

GENERAL
SEGMENT

EFT Code Specifications
SUBJECT

SOFTWARE DEVELOPERS
AUDIENCE:

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Australian Government

Australian Taxation Office

EFT Code (Electronic Funds Transfer Code)

Specifications and Test Scenarios

Version 2.0

For Registered Software Facility

Public Domain

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Amendment record

The amendment record is updated for each new release of the document. Where practicable, details of the changes will be summarised and included in the record. Where there have been many changes, the changes will be documented in Appendix I Changes to this Version. The appendix will be purged and updated for each new release.

Version	Date	Authors	Pages affected	Description
1.00	August 2000	Jannine Kimber		
1.01	September 2000	Jannine Kimber		Change to Alignment of the Code and insert leading zeros not spaces.
1.02	September 2001	Jannine Kimber		Update contact information.
1.03	February 2004	Jannine Kimber		Increase minimum length of EFT code for Tax payments to 11 digits. CSA payments continue to allow a minimum of 10 digits. See 1.2 para 3.
2.0	September 2005	Peter Summerfield	Page 6 Pages 1 to 20 Page 9 Appendix C	The Australian Taxation Office no longer accepts payments on behalf of Child Support Agency. All references to CSA removed from this functional specification. Specification has been reformatted in line with Government branding standards. Suggested EFT code informative messages and error messages modified Test scenarios incorporated into this specification.

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1 INTRODUCTION

1.1 Purpose

This document is provided to software developers to enable them to enhance their product by incorporating official Tax Office EFT code validation rules. The receipt of a valid code by the Tax Office should ensure client accounts are credited with the payment without delay. It is the intention of the Tax Office to encourage incorporation of this front-end validation of the EFT code into software used by clients to make payments to the Tax Office .

This specification outlines the valid format of the EFT code and the algorithm which should be used to validate the code.

1.2 Background

The Tax Office uses the Lodgement Reference Field of the Banking Industry Direct Entry System or Field 70 of the RTGS system to obtain the necessary data from Direct Credit transactions to post these payments to the correct client account. The Tax Office provides clients with an EFT code which must be keyed into these fields. The EFT code is also used by the Tax Office Direct Debit system and by BPAY[®].

To cater for the introduction of the Australian Business Number (ABN) and the Client Activity Centre (CAC) in 2000, it was necessary to restructure the format of the EFT code which can be used when making payments to the Tax Office. Codes in this format do not contain any payment period information and are unchanged from one payment to the next.

A second valid format contains payment period information in addition to the Client Identifier and Revenue Type (Head of Revenue). These codes will differ between payments.

The variable internal format of the EFT code allows for the at-source validation of the entire code using the internal check digits. Validation of specific components based on each Head of Revenue is no longer required and edit specifications for internal code components will not be issued by the Tax Office .

1.3 Definitions, acronyms and abbreviations

Acronym	Description
ATO	Australian Taxation Office
ABN	Australian Business Number
BAS	Business Activity Statement
CAC	Client Activity Centre or GST Branch Code or Client Account Code
EFT code	Electronic Funds Transfer code, Lodgement Reference Field
BPAY®	® Registered to BPAY Pty Ltd ACN 079 137 518
HOR or HO	Head of Revenue
TFN	Tax File Number
Role Id	Client Identifier (where not TFN or ABN)
IIA	Integrated Instalment Account
MOD 97	Modulus 97 Validation.
PAYG	Pay As You Go
ITW	Income Tax Withholding
CSA	Child Support Agency
RTGS	Real Time Gross Settlement

2 EFT CODE FORMATS

2.1 Introduction

In July 2000 the requirements for the input of the EFT code in an acceptable format by the Tax Office was simplified. The EFT codes issued from 1 July 2000 will, in most cases, contain an internal 2 character check digit which will allow it to be validated using a modulus 97 validation routine.

2.2 Description of the EFT code Format

As a result of Tax Reform changes the EFT code will not, in most instances, contain information to identify the period to which the payment applies. The code will be static, not varying from payment to payment. This applies in particular to payments relating to Activity Statement liabilities and also payments for PAYG Income Tax Withholding liabilities for Large withholders.

It will, therefore, no longer be necessary for software providers to regularly re-build the EFT code since the components of the code will rarely change. Most, but not all, EFT codes will consist of an ABN, check digit and Head of Revenue. Some may also contain a CAC in addition to the ABN or may contain a TFN instead of an ABN.

To cater for the possible variations in the content of the code the format of the code is defined as:

1. A Single field which contains only Numeric digits or Spaces.
2. Minimum length of 11 digits, maximum Length of 18 digits
3. Additional zeros needed to meet the standard direct entry field requirement of 18 digits should be entered by the system not by the client.
4. No Internal Spacing within the EFT code should be allowed.
5. The code should be right justified, zero filled on the left to make the field up to 18 characters.

Validation carried out on the code should be in accordance with the algorithm specifications in *Section 3 Algorithm to calculate check digits*.

3 ALGORITHM TO CALCULATE CHECK DIGITS

3.1 Introduction

The algorithm to create the EFT code check digit is a modulus 97 (Mod 97V01 of the BPAY Customer Reference Number Validation Rules) weighted check sum. The resulting check digit is 2 characters in length and is inserted in positions 3 and 4 from the right in the EFT code.

The validation routine must be carried out each time a payment is made.

3.2 Rules – alternative outcome, accept all codes

The rules for checking the check digits are as follows:

- a. Remove the check digits from the EFT code (positions 3 and 4 from the right in the EFT code)
- b. Count the digits (leading spaces or zeroes do not apply) leaving a maximum of sixteen (16) characters.
- c. The remaining code should then be right justified.
- d. Weights Array is 16,15,14,13,12,11,10,9,8,7,6,5,4,3,2,1.
- e. If a CAC is 001 it is never included in the code.
- f. Multiply each digit by the corresponding number in the weights array. Weights are applied starting from the right most digit.
- g. Sum the results.
- h. Divide the sum by the modulus number; ie 97.
- i. Subtract the remainder from the modulus number, 97, to give the check digit.
- j. The check digit length is two (2). The leading zero is included in the EFT code if the check digit is less than 10.
- k. If remainder is zero (0) then check digit is 97.
- l. Check the calculated check digit against that extracted from the EFT code.
 - (a) **If it matches**
 - (i) Confirm validation.
 - (ii) Insert any required leading **zeros** to make the field up to 18 digits.
Example: 123456789012860 where ' ' represents a **zero**.
 - (b) **If it fails match**
 - (i) ask the client to check the EFT code and allow them to edit it if necessary.
 - (ii) Recheck validation. The client should be allowed three attempts to enter a correct code which would result in optimum processing of their transaction
 - (iii) If the code remains incorrect after 3 attempts then **reject validation**. Advise client that the EFT transaction remains invalid and will not be accepted by the Tax Office. Advise the client to contact the Tax Office to obtain a valid code **as per messages in Section 4 Invalid EFT codes**.

4 INVALID EFT CODES

It is recognised that there are Tax Office payment slips which have been issued to clients prior to 30 June 2000 which do not incorporate the necessary information to allow for validation. There are also a small group of payment types for 'legacy systems' which do not allow for check digit validation of the EFT codes provided on the payment slips.

4.1 Assume a client enters an invalid EFT code...

4.1.1 Failure First Attempt

Display *1st attempt message* (see 4.1.4 for messages)

4.1.2 Failure Second Attempt

Display *2nd attempt message*

4.1.3 Failure Third Attempt

Display *3^d attempt message*

4.1.4 Messages

1st attempt message

You have entered an invalid payment reference number (EFT code).

Please check the number you have entered. Then choose 'Retry'.

Choose the 'Help' button for further information.

2nd attempt message AND/OR Help message

The payment reference number (EFT code) you have entered does not pass the Tax Office validation requirement.

The number you should use is located on your payment slip. If you do not have a payment slip, you can contact the Tax Office Payment Hotline on **1800 815 886** for a valid number.

Note: You should only enter numbers and must not include spaces.

3rd attempt message

The payment reference number (EFT code) you have entered does not pass the Tax Office validation requirement.

You can contact the Tax Office Payment Hotline on **1800 815 886** to obtain a valid number, or consider an alternative payment method.

5 STORING THE EFT CODE.

Where the system is being used to make one type of payment only (e.g. PAYG Income Tax Withholding) the EFT code will not change from payment to payment. It would therefore be possible to store the code from session to session to avoid the need to re-enter it each time. It should be possible for the client to edit the code should circumstances change. Validation of the code should occur each time it is used.

Where more than one EFT code needs to be stored it could be accessed via a Pick List. More than one EFT code could be required where :

- The client has a number of CAC withholding branches. These codes will not change from payment to payment and could also be stored.
- A client is classified as a Large withholder. This group will have at least two EFT codes which must be used to make payments (PAYG ITW and BAS).
- Payments are being made for other payment types on a semi-regular basis. Some of these will need to be edited with each payment.

6 TAX OFFICE BANK ACCOUNT DETAILS

The following bank account is used by the Tax Office for receipt of the funds for a Direct Credit payment.

Bank : Reserve Bank of Australia
BSB No. : 093 003
Account No. : 316 385
Account Name : ATO Direct Credit Account

7 APPENDICES

Appendix A - Example calculations

ABN and check digit

- a. Suppose the:
 - (i) CAC is: 0 0 1 (ie represent as spaces)
 - (ii) ABN is: 1 2 3 4 5 6 7 8 9 0 1
 - (iii) HOR is: 6 0 (Activity Statement Payment)
- b. The EFT code the client would enter would be 123456789012860.
- c. Remove the check digits (28) and right justify the remaining code.
- d. Modulus 97 weightings: 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
- e. Multiply digits by weights, then sum :

Char Pos. L->R	CAC,ID, HOR	Weighting	Calc	Result
1		16		
2		15		
3		14		
4	1	13	1*13	13
5	2	12	2*12	24
6	3	11	3*11	33
7	4	10	4*10	40
8	5	9	5*9	45
9	6	8	6*8	48
10	7	7	7*7	49
11	8	6	8*6	48
12	9	5	9*5	45
13	0	4	0*4	0
14	1	3	1*3	3
15	6	2	6*2	12
16	0	1	0*1	0
			Total	360

- f. There are three methods that can be used to calculate the check digit from this point.
 - i. Apply the modulus 97 function, available in most programs, to the sum giving the remainder
 e.g. in Excel this would be $\text{mod}(360,97) = 69$
 Take the remainder away from 97 to find the check digit $97 - 69 = 28$
 The check digit is 28
 - ii. Subtract 97 from the sum until the result is less than 98 $360 - 97 - 97 - 97 = 69$
 Take the remainder away from 97 to find the check digit $97 - 69 = 28$
 The check digit is 28

- iii. Divide the sum by 97 360 divided by 97 = 3.7113402
 Take whole number only and multiply by 97 3 x 97 = 291
 Take this total away from the original sum 360 - 291 = 69
 Take the remainder away from 97 to find the check digit 97 - 69 = 28
 The check digit is 28

- g. Compare this check digit with that extracted at step c.
- h. The calculated check digit matches the check digit in the original code - confirm validation.
- i. Insert any required leading **zeros**.
 - 1. That is:

123456789012860 where ' ' represents a **zero**.

CAC, ABN and check digit

- a. Suppose the:
 - (iii) CAC is: 0 0 3 (ie leading zeros as spaces)
 - (iv) ABN is: 1 2 3 4 5 6 7 8 9 0 1
 - (iv) HOR is: 6 0 (Activity Statement Payment)
- b. The EFT code the client would enter would be 3123456789018360.
- c. Remove the check digits (83) and right justify the remaining code.
- d. Modulus 97 weightings: 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
- e. Multiply digits by weights, then sum :

Char Pos. L->R	CAC,ID, HOR	Weighting	Calc	Result
1		16		
2		15		
3	3	14	3*14	42
4	1	13	1*13	13
5	2	12	2*12	24
6	3	11	3*11	33
7	4	10	4*10	40
8	5	9	5*9	45
9	6	8	6*8	48
10	7	7	7*7	49
11	8	6	8*6	48
12	9	5	9*5	45
13	0	4	0*4	0
14	1	3	1*3	3
15	6	2	6*2	12
16	0	1	0*1	0
			Total	402

- f. There are three methods that can be used to calculate the check digit from this point.
- i. Apply the modulus 97 function, available in most programs, to the sum giving the remainder
 e.g. in Microsoft Excel this would be $\text{mod}(402,97) = 14$
 Take the remainder away from 97 to find the check digit $97 - 14 = 83$
 The check digit is 83
 - ii. Subtract 97 from the sum until the result is less than 98 $402 - 97 - 97 - 97 = 14$
 Take the remainder away from 97 to find the check digit $97 - 14 = 83$
 The check digit is 83
 - iii. Divide the sum by 97 $402 \text{ divided by } 97 = 4.1443298$
 Take whole number only and multiply by 97 $4 \times 97 = 388$
 Take this total away from the original sum $402 - 388 = 14$
 Take the remainder away from 97 to find the check digit $97 - 14 = 83$
 The check digit is 83
- g. Compare this check digit with that extracted at step c.
- h. The calculated check digit matches the check digit in the original code - confirm validation.
- i. Insert any required leading **zeros**.
 That is: 3123456789018360 where ' ' represents a **zero**.

TFN and period information

- a. Suppose the:
 - (i) Role Id is: 1 2 3 4 5 6 7 8 2
 - (ii) Payment Period is: 0 0 0 9 9
 - (iii) HOR is: 0 1 (Income Tax payment)
- b. The EFT code the client would enter would be 123456782000999401
- c. Remove the check digits (94) and right justify the remaining code.
- d. Modulus 97 weightings: 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
- e. Multiply digits by the weights, then sum:

Char Pos. L->R	CAC,ID, HOR	Weighting	Calc	Result
1	1	16	1*16	16
2	2	15	2*15	30
3	3	14	3*14	42
4	4	13	4*13	52
5	5	12	5*12	60
6	6	11	6*11	66
7	7	10	7*10	70
8	8	9	8*9	72
9	2	8	2*8	16
10	0	7	0*7	0
11	0	6	0*6	0
12	0	5	0*5	0
13	9	4	9*4	36
14	9	3	9*3	27
15	0	2	0*2	0
16	1	1	1*1	1
			Total	488

- f. There are three methods that can be used to calculate the check digit from this point.
- i. Apply the modulus 97 function, available in most programs, to the sum giving the remainder
 e.g. in Excel this would be $\text{mod}(488,97) = 03$
 Take the remainder away from 97 to find the check digit $97 - 03 = 94$
 The check digit is 94
 - ii. Subtract 97 from the sum until the result is less than 98 $488 - 97 = 03$
 Take the remainder away from 97 to find the check digit $97 - 03 = 94$
 The check digit is 94
 - iii. Divide the sum by 97 $488 \text{ divided by } 97 = 5.0309278$
 Take whole number only and multiply by 97 $5 \times 97 = 485$
 Take this total away from the original sum $488 - 485 = 03$
 Take the remainder away from 97 to find the check digit $97 - 03 = 94$
 The check digit is 94
- i. Compare this check digit with that extracted at step c.
 - j. The calculated check digit matches the check digit in the original code - confirm validation.
 - j. Insert any required leading **zeros**.

That is: 123456782000999401 no extra **zeros** required as code is already 18 digits.

Appendix B – Quick modulus 97 check digit calculation

The following is provided to allow a quick reference to identify the corresponding check digit which would result from a calculated modulus 97 remainder. In the example a modulus 97 remainder is calculated by subtracting from the sum the highest multiple of 97 which is less than the sum. This would leave a remainder of 58. Reference to the table would identify a check digit of 39.

1	97
2	194
3	291
4	388
5	485
6	582
7	679
8	776
9	873
10	970

Subtract number from multiple of 97:

to get remainder e.g.

Number = 640

Subtract 582 from 640 = 58

Check digit = 39

(cont.)

Appendix B (cont.) – Quick modulus 97 check digit calculation

Number	Check Digit	Number	Check Digit	Number	Check Digit
0	97	33	64	66	31
1	96	34	63	67	30
2	95	35	62	68	29
3	94	36	61	69	28
4	93	37	60	70	27
5	92	38	59	71	26
6	91	39	58	72	25
7	90	40	57	73	24
8	89	41	56	74	23
9	88	42	55	75	22
10	87	43	54	76	21
11	86	44	53	77	20
12	85	45	52	78	19
13	84	46	51	79	18
14	83	47	50	80	17
15	82	48	49	81	16
16	81	49	48	82	15
17	80	50	47	83	14
18	79	51	46	84	13
19	78	52	45	85	12
20	77	53	44	86	11
21	76	54	43	87	10
22	75	55	42	88	09
23	74	56	41	89	08
24	73	57	40	90	07
25	72	58	39	91	06
26	71	59	38	92	05
27	70	60	37	93	04
28	69	61	36	94	03
29	68	62	35	95	02
30	67	63	34	96	01
31	66	64	33		
32	65	65	32		

Appendix C - Validation of the EFT code - Test Scenario 1

Date - Current as at September 2005

The information that is provided in this test scenario is current as at August 2005. Software developers testing their products against this scenario should ensure that they monitor the Registered Software Facility for changes to this scenario or the inclusion of additional scenarios.

Qualification

This is the test for the validation of EFT codes issued on Tax Office payment slips from 1 July 2000 only. The EFT codes covered by this test contain internal check digits on which the validation is based. EFT codes issued prior to that date are not covered by this test.

Compliance Requirement

The EFT codes supplied with this test are to be input into the software package in a manner that would emulate the steps taken by the eventual user of the package.

The calculation of a check digit using the EFT code components followed by a comparison with the supplied check digit should enable a conclusive decision to be made as to the validity of the EFT code entered.

Overview / Expansion of Qualification

There are some EFT codes on Tax Office payment slips which have issued since 1 July 2000 which will fail the validation even though the user has input the correct information. This applies only to a small portion of the payment slips issued.

Any client who has an EFT code which fails the validation process must be advised to contact the Tax Office to obtain an updated EFT code.

Instructions for screen messaging for codes which fail the validation are included in this specification in Section 4. Screen messages should be checked as part of this test.

Instructions

The EFT codes provided should be input through the software to ensure that the calculation of the check digit and the comparison to the internal check digit is functioning correctly.

Incorrect EFT codes are provided to ensure that processing of invalid codes, including screen messaging, is also functioning as required.

Scenario - Valid Codes

Please do not key the spaces. They are only included to improve readability. The blocking of the code shown is the same as should appear on the payment slips.

These codes should be accepted as valid. Once validation has been confirmed your system should add sufficient leading zeros to make the field up to 18 digits. The field 'Data Expected by Tax Office' is included to show the insertion of leading zeros. The ' ' symbol represents a zero.

EFT code	Correct Check Digit	Data Expected by Tax Office (' represents a zero)
53004 085 616 0460	04	530040856160460
53004 085 616 0270	02	530040856160270
2 53004 085 616 7360	73	2530040856167360
2 53004 085 616 7170	71	2530040856167170
32 53004 085 616 2860	28	32530040856162860
32 53004 085 616 2670	26	32530040856162670
105 53004 085 616 1560	15	105530040856161560
105 53004 085 616 1370	13	105530040856161370
123 45678 200 000 6001	60	123456782000006001
123 45678 200 099 8427	84	123456782000998427
12 34567 710 099 3374	33	12345677100993374
12 34567 700 700 6668	66	12345677007006668
1 23456 901 499 0110	01	1234569014990110
123 456 782 3859	38	1234567823859
12 345 677 8359	83	123456778359

Scenario - Invalid Codes

The following codes should be identified as invalid and should be rejected. The user should be advised that the code they have entered is incorrect. See *Section 4 Invalid EFT codes* for recommended error messages.

The reason for the error is shown only to explain the reason for the test. The field showing what the code should be is only included for your own information. No attempt should be made by the system to correct the error.

Please do not key spaces unless asked to do so.

Reason for Test	Code to Enter	Should be
CAC of 001 entered by user. (CACs of 001 are never included.)	001 53004 085 616 0460	53004 085 616 0460
Transposed digits.	53040 085 616 0270	53004 085 616 0270
User miskeys the check digit.	105 53004 085 616 3170	105 53004 085 616 1370
User misses keying the CAC.	53004 085 616 7360	2 53004 085 616 7360
User keys spaces.	2 53004 085 616 7170 (where represents a space)	2 53004 085 616 7170
User misses keying a digit.	32 5304 085 161 2860	32 53004 085 616 2860
User zero fills the field.	53004 085 616 0460000	53004 085 616 0460
User miskeys the check digit.	123 45678 200 000 6601	123 45678 200 000 6001
User misses a zero.	123 45678 200 99 8427	123 45678 200 099 8427
User misses a block of numbers.	12 34567 099 3374	12 34567 710 099 3374
Old format of EFT code. (branch code rather than check digit)	12 34567 700 700 1630	12 34567 700 700 8030
User adds extra numbers to fill the field.	999 99912 345 677 8359	12 345 677 8359
User miskeys check digit and misses a number.	1 23456 901 499 101	1 23456 901 499 0110
User keys ABN instead of TFN.	53004 085 616 3859	123 456 782 3859
User keys extra digit.	123456778 8359	12 345 677 8359
User keys alpha chars to indicate type of payment.	BAS530040856160460	53004 085 616 0460
User keys alpha chars at left to include company name.	ACMEPL123455888860	12 345 588 8860
User keys alpha chars at right to fill field and show payment type.	530040856160270ATO	53004 085 616 0270
EFT code entered with less than required minimum of 11 digits.	123 455 8356	Reject due to failure to meet minimum length.

Listing Products on the product register of the Software Industry Information Centre

Once the developer is satisfied that the above requirement has been met, the product may be listed on the registered Software Facility as follows:

Tax Category ABN/TFN/EFT → Electronic Funds Transfer



IMPORTANT

If you wish to list against further tax categories you must test against the relevant test scenarios.