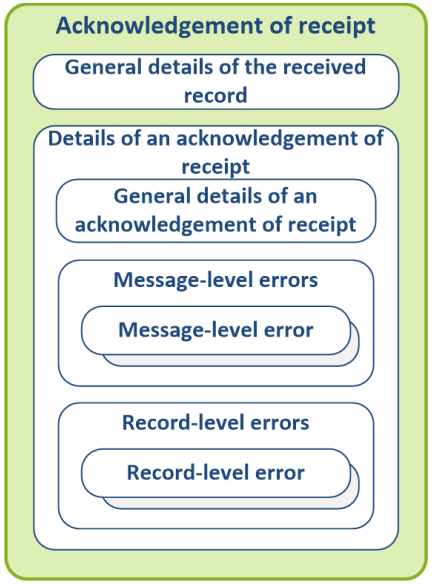


*Figure 29. Structure of an acknowledgement of receipt.*

### 15.2.1 Details of the received record (DeliveryData)

The general details of the received record are returned in this data group with content that is identical to that of the received record.

### 15.2.2 General details of an acknowledgement of receipt

The general details of an acknowledgement of receipt include the following information.

**Incomes Register message reference (IRResponseId)**

The Incomes Register message reference uniquely identifies all messages sent from the Incomes Register. The message reference can be used, for example, in troubleshooting and the identification of duplicate messages.

**Timestamp of the acknowledgement of receipt (IRResponseTimestamp)**

The date and time when the acknowledgement of receipt was sent from the Incomes Register.

**Record status (DeliveryDataStatus)**

The status of the record at the time the acknowledgement of receipt was generated. The statuses are presented in the section, "Record status in the acknowledgement of receipt".

**Incomes Register record reference (IRDeliveryId)**

The Incomes Register record reference uniquely identifies all records submitted to the Incomes Register. The record submitter can use the Incomes Register record reference to enquire about the status of the processing of the record (see section "Request for processing feedback"). An Incomes Register record reference is sent in the acknowledgement of receipt if the record has been received and accepted for processing in the Incomes Register (DeliveryDataStatus = ”Received”).

### 15.2.3 Message-level errors (MessageErrors)

Errors related to the authorisation of a service request and any technical errors related to exceptional circumstances are returned in the Message-level errors section.

### 15.2.4 Record-level errors (DeliveryErrors)

Content errors related to record-level data are returned in the Record-level errors section.

## 15.3 Data check and error messages

When a record submitted via the deferred Web Service interface is received, its data is checked, and the errors and record status are returned in an acknowledgement of receipt as follows.

1. **Check for message-level errors**

   Message-level errors include errors related to the authorisation of service use.

   If the record contains message-level errors, the record is not accepted for processing in the Incomes Register. The Incomes Register sends an acknowledgement of receipt where the record status is "Rejected at reception". Message-level errors are returned in the Message-level errors data group of the acknowledgement of receipt. If message-level errors were detected in the record, no record-level errors will be included in the acknowledgement of receipt.

   If no message-level errors were detected, the process continues with step 2.

2. **Check for record-level errors**

Record-level errors in the acknowledgement of receipt mean errors in data elements containing general record details (data group Record data (DeliveryData)). Record-level errors include an invalid record type not found in the codes.

If the record contains record-level errors, the record is not accepted for processing in the Incomes Register. The Incomes Register sends an acknowledgement of receipt where the record status is "Rejected at reception". Record-level errors are returned in the Record-level errors data group of the acknowledgement of receipt.

If no record-level errors were detected, the Incomes Register sends an acknowledgement of receipt in which the record status is "Processing". The process continues with step 3.

**3. Check for item-level errors**

The processing of the record continues with a check of the data contents of the items included in the record, and the data contents common to the items (such as the payer details).

The record submitter must enquire the end result of the record processing by sending a request for processing feedback to the Incomes Register (see the section, "Request for processing feedback").

### 15.4 Record status in the acknowledgement of receipt

The following is a summary of record statuses in the acknowledgement of receipt in different situations.

| Initial situation | Record status returned by the Incomes Register | Label |
|---|---|---|
| The record does not contain message-level or record-level errors. | Processing (2) | The Incomes Register has received the record for processing. |
| The record contains message-level or record-level errors. | Rejected at reception (4) | The record and the data it contains have not been accepted for processing in the Incomes Register.<br>The acknowledgement of receipt includes the message-level errors and record-level errors.<br>The record submitter must resubmit the record with the correct data. |
| | Unknown (0) | The reception of the record failed.<br>The acknowledgement of receipt contains an itemised list of the errors.<br>The record submitter must resubmit the record with the correct data. |

*Table 18. Record statuses in the acknowledgement of receipt.*

# 16 REQUEST FOR PROCESSING FEEDBACK

## 16.1 General

If a record has been submitted to the Incomes Register via the *deferred Web Service interface,* the record submitter must enquire the status of the record processing by sending a request for processing feedback to the Incomes Register. The feedback request is sent to the Incomes Register via the Web Service interface using the schema **StatusRequestToIR**. The contents of the schema are described in the document, "Data delivery – Schemas – Request for processing feedback". This section describes the schema structure on a general level and presents some individual data items included in the schema. The full data contents are presented in the schema description.

The Incomes Register responds to the request for processing feedback by sending the processing feedback (see the section "Processing feedback").

## 16.2 Details of the request for processing feedback

The structure of the request for processing feedback is presented in Figure 30.

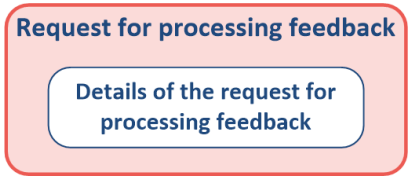


*Figure 30. Structure of the request for processing feedback.*

The details of the request for processing feedback include the following information.

**Record type (DeliveryDataType)**

The record type of the record being enquired. The record type is used as a search criterion together with the record references.

**Record owner's record reference (DeliveryId)**

The request can be targeted at a record submitted to the Incomes Register with the record owner's record reference. If one has been specified, a record that includes the reference is searched for in the Incomes Register. If the Incomes Register record reference has also been specified in the request, both references are used to find the record in the Incomes Register (the AND operator).

**Incomes Register record reference (IRDeliveryId)**

The request can be targeted at a record submitted to the Incomes Register with the Incomes Register record reference. If one has been specified, a record that includes the reference is searched for in the Incomes Register. If the record owner's record reference has also been specified in the request, both references are used to find the record in the Incomes Register (the AND operator).

# 17 PROCESSING FEEDBACK

## 17.1 General

The Incomes Register generates processing feedback in the following situations:

- The record is submitted via the real-time Web Service interface. The Incomes Register outputs the processing feedback once the record has been processed in the Incomes Register.
- The record is submitted via the deferred Web Service interface. The Incomes Register sends the processing feedback as a response to a request for processing feedback made via the Web Service interface (see the section "Request for processing feedback").
- The record is submitted via the SFTP interface. The Incomes Register generates a feedback file containing the processing feedback to be retrieved via the SFTP interface once the record has been processed in the Incomes Register.

In all of the cases described above, the processing feedback complies with the schema **StatusResponseFromIR**. The contents of the schema are described in the document, "Data delivery – Schemas – Processing feedback". This section describes the schema structure on a general level and presents some individual data items included in the schema. The full data contents are presented in the schema description.

## 17.2 Details of the processing feedback

The structure of the processing feedback is presented in Figure 31.

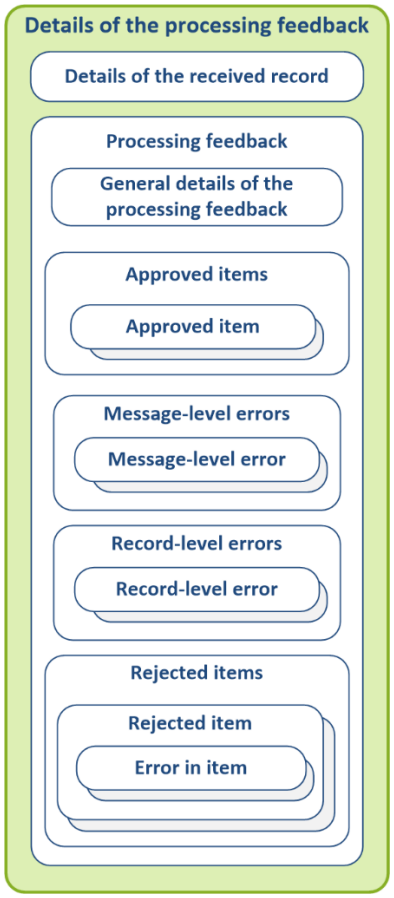


*Figure 31. Structure of the processing feedback.*

### 17.2.1 Details of the received record (DeliveryData)

The general details of the received record are returned in this data group with content that is identical to that of the received record.

### 17.2.2 General details of the processing feedback

The general details of the processing feedback include the following information.

**Incomes Register message reference (IRResponseId)**

The Incomes Register message reference uniquely identifies all messages sent from the Incomes Register. The message reference can be used, for example, in troubleshooting and the identification of duplicate messages.

**Processing feedback timestamp (IRResponseTimestamp)**

The date and time when the processing feedback was generated in the Incomes Register.

**Record status (DeliveryDataStatus)**

The status of the record at the time the processing feedback was generated. The statuses are presented in the section, "Record status in the processing feedback".

**Incomes Register record reference (IRDeliveryId)**

The record reference assigned to the record by the Incomes Register. The Incomes Register record reference uniquely identifies all records submitted to the Incomes Register.

### 17.2.3 Approved items (ValidItems)

Information on valid items in the record is returned in the Approved items section, as described below. With the information, the processing feedback can be allocated to the reports, record subscription or cancellation data submitted in the record.

If the record type is "Earnings payment reports" (100), "Employer's separate reports" (101) or "Benefits payment reports" (102), the reports that were successfully added to or replaced in the Incomes Register are returned in the section.

The item is identified as follows:

| Data element | Label |
|---|---|
| StatusResponse/ValidItems/Item/ItemId | Payer's report reference. |
| StatusResponse/ValidItems/Item/IRItemId | Incomes Register report reference.<br>The Incomes Register report reference uniquely identifies all reports saved in the Incomes Register. |
| StatusResponse/ValidItems/Item/ItemVersion | Report version number.<br>In processing feedback for a new report, the version number is 1. In the processing feedback for a replacement report, the version number is the version number of the replaced report + 1 (the version number of the replacement report generated by the Incomes Register). |

*Table 19. Identification of approved items with record types 100–102.*

If the record type is "Record subscription" (103), the data of the primary subscription is returned in this section if the subscription was successfully added to the Incomes Register.

The item is identified as follows:

| Data element | Label |
|---|---|
| StatusResponse/ValidItems/Item/ItemId | Subscriber's primary subscription reference. |
| StatusResponse/ValidItems/Item/IRItemId | Incomes Register primary subscription reference.<br>The Incomes Register primary subscription reference uniquely identifies all primary subscriptions saved in the Incomes Register. |

*Table 20. Identification of an approved item with record type 103.*

If the record type is "Cancellation of earnings payment reports" (105), "Cancellation of employer's separate reports" (106) or "Cancellation of benefits payment reports" (107), the reports that were successfully cancelled in the Incomes Register are returned in this section.

The item is identified as follows:

| Data element | Label |
|---|---|
| StatusResponse/ValidItems/Item/ItemId | Payer's report reference. |
| StatusResponse/ValidItems/Item/IRItemId | Incomes Register report reference. |
| StatusResponse/ValidItems/Item/ItemVersion | When processing feedback for a cancellation report, the version number is the version number of the cancelled report + 1 (the version number of the cancelled report generated by the Incomes Register). |

*Table 21. Identification of approved items with record types 105–107.*

If the record type is "Cancellation of a record subscription" (108), the primary subscription data is returned in this section if the cancellation in the Incomes Register was successful.

The item is identified as follows:

| Data element | Label |
|---|---|
| StatusResponse/ValidItems/Item/ItemId | Subscriber's primary subscription reference. |
| StatusResponse/ValidItems/Item/IRItemId | Incomes Register primary subscription reference. |

*Table 22. Identification of an approved item with record type 108.*

If the record type is "Cancellation of a record containing earnings payment reports" (109), "Cancellation of a record containing employer's separate reports" (110) or "Cancellation of a record containing benefits payment reports" (111), the data of the record to be cancelled is returned in this section if the cancellation of the record in the Incomes Register was successful.

The item is identified as follows:

| Data element | Label |
|---|---|
| StatusResponse/ValidItems/Item/ItemId | Payer's record reference for the record to be cancelled. |
| StatusResponse/ValidItems/Item/IRItemId | The Incomes Register record reference for the record to be cancelled. |

*Table 23. Identification of approved items with record types 109–111.*

If the record type is "Cancellation of a record containing a record subscription" (112), the data of the record to be cancelled is returned in this section if the cancellation in the Incomes Register was successful.

The item is identified as follows:

| Data element | Label |
|---|---|
| StatusResponse/ValidItems/Item/ItemId | Subscriber's record reference for the record to be cancelled. |
| StatusResponse/ValidItems/Item/IRItemId | The Incomes Register record reference for the record to be cancelled. |

*Table 24. Identification of an approved item with record type 112.*

### 17.2.4 Message-level errors

Errors related to the authorisation of a service request and any technical errors related to exceptional circumstances are returned in the message-level errors section. In the processing feedback for a record submitted via the SFTP channel, the Message-level errors section may also include errors related to the schema of the record.

### 17.2.5 Record-level errors

Content errors related to record-level data are returned in the Record-level errors section.

### 17.2.6 Rejected items (InvalidItems)

The details of invalid items contained in the record is returned in the Rejected items section. With the information, the processing feedback can be allocated to the reports, record subscription or cancellation data submitted in the record. An itemised list of errors detected during the processing of the record is returned with the item.

If the record type is "Earnings payment reports" (100), "Employer's separate reports" (101) or "Benefits payment reports" (102), the reports that could not be added to or replaced in the Incomes Register are returned in the section.

The item is identified as follows:

| Data element | Label |
|---|---|
| StatusResponse/InvalidItems/Item/ItemId | Payer's report reference (submitted in the processed record). |
| StatusResponse/InvalidItems/Item/IRItemId | Incomes Register report reference (submitted in the processed record). |
| StatusResponse/InvalidItems/Item/ItemVersion | Report version number (submitted in the processed record). |

*Table 25. Identification of rejected items with record types 100–102.*

If the record type is "Record subscription" (103), the details of the primary subscription are returned in this section if adding the subscription to the Incomes Register failed.

The item is identified as follows:

| Data element | Label |
|---|---|
| StatusResponse/InvalidItems/Item/ItemId | Subscriber's primary subscription reference (submitted in the processed record). |

*Table 26. Identification of rejected item with record type 103.*

If the record type is "Cancellation of earnings payment reports" (105), "Cancellation of employer's separate reports" (106) or "Cancellation of benefits payment reports" (107), the reports that could not be cancelled in the Incomes Register are returned in this section.

The item is identified as follows:

| Data element | Label |
|---|---|
| StatusResponse/InvalidItems/Item/ItemId | Payer's report reference (submitted in the processed record). |
| StatusResponse/InvalidItems/Item/IRItemId | Incomes Register report reference (submitted in the processed record). |
| StatusResponse/InvalidItems/Item/ItemVersion | Report version number (submitted in the processed record). |

*Table 27. Identification of rejected items with record types 105–107.*

If the record type is "Cancellation of a record subscription" (108), the primary subscription data is returned in this section if the cancellation of the record subscription in the Incomes Register failed.

The item is identified as follows:

| Data element | Label |
|---|---|
| StatusResponse/InvalidItems/Item/ItemId | Subscriber's primary subscription reference (submitted in the processed record). |
| StatusResponse/InvalidItems/Item/IRItemId | Incomes Register primary subscription reference (submitted in the processed record). |

*Table 28. Identification of rejected item with record type 108.*

If the record type is "Cancellation of a record containing earnings payment reports" (109), "Cancellation of a record containing employer's separate reports" (110) or "Cancellation of a record containing benefits payment reports" (111), the data of the record to be cancelled is returned in this section if the cancellation of the record in the Incomes Register failed.

The item is identified as follows:

| Data element | Label |
|---|---|
| StatusResponse/InvalidItems/Item/ItemId | Payer's record reference (submitted in the processed record). |
| StatusResponse/InvalidItems/Item/IRItemId | Incomes Register record reference (submitted in the processed record). |

*Table 29. Identification of rejected items with record types 109–111.*

If the record type is "Cancellation of a record containing a record subscription" (112), the data of the record (containing the record subscription) to be cancelled is returned in this section if the cancellation in the Incomes Register failed.

The item is identified as follows:

| Data element | Label |
|---|---|
| StatusResponse/InvalidItems/Item/ItemId | Subscriber's record reference (submitted in the processed record). |
| StatusResponse/InvalidItems/Item/IRItemId | Incomes Register record reference (submitted in the processed record). |

*Table 30. Identification of rejected item with record type 112.*

## 17.3 Data check and error messages

### 17.3.1 Record submitted via the SFTP interface

A record submitted via the SFTP interface is processed as follows.

**1. Check for message-level errors**

Message-level errors include errors related to the authorisation of service use.

If the record contains message-level errors, the record is not accepted for processing in the Incomes Register. The Incomes Register generates a processing feedback where the record status is "Rejected at reception". Message-level errors are returned in the Message-level errors data group of the processing feedback. If message-level errors were detected in the record, no other error data groups will be included in the processing feedback.

If no message-level errors were detected, the process continues with step 2.

**2. Check for record-level errors**

Record-level errors mean errors in data elements containing general record details (data group Record data (DeliveryData)). Record-level errors include an invalid record type not found in the codes.

If the record contains record-level errors, the record is not accepted for processing in the Incomes Register. The Incomes Register generates a processing feedback where the record status is "Rejected at reception". The record and all of the record's items (reports, record subscription, cancellation data) are rejected. Record-level errors are returned in the Record-level errors data group of the processing feedback. Items rejected due to record-level errors are not separately listed in the Rejected items data group.

If no record-level errors were detected, the process continues with step 3.

**3. Check for item-level errors**

Item-level errors are errors in the reports, record subscription or cancellation data contained in the record.

If no errors were detected in the record, the record and the items it contains are saved in the Incomes Register. The record status reported in the processing feedback is "Valid". Information on the accepted items is delivered in the Approved items data group of the processing feedback.

If the record contains item-level errors and the record submitter has requested the rejection of the record if it contains invalid data (FaultyControl), the status of the record in the processing feedback is "Rejected during processing". The items contained by the record are not saved in the Incomes Register. Information on the invalid items is delivered in the Approved items data group of the processing feedback.

If the record contains item-level errors and the record submitter has requested the saving of valid items if the record contains invalid items (FaultyControl), the status of the record in the processing feedback is "Valid". Valid items are saved in the Incomes Register, and their information is delivered in the Approved items data group of the processing feedback. Invalid items are not saved in the Incomes Register, and their information is delivered in the Rejected items data group of the processing feedback.

An exception to the processing described in the previous paragraph: If **all items** in the record are invalid and the record submitter has requested the saving of valid items if the record contains invalid items (FaultyControl), the status of the record in the processing feedback is "Rejected during processing". The items contained by the record are not saved in the Incomes Register. Information on the invalid items is delivered in the Approved items data group of the processing feedback.

*Example 1*:

A record containing earnings/benefits payment reports (five reports) has an invalid payer's identifier type. The data of the reports contains no errors. In the processing feedback, an error message indicating an invalid payer's identifier type is returned in the Record-level errors data group. No invalid items are returned in the Rejected items data group. The record status reported in the processing feedback is "Rejected during processing".

*Example 2*:

A record containing earnings/benefits payment reports (five reports) has an invalid payer's identifier type. Furthermore, the record contains two reports with an unknown income type. The data of the other three reports contains no errors. In the processing feedback, an error message indicating an invalid payer's identifier type is returned in the Record-level errors data group. The identifying data of the two invalid reports and the itemised errors are returned in the Rejected items data group. The record status reported in the processing feedback is "Rejected during processing".

*Example 3*:

A record containing earnings/benefits payment reports (five reports) includes two reports with an unknown income type. The data of the other three reports contains no errors. The record submitter has requested the rejection of the record if invalid data is detected in it. The identifying data of the two invalid reports and the itemised errors are returned in the Rejected items data group. The record status reported in the processing feedback is "Rejected during processing".

*Example 4*:

A record containing earnings/benefits payment reports (five reports) includes two reports with an unknown income type. The data of the other three reports contains no errors. The record submitter has requested the saving of the valid data if invalid data is detected in it. The identifying data of the two invalid reports and the itemised errors are returned in the Rejected items data group. The identifying data of the three reports containing no errors are returned in the Approved items data group. The record and the three valid reports are saved in the Incomes Register. The record status reported in the processing feedback is "Valid".

### 17.3.2 Record submitted via the real-time Web Service interface

The data is checked and the errors and record status are returned in the processing feedback in the same way as with a record submitted via the SFTP interface. The only difference is that the schema errors for a record submitted via the WS interface are returned in accordance with the SOAP practices, while the schema errors for a record submitted via the SFTP interface are processed in the same way as message-level errors.

### 17.3.3 Record submitted via the deferred Web Service interface

Message-level and record-level errors have already been detected during reception and returned to the submitter in the acknowledgement of receipt. If message-level or record-level errors were detected in the record during reception, the record was not accepted for processing in the Incomes Register, and a request for processing feedback cannot be made later for the record.

If the record was accepted for processing in the Incomes Register during reception, and a request for processing feedback for the record was made later, the item-level errors and the record status are delivered in the processing feedback in the same way as with a record submitted via the SFTP interface.

### 17.4 Record status in the processing feedback

The following is a summary of record statuses in the processing feedback in different situations.

| Initial situation | Record status returned by the Incomes Register | Label |
|---|---|---|
| The record has been received.<br>The record contains message-level or record-level errors. | Rejected at reception (4) | The record and all items it contains have been rejected.<br>The processing feedback includes the message-level and record-level errors.<br>The record submitter must resubmit the record with the correct data. |
| The record has been received and accepted for processing. | Processing (2) | The record is being processed in the Incomes Register and the processing is not complete yet. |
| The record has been processed.<br>The record does not contain errors. | Valid (3) | The record and all data it contains has been saved in the Incomes Register.<br>The processing feedback includes the accepted items.<br>The processing feedback does not include errors. |
| The record has been processed.<br>The record contains invalid items.<br>The saving of valid items has been requested in the record in the case it also contains invalid items. | Valid (3) | The record and the valid items it contains have been saved in the Incomes Register.<br>The processing feedback includes the accepted items.<br>The processing feedback includes the items rejected due to item-level errors.<br>The record submitter must resubmit the rejected items with the correct data. |
| The record has been processed.<br>The record contains invalid items.<br>The rejection of the entire record has been requested in the record in the case it contains invalid items. | Rejected during processing (5) | The record and all items it contains have been rejected.<br>The processing feedback includes the items rejected due to item-level errors.<br>The record submitter must resubmit the record with the correct data. |
| The request for processing feedback targets a record cancelled in the Incomes Register. | Cancelled (6) | The record and the data it contains have been previously cancelled in the Incomes Register. |
| | Unknown (0) | The record cannot be found in the Incomes Register or the request for processing feedback has failed due to a technical disruption, for example. |

| | | |
|---|---|---|
| | | The processing feedback contains an itemised list of the errors. |

*Table 31. Record statuses in the processing feedback.*