How to use the Internet services

Real Time Information (RTI)
Online for Employers -
Internet filing enabled software
**Background**

Developers using the Internet route for RTI will need to support the Document Submission Protocol for RTI submissions. Employers will need to use Data Provisioning Service (DPS) to retrieve notifications from HMRC. They can do this using a third party product or HMRC products. Submissions made using the Internet channel will not include any banking details relating to payments made into employees’ bank accounts.

**Notifications**

The RTI Notification message will be used to notify employers of the following:

- HMRC have identified a mismatch between a National Insurance number (NINO) they are using and the NINO they should be using
- a correct NINO to use when no NINO has been supplied
- that they must stop using a supplied NINO when the correct NINO to use is unknown.

Generic Notification messages may also be produced. These will be used to inform employers that:

- HMRC has not received an FPS, where one was expected
- an FPS was late
- they are late with a payment

Other messages may be added when they become available. Notifications will be made available via the DPS.
Submissions

There are 4 types of submissions available for RTI:

**Full Payment Submission (FPS):** required each time an employer makes a payment to an employee. Can be used to report the final return for year details. From related tax year 2018-19 onwards, can be used to report amendments up to related tax year plus-six: see ‘summary of messages’ table below. Amendments are reported as revised year-to-date figures. They are not reported as difference (delta) values.

**Employer Payment Summary (EPS):** the submission will include data to enable HMRC to calculate employer liability. The submission will only be needed where the employer needs to notify HMRC of adjustments to their overall liability. Can be used to report the final return for year details. Should also be used to report if no employees have been paid in a pay period.

**NINO Verification Request (NVR):** allows employers to validate the NINO or check if a new employee’s NINO is available.

**Earlier Year Update (EYU):** This allows employers to correct, after 19 April, any of the year to date totals submitted in their most recent FPS for the previous 6 years. The figures used in an EYU will be added to the amounts already reported so only differences between the amounts should be entered (delta figures). To reduce a previously reported amount, a negative figure should be entered. For EYU valid dates, see the ‘summary of messages’ table below.

Each RTI form has different message <Class> and only one of these types can be included in a single submission. Please be aware that the version control for each form may vary from the others as changes are made to individual documents. The version numbers of the forms held within a zip file, for example, may not match the version number of the zip file itself.

NINO verification

**NVR** is a request for NINO information and must be sent to the Transaction Engine. A successful NINO Verification Request will generate a generic success_response. This will not include any NINO information relating to the request. The submitter will receive details of the specific NINO responses in much the same way as coding notices are currently retrieved. This may involve a separate call to the DPS. The request parameters have been added to the current DPS messages.

Notifications may also be generated from FPS submissions. There will be different message types within the DPS repository depending on whether notifications were generated as a result of a NVR or whether any mismatches were identified during downstream processing of an FPS submission.
Summary of messages supported in the live environment

<table>
<thead>
<tr>
<th></th>
<th>Year-specific?</th>
<th>Valid from</th>
<th>Valid until</th>
</tr>
</thead>
<tbody>
<tr>
<td>FPS (up to and</td>
<td>Year-specific</td>
<td>6 March prior to the beginning of the Related</td>
<td>19 April following the end of the Related Tax</td>
</tr>
<tr>
<td>including 2017-18)</td>
<td></td>
<td>Tax Year</td>
<td>Tax Year</td>
</tr>
<tr>
<td>FPS (2018-19</td>
<td>Year-specific</td>
<td>6 March prior to the beginning of the Related</td>
<td>Last day (5 April) of Related Tax Year-plus-six³</td>
</tr>
<tr>
<td>onwards)</td>
<td></td>
<td>Tax Year</td>
<td>Multiple years supported in parallel</td>
</tr>
<tr>
<td>EYU</td>
<td>Year-specific</td>
<td>20 April following the end of the Related Tax</td>
<td>Last day (5 April) of Related Tax Year-plus-six³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Year</td>
<td>Multiple years supported in parallel</td>
</tr>
<tr>
<td>EPS</td>
<td>Year-specific</td>
<td>6 March prior to the beginning of the Related</td>
<td>Last day (5 April) of Related Tax Year-plus-six³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tax Year</td>
<td>Multiple years supported in parallel</td>
</tr>
<tr>
<td>NVR</td>
<td>Version</td>
<td>6 April 2013</td>
<td>Indefinitely</td>
</tr>
<tr>
<td></td>
<td>specific</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

¹ For example: EYU 2018-19 valid until 5 April 2025, FPS 2019-20 valid until 5 April 2026.

**Test-in-Live**

There is also a Test-in-Live message (TIL) <Class> for each message type. This functionality exists in both the test and live environments. We strongly recommend that you make it clear to your customer when they are making a test submission.

Message <Class>

- HMRC-PAYE-RTI-FPS
- HMRC-PAYE-RTI-FPS-TIL
- HMRC-PAYE-RTI-EPS
- HMRC-PAYE-RTI-EPS-TIL
- HMRC-PAYE-RTI-NVR
- HMRC-PAYE-RTI-NVR-TIL
- HMRC-PAYE-RTI-EYU
- HMRC-PAYE-RTI-EYU-TIL

**IRmark**

All submissions to the Transaction Engine must contain a valid IRmark. Details can be found in the documents listed on the [HMRC (IR)mark: support for software developers](#) page.

**Compression**

Compression of employee data is supported. It must contain a data-stream which has been compressed using zip or gzip and base 64 encoded.
Using the Internet services

Once you have followed the process outlined in the Basic guide for software developers, and you’re ready to test your product, you’ll need to download the technical pack that covers the forms you’re developing.

Test Service

There are 2 separate test services which mirror the Live service.

1. Third Party Validation Service (TPVS)

This performs validation on the 'Form' or 'Body' of the submission against the specifications in the spec doc. Submissions to this test service should be made to:

<table>
<thead>
<tr>
<th>Service</th>
<th>URL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full Payment Submission</td>
<td><a href="https://www.tpvs">https://www.tpvs</a> hmrc.gov.uk/RTIFPS</td>
</tr>
<tr>
<td>Employer Payment Summary</td>
<td><a href="https://www.tpvs">https://www.tpvs</a> hmrc.gov.uk/RTIEPS</td>
</tr>
<tr>
<td>NINO Verification Request</td>
<td><a href="https://www.tpvs">https://www.tpvs</a> hmrc.gov.uk/RTINVR</td>
</tr>
<tr>
<td>Earlier Year Update</td>
<td><a href="https://www.tpvs">https://www.tpvs</a> hmrc.gov.uk/RTIEYU</td>
</tr>
</tbody>
</table>

You must ensure that any XML documents you’re submitting have been prepared using the most up-to-date RIM artefacts and as supported by the TPVS service.

You should submit to TPVS using the credentials that are provided by the SDS Team. For details on which elements should be populated with your credentials, please see the non-form validation rules contained within the technical pack.

Response messages will be returned based on the outcome. Please remember that if you send submissions direct to the TPVS site, the service will not perform full validation on the GovTalk Header aspect of your XML instance.

2. External Test Service (ETS)

Submissions to the ETS should be sent to:
https://test-transaction-engine.tax.service.gov.uk/submission

ETS allows you to submit test cases through the Transaction Engine Test Site to the HMRC TPVS site, mirroring the 'live' Internet service.

You should submit to ETS using the credentials provided by the SDS Team. For details on which elements should be populated with your credentials please see the Non-Form Validation Rules contained in this technical pack.

This service first tests the GovTalk Header against the relevant Schema. The test submission will then be automatically routed to the TPVS service where the 'Form' or 'Body' of the submission will be validated against the appropriate RTI RIM artefacts. Response messages will be returned based on the outcome. NB. You must use this test service if you wish to apply for Recognition for Internet enabled Software.
**RTI Local Test Service (LTS)**

LTS allows users to select a file, run the rules against that XML file and produce the same XML result as it would in live, including all errors found. Developers can self-serve to check the standard of their products locally, without having to access the TPVS service. LTS can also be used during your development work as it supplements the TPVS and ETS.

The Local Test Service Update Manager (LTSUM) allows developers to access the latest available version of the RTI RIM artefacts for validation purposes within LTS. Full details can be found via the installation guide included within the technical pack.

**Non-Form Validation Rules (NFVRs)**

There are a number of “level 3” validations that take place within the live (Production) environment based on information that is held outside of the submission itself. These are commonly referred to as “referential rules” or Non Form Validation Rules (NFVRs).

These additional validations need to be replicated within the TPVS and LTS test environments in order to provide a test service that allows developers to generate and process all of the errors that could be returned from the production environment.

The Accounts Office Reference supplied within the <AORef> field (for the Internet channel) should to be used to trigger the simulated “level 3” validations within the TPVS and LTS test services. This is a mandatory 13-character field with the pattern: [0-9][3]P[A-Z][0-9][7][0-9X]

For the purposes of this behaviour, characters 1 to 5 and 10 to 13 should be ignored as long as the entire 13 character string is schema-compliant.

The value of characters 6 to 9 should be used to trigger the simulated validation within TPVS.

nnnP7801nnnz to trigger error condition 7801:

nnnP7802nnnz to trigger error condition 7802:

nnnP7803nnnz to trigger error condition 7803:

nnnP7804nnnz to trigger error condition 7804:

nnnP7805nnnz to trigger error condition 7805:

(\(n = \text{numeric (0-9)}; P = \text{the letter P}; a = \text{alpha (A-Z)}; z = \text{alpha (0-9) or X}\))

This pattern will be used to test any future additions to the Non-form validation type error responses.
Document Submission Protocol

When you submit a return to the Transaction Engine, whether to the “live” service or to External Test Service, a “conversation” should take place between your application and the Transaction Engine. This is covered in detail in the Document Submission Protocol.

Other important information

Future Dates – test service only

RTI submissions have the facility to overwrite the TPVS/LTS system clock to enable developers to test start/leaving dates in the future.

Normally a test submission is validated against the date on which it was submitted to the test service. Any date-sensitive rules would therefore use “today” as the date. If, however, a valid XML dateTime value is provided by the application in the GovTalk envelope’s <Timestamp> element in the <ChannelRouting> structure, then the validation engine will set the date (and time) to this value and perform any date-sensitive validations as if this was the real date (and time). This option will only be available in the test services. The live service will not support this mechanism and any value in the <Timestamp> element will be ignored.

For example: to test whether a leaving date of 15th April 2018 is valid when a submission is made on 20th March 2018, the <Timestamp> value should be set to an XML dateTime representing 20th March 2018 (e.g. 2018-03-20T12:00:00). With this setting the leaving date will validate correctly. Without it the leaving date will be validated with respect to the date on which the test is performed, and will fail validation if the test is performed on any date prior to 16th March 2018. The mechanism will ensure that in subsequent years future dates are treated properly.

Technical Pack Updates

Developers who have registered with the SDS Team will be advised by email of updates to the technical packs. However, please check the technical specifications page regularly to ensure that you are working to the most up to date versions. Where possible, the version numbers and version dates are shown on each document.

Please note - To assist in your development we strongly recommend that you use a commercially available XML Editing and Validation tool.
Changes

V1.2 to 1.3 - References to LTS not supporting compressed files removed.
V1.3 to 1.4 - Instructions for EYU added. Removed references to one schema being used for FPS, EPS & NVR.
V1.4 to 1.5 - Several wording changes for increased clarity.
V1.5 to 1.6 - ‘Summary of messages’ table added. Updated with reference to Generic Notifications. Minor wording and presentation changes for clarity.
V1.6 to 1.7 - broken hyperlinks changed/removed.
V1.7 to 1.8 – References to Government Gateway replaced with generic Transaction Engine references. References to EAS removed. VSIPS replaced with External Test Service
V1.8 to 1.9 – Updated for transition from EYU to FPS for year-to-date amendments for earlier tax years
V1.9 to 1.91 – 2018-19 is no longer final year for EYU