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# Accrual Verification Handbook

## Verifying Daily Accruals for Your Share and Loan Products

### INTRODUCTION

One of the routine practices that is critical to a credit union's due diligence and member satisfaction is the periodic verification of dividend and interest accruals on savings and loan products. Not only is it easier and less costly to fix a problem with an incorrect rate or calculation parameter before dividends are paid or loan payments made, but it is also an important exercise to ensure that the calculation process is consistently giving you the results you expect.

Regular verification can help prevent potential problems (and subsequent member adjustments) through:

- Verifying normal CU\*BASE calculation routines
- Reviewing software changes, enhancements, and new releases
- Working with auditors and regulators on dividend verifications
- Verifying your own rate maintenance and member account management

Admittedly, this verification process is not a simple one, especially for share products. Calculation parameters, payment frequency, minimum balances, split rates, and other product differences can make it tricky to be sure your manual calculations match how the CU\*BASE system calculates the accruals each day. Even getting the rounding right can be a challenge!

The **CU\*BASE Share Accrual Calculator** and **Loan Interest Calculator** inquiry tools were designed to make the validation of share dividends and loan interest much easier and more accurate.

These inquiry tools should be used to verify that daily dividend and interest calculations are what you want them to be. The Calculator is independent of the accruals done during daily processing; it will not show what *actually* happened with daily accrual, but rather serves as a "check and balance" for keeping an eye on the calculation process. If the Calculator shows a

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For an updated copy of this booklet, check out the Reference Materials page of our website:  
[http://www.cuanswers.com/client\\_reference.php](http://www.cuanswers.com/client_reference.php)  
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different accrual amount for the current period than is actually recorded on the account itself, steps should be taken to investigate the reason and make sure everything is set up correctly, before paying incorrect dividends to your members or handling a loan payoff incorrectly.

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# CREDIT UNION RESPONSIBILITIES: SHARE ACCRUALS

## WHAT SHOULD BE VERIFIED BEFORE DIVIDENDS ARE PAID?

In order to keep from having to test an account for every individual share *product* you offer, it will be helpful to compile a list of products with unique dividend calculation and payment characteristics. For example, are dividends calculated using the Simple Daily or Average Daily Balance method? Are minimum balances used? Is the rate split? Plateau or non-plateau?

*HINT: To help gather this list, print a copy of the Share Dividend Configuration Report (available on the Reports F menu (MNCNFX) and use the report to group products by similar parameters.*

Once a list of unique characteristics is established, choose one product that meets all of the criteria for each grouping, and use this list when pulling the list of sample accounts. This product list should remain the same until a new product or policy is added.

## HOW DO I GET A GOOD SAMPLING OF ACCOUNTS?

Once you've decided on the unique product types to be verified, the next step is to gather a list of sample accounts that represent each group. Account balances and activity volume will also play a role in selecting the sample cases.

For example, if one of the categories has a minimum balance requirement, select an account that has a balance below the minimum, and one that is above the minimum. For split rate products, it will require several sample accounts in order to get a separate account that falls into each of the rate tiers.

Using the Query options located on the Report Builder 1 (MNQUERY) menu, select accounts with the product characteristics for each category (Dividend Application, Calc. Type, Payment Frequency, etc.), as well as any needed balance ranges. For the sake of consistency, keep this list of the test accounts and use them every time verification is done. Depending on the number of product categories you have, you may need 10 or 20 different accounts to satisfy all of the test scenarios to be verified.

*Because account balances change, it may be necessary to update the account list from time to time to be sure all the needed verifications are covered.*

## HOW OFTEN SHOULD VERIFICATIONS BE DONE?

Your verification routine should be done every period before dividends are paid, using the dividend payment frequency as a guide. In other words, products that pay monthly should be verified once a month, before the

dividend pay date at the end of the month. Products paid quarterly can also be verified each month, but should be checked at least once prior to the end of the quarter when dividends are paid.

# USING THE SHARE DIVIDEND ACCRUAL CALCULATOR

## Member Account Inquiry (Detail)

Session 0 CU\*BASE GOLD Edition - ABC TESTING CREDIT UNION

File Edit Tools Help

### Member Account Inquiry

MSR

Account #  CRAIG R MEMBER

Date opened **Apr 04, 1986**

G/L account **901.00-01**

Account type **000 REGULAR SAVINGS**

Div appl **SH REGULAR SAVINGS**

Outstanding accrued club benefits **0.00**

Current balance	<b>105.42</b>	Annual b/u withholding	<b>0.00</b>
- par value	<b>5.00</b>	Period average balance	<b>105.42</b>
- secured	<b>0.00</b>	Period minimum balance	<b>105.42</b>
- uncollected	<b>0.00</b>		
= Net available	<b>100.42</b>	YTD club benefits	<b>0.00</b>
1st date negative	<b>00000000</b>		

Transaction inquiry date  [MMDDYY]

FR (3758) 6/11/13

**Dividend Information**

Quarter	Amount	Total
1	0.00	0.00
2	0.00	Accrued 0.00
3	0.00	
4	0.00	

Left-hand menu items: New Account, New Account Type, Dividend Calculator, NSF, Uncollected Funds, Secured Funds, OTB/Cards, IRA/HSA, Payroll, Tracker Review, Overdraft Protection

To view the Accrual Calculator, use *Dividend Calculator* (F11) on the Member Account Inquiry screen for regular share products. The following screen will appear:

“Dividend Calculator” (F11) (Share Accrual Calculator)

Session 0 CU\*BASE GOLD Edition - ABC TESTING CREDIT UNION

File Edit Tools Help

### Share Accrual Calculator

Account: -000 Account open date: Jun 08, 2010  
 Dividend appl: SH REGULAR SAVINGS Dividend period start: Jun 2012 [MMYYYY]  
 Current accrued: 0.038 Dividend period end: Jun 2013 [MMYYYY]  
 Accrued as of: Feb 16, 2013

Date	Balance	Amount for Calculation	Div Rate	Daily Rate	Daily Accrual	Accumulated Accrual
Jun 01, 2012	323.83	323.83	0.02	0.00000054	0.000	0.000
Jun 02, 2012	323.83	323.83	0.02	0.00000054	0.000	0.000
Jun 03, 2012	323.83	323.83	0.02	0.00000054	0.000	0.000
Jun 04, 2012	323.83	323.83	0.02	0.00000054	0.000	0.000
Jun 05, 2012	323.83	323.83	0.02	0.00000054	0.000	0.000
Jun 06, 2012	323.83	323.83	0.02	0.00000054	0.000	0.000
Jun 07, 2012	323.83	323.83	0.02	0.00000054	0.000	0.000
Jun 08, 2012	323.83	323.83	0.02	0.00000054	0.000	0.000
Jun 09, 2012	323.83	323.83	0.02	0.00000054	0.000	0.000
Jun 10, 2012	323.83	323.83	0.02	0.00000054	0.000	0.000
Jun 11, 2012	323.83	323.83	0.02	0.00000054	0.000	0.000

Computed accrual: 0.018

Calculation Details  
Print


FR (180) 6/11/13

Use *Calculation Details* (F1) to see how accruals are calculated for this product. (See the sample screen on the following page.)

The Share Accrual Calculator displays a “what if” calculation showing how each day’s accrual is calculated using the current configuration parameters. **It is not a historical representation of what actually happened with daily accruals for any given period**, but rather serves as a “check and balance” for keeping an eye on how daily dividend amounts are calculated.

The top portion of the screen on the previous page shows current information about the account, and allows you to enter a dividend period to be verified. The bottom portion of the screen is the calculated sample, showing the daily accrual amount for each day in the period, with a cumulative total for the entire period. The calculator uses transaction history to determine the member’s balance as of the time accruals were calculated on each day in the period.

*For complete details on using this screen, including a discussion about split and plateau rates, refer to CU\*BASE*

*Online Help. To access the online help, click  across the bottom of the CU\*BASE screen.*

“Calculation Details” (F1)

Session 0 CU\*BASE GOLD Edition - ABC TESTING CREDIT UNION

File Edit Tools Help


### Share Accrual Calculator

Account: 3968-081      Current balance: 105.42  
 Dividend Appl: SH REGULAR SAVINGS      Current accrual: 0.000  
 Dividends are accrued at: END-OF-DAY      Base dividend rate: 0.02  
 Dividends are paid at: END-OF-DAY      Lvl 1:>Bal=Rate: 9,999.99      0.02  
 Calculation type: SIMPLE      Lvl 2:>Bal=Rate: 24,999.99      0.02  
 Payment frequency: QUARTERLY      Lvl 3:>Bal=Rate: 99,999.98      0.02  
 Minimum balance to accrue: 100.00      Lvl 4:>Bal=Rate: 0.00      0.00  
 Minimum balance penalty: X      Lvl 5:>Bal=Rate: 0.00      0.00  
 Plateau: NO      Lvl 6:>Bal=Rate: 0.00      0.00

Daily Rate (Not Rounded)				Daily Accrual (Rounded)					
Rate	/	# Days in the Year	=	Daily Rate	Amount for Calculation	*	Daily Rate	=	Daily Accrual
0.00020	/	365	=	0.0000054	Base 105.42	*	0.0000054	=	0.000
					Level 1 0.00	*	0.0000000	=	0.000
					Level 2 0.00	*	0.0000000	=	0.000
					Level 3 0.00	*	0.0000000	=	0.000
					Level 4 0.00	*	0.0000000	=	0.000
					Level 5 0.00	*	0.0000000	=	0.000
					Level 6 0.00	*	0.0000000	=	0.000
									Daily total 0.000

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The top half of this screen shows the parameters currently used by CU\*BASE to calculate accruals for this share product. These are taken directly from Dividend Application configuration. The bottom half of the screen shows a sample calculation for one day, to demonstrate how the mathematical calculations are done. Use the formulas shown when replicating the calculation manually for verification.

Refer to CU\*BASE Online Help for more help with this screen. To access the online help, click  across the bottom of the CU\*BASE screen.

Report Sample

The following report will be sent to your default printer when *Print* (F6) is used on the main Accrual Calculator screen (shown on Page 6). (The report will begin printing after the Calculator screen has been exited.)

Date	Balance	Amt for Calc	Div Rate	Daily Rate	Daily Accrual	Accumulated Accrual
10/01/99	3667.86	3667.86	2.500	.00006849	.251	.251
10/02/99	3667.86	3667.86	2.500	.00006849	.251	.502
10/03/99	3667.86	3667.86	2.500	.00006849	.251	.753
10/04/99	3667.86	3667.86	2.500	.00006849	.251	1.004
10/05/99	3667.86	3667.86	2.500	.00006849	.251	1.255
10/06/99	3034.00	3034.00	2.500	.00006849	.208	1.463
10/07/99	3034.00	3034.00	2.500	.00006849	.208	1.671
10/08/99	1368.01	1368.01	2.500	.00006849	.094	1.765
10/09/99	1368.01	1368.01	2.500	.00006849	.094	1.859
10/10/99	1368.01	1368.01	2.500	.00006849	.094	1.953
10/11/99	1248.01	1248.01	2.500	.00006849	.085	2.038
10/12/99	1227.41	1227.41	2.500	.00006849	.084	2.122
10/13/99	1227.41	1227.41	2.500	.00006849	.084	2.206
Computed Accrual:					3.046	

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# CREDIT UNION RESPONSIBILITIES: LOAN ACCRUALS

## WHAT SHOULD BE VERIFIED?

**IMPORTANT:** This calculator has been designed to use a **daily** interest calculation only. Only loans that use interest calculation type 365 (0) or the 360/365 daily interest calc. type (4) can be verified using this inquiry. This tool cannot be used to verify mortgage loans.

For most credit unions, it will not be necessary to set up special tests for individual loan categories, since most loans other than mortgages use the 365-day interest calculation method. If your credit union begins using the 360/365 daily interest calculation type (where a 360-day year is always used to calculate the daily *per-diem*), you will need to validate these loan categories separately. The emphasis here is to verify a loan income G/L account by testing specific member loans.

*For example, say you observe that loan income account 111.01 (Used Automobiles) averages \$1,100 per day during the month of February. The average outstanding loan balances during that month were \$361,000, working out to an average rate of 9.125%.*

*From the standpoint of a “rule of thumb,” everything seems to be in line. But in some cases an auditor or examiner may wish to check a specific loan to make sure it is working to the penny for every loan.*

## HOW DO I GET A GOOD SAMPLING OF ACCOUNTS?

Unlike share balances where you have different terms and methods of accrual, the number one focus for loans is making sure that there is a good range of outstanding balances and multiple rates within both interest calculation type 365 (0) and the 360/365 daily interest calc. (4).

Therefore, you might create a Query to pull loans based on balance groups (for example, loans under \$10,000, between \$10,000-\$50,000, and greater than \$50,000), and then select loans from these groups with different interest rates. (Remember if you are verifying your “rule of thumb” against the loan income G/L, choose loans that are tied to that G/L account.)

*Because account balances change and loans will be paid off, it will be necessary to update the account list from time to time to be sure all the needed verifications are covered.*

## HOW OFTEN SHOULD VERIFICATIONS BE DONE?

Loan verifications should be done at least once per quarter, as well as after any CU\*BASE change to accrual programs or other major loan servicing releases. Your comfort zone for verifications will be according to the



complexity of your loan offerings, your Supervisor Committee, and your examination schedules.

# USING THE LOAN INTEREST ACCRUAL CALCULATOR

## Member Account Inquiry

Session 0 CU\*BASE GOLD Edition - ABC TESTING CREDIT UNION

File Edit Tools Help

### Member Account Inquiry

Collateral  
 Secured  
 Delinquent  
 Additional signers  
 Pledged  
 Payroll  
 ACH  
 AFT  
 Pmt protection **N**  
 Misc coverages **N**  
 Frozen **0** **NO**  
 Check digit **0**  
 Delivery channel **CU**

Account #  CRAIG R MEMBER  
 Date opened **Apr 08, 2011**  
 Balloon Loan  
 G/L account **701.21-01**

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Account **715 CLOSED END HOME EQU - EQUITY**  
 Category **09 CL END HOME EQU**  
 Purpose **60 REAL ESTATE**  
 Security **07 REAL ESTATE**  
 Proc type **M MORTGAGE LOAN**

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Current balance	11,768.13	Interest rate	5.500	Club benefits	
+ Interest	17.70	Daily accrual	0 1.77	Accrued	0.00
+ Delinquent fine	0.00	YTD interest	109.78	YTD	0.00
- Insurance rebate	0.00				
<hr/>		Amort/maturity date	May 01, 2026		
= Loan payoff	11,785.83	Review date	May 01, 2026		

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<b>New Account</b>	Disbursement limit	12,000.00	Secured funds	0.00	Available funds	0.00
<b>New Type</b>	Interest accrued through	Feb 16, 2013	Total disbursed	12,000.00	First payment	Jun 01, 2011
<b>History</b>	Last disbursed balance	12,000.00	Last disbursed	Apr 08, 2011		
<b>Interest Calc</b>	Last payment	68.13	Last payment	Feb 06, 2013	ECOA code	1
<b>NSF</b>	Regular payment	68.13	Next payment	01 Mar 01, 2013	Escrow	
<b>Loan Officer</b>	Amount due	0.00	# pmts remaining	159 of 180	Escrow payment	0.00
<b>Loan Category</b>	Partial pay	0.00	Frequency	MONTHLY	# of refinances	0

Transaction inquiry date  [MMDDYY]

FR (3752) 6/11/13

To view the Loan Interest Accrual Calculator, use *Interest Calc* (F11) on the Member Account Inquiry screen for loan accounts.

“Interest Calc” (F11) (Interest Accrual Calculator)

Account

Loan category 09 CLOSED END HOME EQUI Account open date Apr 08, 2011

Current interest 17.70 Start date Feb 07, 2013 [MMDDYYYY]

Accrued as of Feb 16, 2013 End date Feb 16, 2013 [MMDDYYYY]

Date	Balance	Amount for Calc	Rate	Daily Rate	Daily Interest	Accumulated Interest
Feb 07, 2013	11,768.13	11,768.13	5.500	0.000150684	1.77	1.77
Feb 08, 2013	11,768.13	11,768.13	5.500	0.000150684	1.77	3.54
Feb 09, 2013	11,768.13	11,768.13	5.500	0.000150684	1.77	5.31
Feb 10, 2013	11,768.13	11,768.13	5.500	0.000150684	1.77	7.08
Feb 11, 2013	11,768.13	11,768.13	5.500	0.000150684	1.77	8.85
Feb 12, 2013	11,768.13	11,768.13	5.500	0.000150684	1.77	10.62
Feb 13, 2013	11,768.13	11,768.13	5.500	0.000150684	1.77	12.39
Feb 14, 2013	11,768.13	11,768.13	5.500	0.000150684	1.77	14.16
Feb 15, 2013	11,768.13	11,768.13	5.500	0.000150684	1.77	15.93
Feb 16, 2013	11,768.13	11,768.13	5.500	0.000150684	1.77	17.70

Computed accrual 17.70

Calculation Details


Print

FR (325) 6/11/13

Use Calculation Details (F1) to see how accruals are calculated for this product. (See the sample screen on the following page.)

The Loan Interest Accrual Calculator displays a “what if” calculation showing how each day’s interest accrual is calculated using the current configuration parameters. **It is not a historical representation of what actually happened with daily interest accruals for any given period**, but rather serves as “check and balance” for keeping an eye on how daily interest due amounts are calculated.

The top portion of the screen shows current information about the account. The bottom portion of the screen is the calculated sample. By default, the calculation starts as of the day after the last payment was made, and continues through the current date (most recent accrual). A cumulative total is shown for the entire period since the last payment. Use the fields at the top of the screen to change the date range shown.

Refer to CU\*BASE Online Help for more help with this screen. To access the online help, click  across the bottom of the CU\*BASE screen.

“Calculation Details” (F1)

Session 0 CU\*BASE GOLD Edition - Interest Accrual Calculator

Account	-715	Loan category	09 CLOSED END HOME EQUI
Current balance	11,768.13	Interest calculation	0 LOAN % CALCULATION - DAILY
Current interest	17.70	Last accrual	Feb 16, 2013
Interest rate	5.500	Last payment	Feb 06, 2013

Rate	/	# of Days in the Year	=	Daily Rate
0.05500	/	365	=	0.000150684 (not rounded)

Amount for Calculation	*	Daily Rate	=	Daily Interest
Base 11,768.13	*	0.000150684	=	1.77 (rounded)

Navigation icons: ← → ↑ || ⏏ ⏏ ⓘ ? @

FR (324)

The top half of this screen shows the parameters used by CU\*BASE to calculate interest accruals for this loan account. These are taken from the account and the loan product configuration.

The bottom half of the screen shows a sample calculation for one day, to demonstrate how the mathematical calculations are done. Use the formulas shown when replicating the calculation manually for verification.

Refer to CU\*BASE Online Help for more help with this screen. To access the online help, click ⓘ across the bottom of the CU\*BASE screen.

Report Sample

The following report will be sent to your default printer when F6-Print is used on the main Interest Accrual Calculator screen (shown on Page 11). (The report will begin printing after the Calculator screen has been exited.)

3/09/00 12:02.33	CU*BASE TEST CREDIT UNION LOAN INTEREST CALCULATOR	IINTCA	PAGE 1 DAWNM
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Account.....:	147-701	Account Open Date.....:	7/09/99
Loan Category...:	01 CONSUMER LOAN	Int. Start MM DD YYYY.:	02/13/2000
Current Interest:	8.84	Int End MM DD YYYY.:	03/09/2000
Accrued as of ..:	3/09/00		

Date	Balance	Amt for Calc	Int Rate	Daily Rate	Daily Accrual	Accumulated Accrual
2/13/00	1604.31	1604.31	7.750	.00002117	.34	.34
2/14/00	1604.31	1604.31	7.750	.00002117	.34	.68
2/15/00	1604.31	1604.31	7.750	.00002117	.34	1.02
2/16/00	1604.31	1604.31	7.750	.00002117	.34	1.36
2/17/00	1604.31	1604.31	7.750	.00002117	.34	1.70
2/18/00	1604.31	1604.31	7.750	.00002117	.34	2.04
2/19/00	1604.31	1604.31	7.750	.00002117	.34	2.38
2/20/00	1604.31	1604.31	7.750	.00002117	.34	2.72
2/21/00	1604.31	1604.31	7.750	.00002117	.34	3.06
2/22/00	1604.31	1604.31	7.750	.00002117	.34	3.40
2/23/00	1604.31	1604.31	7.750	.00002117	.34	3.74
2/24/00	1604.31	1604.31	7.750	.00002117	.34	4.08
2/25/00	1604.31	1604.31	7.750	.00002117	.34	4.42
2/26/00	1604.31	1604.31	7.750	.00002117	.34	4.76
2/27/00	1604.31	1604.31	7.750	.00002117	.34	5.10
2/28/00	1604.31	1604.31	7.750	.00002117	.34	5.44
2/29/00	1604.31	1604.31	7.750	.00002117	.34	5.78
3/01/00	1604.31	1604.31	7.750	.00002117	.34	6.12
3/02/00	1604.31	1604.31	7.750	.00002117	.34	6.46
3/03/00	1604.31	1604.31	7.750	.00002117	.34	6.80
3/04/00	1604.31	1604.31	7.750	.00002117	.34	7.14
3/05/00	1604.31	1604.31	7.750	.00002117	.34	7.48
3/06/00	1604.31	1604.31	7.750	.00002117	.34	7.82
3/07/00	1604.31	1604.31	7.750	.00002117	.34	8.16
3/08/00	1604.31	1604.31	7.750	.00002117	.34	8.50
3/09/00	1604.31	1604.31	7.750	.00002117	.34	8.84

Computed Accrual:	8.84
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