Real Time Information and Bacs

1) Generating the RTI cross reference (RTI hash)

Background

HMRC announced on 13 May 2011 that in response to concerns expressed by the payroll industry and others that for an interim period employers would report PAYE in real time using the existing Internet and EDI filing channels. EDI will now be retained until at least 2016/17.

This document updates guidance on generating the RTI cross reference or 'hash' to take account of revisions to the Income Tax (Pay As You Earn) Regulations 2003 (S.I. 2003/2682) implementing Real Time information, specifically regulation 67CA.

Regulation 67CA of the Income Tax (Pay As You Earn) Regulations 2003 (S.I. 2003/2682) has effect for relevant payments made on or after 1 September 2012. It was inserted into those Regulations by the Income Tax (Pay As You Earn) (Amendment No. 2) Regulations (S.I. 2012/1895) which are available here - www.legislation.gov.uk/2012/1895.

It makes provision requiring employers and pension providers who are reporting PAYE information in real time to include a cross reference in their PAYE returns. They also provide for the Commissioners for Her Majesty's Revenue and Customs to make directions.

The Commissioners for HMRC made a direction under regulation 67CA, which also takes effect for payments made on or after 1 September. It is available here http://www.hmrc.gov.uk/ebu/direction-reg67ca.pdf

Taken together the regulations and direction require a cross reference (sometimes referred to as the 'hash') to be provided to HMRC for each employee submission **where employees are paid via Bacs using the employer's own Service User Number (SUN).**

The field to accommodate the hash is included in the RTI technical specifications. **The same employers are also required to provide a sub-reference in field 7 of their Bacs (Standard 18) payment instruction.**

Purpose of the cross reference

The cross reference or 'hash' will enable HMRC to corroborate the tax data returned against the payment made to the individual. This will also assist DWP's administration of Universal Credit.

2) General questions and answers on the RTI hash

Q. What is involved in the cross reference (hash)?

A. There are two parts to the cross reference:

(a) a hash included in the RTI submission to HMRC;

(b) a sub-reference inserted in field 7 of the Bacs payment instruction. This value must be random (not sequential). The value in the sub reference should be the same as that inserted in the hash.

Q. Have the banks agreed to this use of Field 7?

A. Yes.

Q. Who needs to supply a cross reference?

A. Employers paying their staff via Bacs **using their own Service User Number (SUN)** must include a hash in their RTI submission and the associated sub-reference in their payment instructions.

Employers who use Extended Transmission Service (ETS) or SwiftNet Transmission Service (STS), to submit Standard 18 payment instructions should also include the cross reference in their RTI submission (and the associated sub-reference in their payment instructions).

Q. How can I check whether I pay by Bacs Direct Credit?

A. For RTI purposes, a Bacs Direct Credit payment is one that is submitted directly or indirectly into Bacs using an employer's own Service User Number (SUN) either using software provided by a Bacs Approved Solution Supplier (BASS provider) or through a Bacs Approved Bureau. The following three questions will help employers identify if payments will be treated as Bacs Direct Credit payments for RTI purposes:

Do you make payments covered by the PAYE Regulations (e.g. wages/salaries/pensions?)
        Yes – go to question 2
        No – the cross reference does not apply

Do you make these payments using Bacs?
        Yes – go to question 3
        No – the cross reference does not apply

Have you been allocated your own Service User Number?
        Yes – you must include a four character sub-reference into field 7
        No – the cross reference does not apply
        I don't know - Please speak to your BASS provider or payment bureau.

If an employer has any doubts about whether they have their own SUN, they should approach their BASS provider or Bacs Approved Bureau.

Q. What happens if a cross reference is not provided?

A. Information about unverified RTI will inform risk-assessments carried out by HMRC and DWP in the course of their administration of tax and benefits.

Q. What happens if a cross reference is provided in the RTI submission when payment is not via Bacs?

A. There will be no corresponding cross reference generated from a Bacs payment and therefore this will inform risk-assessments carried out by HMRC and DWP in the course of their administration of tax and benefits.

Q. How will HMRC know that an employer has paid by Bacs Direct Credit but not included sufficient details to allow a cross reference to be made?

A. This will be identified through routine compliance checks

Q. How will the hash be recreated from the sub-reference?

A. All of the elements used to create the hash, including the sub-reference, need to be present in the Standard 18 file used by Bacs for payment. The hash will then be reproduced as part of the payment process and sent with confirmation of payment to HMRC for matching with the tax data hash.

Q. When should the hash be produced?

A. The hash should be produced and submitted at or before the time payment instructions are issued. The exact timing will be determined by your payroll software provider.

Q. What will HMRC do with the hash?

A. HMRC will match the hashes returned with the RTI data against hashes generated during payment file processing to inform HMRC's compliance activity. This data will also support DWP's administration of Universal Credits.

Q. My software sends payment to my Bacs Approved Bureau supplier(s) other than in Standard 18 format. What do I have to do?

A. Please speak to the Bacs Approved Bureau or BASS provider concerned.

Q. Why not wait and just move to the original proposal for a single standard?

A. The implementation of the strategic solution utilising the Bacs channel was deferred following concerns raised in consultation. The Interim solution addresses concerns raised during consultation and keeps the link between payment and information. It also allows HMRC to support the introduction of Universal Credit.

We now envisage that the interim solution will operate until at least 2016/17.

HMRC will review the case for a longer term solution balancing costs and benefits in the light of experience from the pilot. This will allow HMRC, employers and the banking and software industries time to implement the interim RTI solution and learn from the pilot.

3) Technical questions and answers on the RTI hash for software developers

Q. Which algorithm should I use to produce the hash?

A. You should use the 256 Secure Hash Algorithm (SHA – 256). Object libraries for this exist in most commonly used coding languages.

Q. Will HMRC be providing the code for the hashing algorithm?

A. No. The hash should be generated using the Secure Hash Algorithm SHA-256, details of which are published by the National Institute of Standards and Technology (NIST).

Visit the NIST website at http://csrc.nist.gov/ (Opens new window)

As there are many implementations of SHA-256 available across multiple technologies HMRC cannot recommend which one to use, but you should be looking at using proven and reliable sources. In addition there are also many documents publicly available providing test vectors with the expected results for proving SHA-256.

The data used to generate the hash must be ASCII characters.

Q. What do I need to include in my payment instruction?

A. You need to insert a value – the sub-reference – in field 7 of standard 18. The value of the field must be a solidus (/) to be inserted in character position 32 followed by a three alpha-numeric character sub-reference generated from the following characters in positions 33-35

- hyphen (-)

- full stop (.)

- solidus (/) (hexadecimal value 2F)

- zero to 9

- A-Z (as specified for upper case alphabet)

So examples would be: "/123", "/ABC", "/..A" "/9C-", "/..." , "/9C/"

The combination of the sub-reference, sort codes and the amount to be paid provide a sufficient degree of uniqueness to allow effective matching to take place.

The sub-reference needs to be generated with each relevant payment from the employer, so that where an individual is paid the same amount on a regular basis the sub-reference allows the different transactions to be identified.

Q. How do I create the cross reference (which data items should I hash)?

A. You should hash (in this order):

(a) the four character sub-reference inserted or to be inserted in the Std 18 payment file – the solidus "/" plus the three character sub-reference;

(b) the sort code of the originator's bank (6 digits);

(c) the sort code of the recipient's bank (6 digits)

(d) the amount of payment in pence – see next question (11 digits).

Based on the following data, the cross reference hash should be generated from the concatenated ASCII string abcd, in this order, with no spaces or characters between each data item. The value of the four character sub-reference must be a random string (not sequential). Sort codes should be supplied as a 6 numerical digits only, the payment should be provided in pence as 11 numerical digits with leading zeros where necessary.

So:

(a) /A.. (b) 10-00-00 (c) 30-91-44 (d) £1256.71

creates an ASCII string of:

/A..1000003091440000125671

which will generate a hash of:

a8e88f215cc98f40a2d0c47c49d0b09f4593d9bb81aef118202987a8cc0e3689
when represented in lower case as a hexadecimal string within the RTI submission.

Q. What is the amount of payment to be included in the hash?

A. This is the net amount of the payment that will reach the recipient's bank account and should match the amount derived from the following sum:

- total pay less statutory deductions (RTI box 59); less

- further deductions after tax, NI etc (box 58B); less

- value of benefits taxed through the payroll (box 60); plus

- payments not subject to tax or NI (box 58A).

Q. Won't you get lots of duplicate hashes?

A. We have undertaken modelling and are satisfied that on a typical day we would expect there to be less than 0.1% instances of duplicate hashes.

Q. If you put the amount in the hash won't that increase the number of failures?

A. It is vital that the payroll software ensures that the value used to calculate the hash (see above) is equal to that in the payment instruction. If alterations are made between payroll software and BASS software then the final amount to be paid needs to be reflected in the hash attached to each RTI submission.

So RTI information with amounts to be paid of A, B and C is amalgamated into a single payment D between the payroll and the BASS software. In this case the hash needs to be produced for amount D and attached to RTI information A, B & C. On receipt the hash on D will match A, B & C and a supplementary test carried out to ensure that A+B+C = D.

Q. Will you check input files for randomness?

A. It will be obvious from inputs if an employer is using software that is not generating truly random sub-references and this will inform compliance activity.

4) Questions about Bacs asked by employers during the pilot

Q. What does HMRC regard as a Bacs payment for RTI purposes?

A. A Bacs payment is one that is submitted directly or indirectly into Bacs using an employer's own Service User Number (SUN).

If an employer has any doubts about whether they have their own SUN, they should approach their Bacs Accredited Software Supplier (BASS) or BAB.

Q. Will we be compelled to develop a Bacs route (where payments are made via Bacs) once HMRC's strategic solution is available. If EDI and the Government Gateway route provide HMRC with adequate

information, will employers have to fund the development of additional systems to utilise Bacs?

A. HMRC does not intend to change the way employees are paid, or to force employers to pay via Bacs. To accommodate those employers who do not pay by Bacs, there will need to be an alternative means of submitting RTI once the strategic solution is implemented. This is likely to be the Government Gateway.

Q. What information will need to be added to Bacs payment instructions where the payment relates to RTI?

A. The employer or pension provider will need to include additional information in the Bacs payment file. They will include a four character entry in Field 7 (currently spare) of the Bacs payment file.

This entry will consist of an initial '/' to identify it as an RTI payment and three random characters, which will normally be generated by a customer's payroll software.

If you pay by Bacs under your own SUN (see the questions set out below), you will be obliged to do two things:

1. Include the entry in Field 7 as mentioned above

2. Include in your RTI submission to HMRC a cross-reference (or 'hash') calculated using the Field 7 reference **plus other data from the payment file (please contact your payroll software supplier for further information)**

Q. What will Bacs do with Field 7 information?

A. When Bacs process the payment, they will use it and other information in the payment file to re-create the encrypted cross-reference and send it to HMRC.

This reference should be the same as the reference in the RTI submission you will have sent to HMRC.

HMRC will then match the cross-reference sent from Bacs with the information sent by you.

HMRC will not have access to the source information (such as bank account details).

Q. Where can I find out more about generating the cross-reference (hash) or the four character entry for Field 7?

A. Please read 'Real Time Information - Generating the RTI Cross-reference (RTI hash)' above.

Q. Are changes required to Bacs software if an employer pays using that method?

A. You should check if any changes are needed with your BASS or Bacs Approved Bureau.

Q. I pay others, such as suppliers, through Bacs - what will be the impact on those payments?

A. Any Bacs payments (Bacs Direct Credits or Direct Debits) you submit that aren't salary or pension payments won't be affected and will be processed as they are today.

Q. I pay my employees by cash, cheque or electronically using internet or telephone banking, but not Bacs. Do I have to use the cross-reference?

A. No.

Q. Is HMRC proposing to force everyone to use Bacs for making salary payments?

A. There is no question of HMRC forcing employers to use Bacs to make salary payments. Employers or pension providers who choose to make payments by other methods can continue to do so.

Q. What happens if expenses go through Bacs after RTI has been sent?

A. If expenses which are not liable to tax or NICs are added to the payment after the RTI submission then RTI needs to be amended to reflect that the payment will now include an amount not subject to tax and NICs.

Q. I run my monthly payroll which generates payslips and payment instructions some time before the Bacs payments reach my employees' accounts. I frequently need to 'recall' or 'exclude' some of these payments before they are made due to information reaching payroll late, eg long-term sick. When this happens, we recalculate a revised payment for the employee, but do not rerun the payroll until the next month. How do I deal with this situation using RTI?

A. As now, using RTI employers must operate PAYE at the time that they make a relevant payment. They must also take reasonable care to report accurately to HMRC. In this scenario, the employer will have reported a payment, but some of the details were incorrect.

If it is not feasible for the employer to run the payroll again, and supply the correct information at the time the payment is made, the employer should correct the employee's position in the FPS for the next relevant payroll run. They would do this by ensuring that the YTD figures are accurate in that FPS.

5) Questions asked about Bacs by software developers during the RTI pilot

Q. How do I deliver the interim solution if I don't have access to employee bank details?

A. A key feature of RTI is to link RTI data and payment information together where employees are paid by direct Bacs. This will reduce errors and improve accuracy, particularly when Universal Credits is introduced. Employers need to use employee bank details to generate the hash cross reference. HMRC appreciate that this may result in a change to business processes for some employers.

Q. I only produce the payroll - the employer produces the standard 18 file - how will RTI affect us?

A. Employers will be required to include the hash cross references in RTI submissions where employees are paid by direct Bacs. This means the payroll producer will need details of the entries to be included in specified fields of the standard 18 payment instruction.

Q. Will the interim solution accept multiple submissions for different employer PAYE scheme references?

A. Multiple submissions will not be accepted through the Government Gateway from April 2012, but HMRC is investigating whether it will be possible to facilitate multiple submissions in a later release. However they will be accepted through EDI as at present.

Q. Why must we submit the hash with RTI data where earnings are paid by direct Bacs?

A. The hash provides HMRC with the facility to validate RTI data by cross referencing with hashes generated by VocaLink once the Bacs payment has been made.

Q. An employee has his net pay paid via Direct Bacs into two accounts. How should I report this for the hash to work?

A. The matching process will take place against the largest value payment. The Bacs payment instruction for the largest amount should contain the 4 character string in Field 7, and the data used for this payment should be used to construct the 64 character hash that is reported on the FPS.

Consider this example to see how the FPS should be completed: Suppose the employee is paid £850; £600 into account A and £250 into account B.
Step one is to total all the payments other than the largest and add this to any figure already in box 58B.

Box 59 less box 58B plus Box 58A should equal the largest payment.

So the total payment, before it is proportioned between recipient accounts, is the figure in box 59, box 58B reflects the value of the payment to account B. HMRC will use the amount 59 - 58B - 60 + 58A i.e. £600 (where 60 and 58A are 0) to match against the largest payment.

Q. What should an employer do where a payment covers more than one tax year?

A. If the payment consists of two or more net amounts for two or more tax years, then the amounts for all but the latest tax year should be totalled and added to any amounts in box 58A (the net amount for previous years are not subject to tax or NIC in the current year).

Q. Will VocaLink process the hash immediately they receive the file from the employer, or will they process it at the payment date (which could be in the future)?

A. VocaLink will process the hashes once payment has been made.

Q. Could an employer recall a Bacs transfer?

A. Yes.

Q. Will the "/" in field 7 of the Std 18 file be part of the PAYE regulations?

A. The appropriate field 7 entry will be required where an employer sends a payment instruction to Bacs that relates to a relevant payment, within the meaning given by the PAYE Regulations.

Please note that the solidus has a hex value of "2F" under the ASCII character codes.

Q. An employee receives part of his net pay via Direct Bacs, and part of it by another means, eg cheque. How should I report this for the hash to work?

A. The matching process will take place against the Bacs payment amount. The Bacs payment instruction should contain the 4 character string in Field 7, and the data used for this payment should be used to construct the 64 character hash that is reported on the FPS.

Consider this example to see how the FPS should be completed: Suppose the employee is paid £850, of which £600 in a cheque and £250 into account B via Bacs.
Step one is to total all the payments being paid other than by Bacs and this should be added to any figure already in box 58B.

Box 59 less box 58B plus Box 58A should equal the Bacs payment.

So the total payment, before it is proportioned between recipient accounts is the figure in box 59, box 58B includes the value of the payment by cheque. HMRC will use the amount 59 - 58B - 60 + 58A ie £250 (where 60 and 58A are 0) to match against the largest payment.

Q. How will the software be able to determine whether to include the hash if it doesn't know if the employer is paying by Bacs?

A. The employer will need to be able to indicate this in the software.

Q. Will HMRC be publishing what happens where the hash does not match the one created by Vocalink?

A. It will feed into HMRC and DWP risk assessment procedures used to target education and compliance activities.

Q. What is the submission 'window' between making a Bacs payment and making an RTI submission?

A. RTI submissions should be made on or before the time of payment. Where the payment is made by Bacs, the payment will be for a given settlement date and the RTI submission should be submitted by that date.

Q. Can employers still pay HMRC on a quarterly basis?

A. Yes, if they meet the relevant criteria. But if your payroll is run weekly then FPSs will be required on a weekly basis. The fact that an employer is a 'quarterly

payer' does not change the requirement to send in an FPS when payments are made.

Q. How should I report payments made to an employee with multiple employments across two or more PAYE schemes, when they are paid with a single payment? For example, an employee has job A and job B in scheme 1, and job C in scheme 2, and is paid for all three jobs together in one Bacs payment.

A. At the point the employer aggregates the results of the calculation into a single payment he must attach the hash relating to the single payment to each line of RTI which are then returned separately. The RTI data for jobs A and B in scheme 1 are aggregated so one box

59 is completed covering jobs A and B. The details relating to job C are returned separately under scheme 2. The same hash is returned with each piece of RTI. Aggregation of RTI data must only be done within each PAYE reference.

(RTI Cross reference Version 3. HMRC September 2012)