MAINFRAME CALENDARS

Reference Manual

July 2010

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1. Introduction

These programs were created by an MVS mainframe programmer during the 1980's and were developed with all original code to resolve some difficult date-related programming issues. This idea was sparked by a need to develop a stand-alone program that could produce hard-copy calendars in light of the impending "Y2K" millennium change. Having the "right" calendar could be considered helpful in many business situations but it was critically important in an applications environment. Time was spent researching calendar issues from different sources and the Customized Printed Calendar Program (CALPRINT) was created.

CALPRINT quickly creates hard-copy calendars that are totally independent of any "called" programs. On demand, it accurately creates calendars for any Single Year, or for any Series of Consecutive Years, ranging from 1753 through 2600. Only a simple "request record" is required at execution time and CALPRINT takes it from there. Customized Calendars are created in 3 standard styles: 1-year per page; 2-years per page; and a 2-year per page with a repeating year feature. The fourth style is a 1-year calendar that also displays all corresponding Julian Dates. A separate document containing actual calendar output with samples of all four styles is attached.

Having the correct calendar available can make anyone's job a little bit easier, but it was obvious that this was not going to solve any programming issues on its own because mainframe programs cannot read hard-copy calendars. The original logic from the CALPRINT program was re-worked and some new code was added. Once the output was successfully modified, the Interval Calendar Program (CALFILE) was created. CALFILE creates calendars in a data file format where each "date record" represents a unique calendar date. Every date record that is produced also contains additional data fields that provide alternate ways to search for specific dates.

See Section 3.2: Output Record Description - CALFILE

One of these fields contains a unique sequence number that can be used to calculate the exact interval between any 2 given dates. Another field identifies every specific date by its correct weekday name, which means "No More Guessing!" Three additional fields perform the following functions: one field denotes the total times that each weekday name occurs during a specific month; another field denotes if it is the first, second, etc occurrence; the third field denotes if it the last, or next to last etc occurrence. To identify Memorial Day for the year 2011, all that is required is to search for a record that contains the last occurrence, of a Monday, that occurs in May, and in the year 2011. This search will locate the only date record that will satisfy this request: May 30, 2011.

CALPRINT creates hard-copy calendars that are people-friendly and CALFILE creates calendars that are computer-friendly. Both programs have been privately held since they were originally created, but recent advances in website technology have made these programs available to all MVS and z/OS application programmers. With that, MainframeCalendars.Com came into existence.

We hope that you will enjoy the benefits that these programs will provide.

2. Installation of Programs

One attachment on this email contains our load modules. Follow these steps to install the programs onto your MVS mainframe.

Step	Description
1.	Save the "XMIT" file into a folder on your PC.
2.	After this file has been moved, it is very important not to open this "file" on your PC. Doing so can very easily corrupt the contents.
3.	On the Mainframe, create/allocate a 5-track physical sequential data set using these file attributes: Please – Do Not Deviate. RECFM=FB LRECL=80 BLKSIZE=3120
4.	Now ftp the file from the PC to the allocated file on your MVS Mainframe. This file must be treated as binary.
5.	Go to ISPF Option 6 and issue the following command: receive indsname('your.allocated.dataset.from.above')
6.	After Step 5 has been completed, you will find two modules named CALFILE and CALPRINT in the output Library that were indicated from the "receive".
7.	From here, the load modules can be moved at will.

3. The Interval Calendar Program - CALFILE

3.1 Program Description - CALFILE

The Interval Calendar Program creates a calendar in a data file format and becomes a powerful reference tool that solves date-related problems in MVS or z/OS environments. The output created is a continuous flow of "date records" where each unique date is created exactly once and where all "date records" appear in perfect sequential order.

CALFILE generates:

- 366 sequential Date Records for every Leap Year that is produced
- 365 sequential Date Records for every Non-Leap Year that is produced

In addition to a unique date, each date record also contains other data fields that are directly related to that date. One of these fields contains a sequential counter that can be used to accurately identify another date by adding or subtracting a specific number of days. Conversely, the exact interval between any 2 dates can be easily calculated. This will provide accurate answers when this span overlaps 1 or more months or 1 or more years, whether leap years or non-leap years are involved.

Each execution of the Interval Calendar Program quickly creates the exact calendar that is required to solve the task at hand. All necessary date records are produced exactly when they are needed. The user simply supplies a "starting" and "ending" year at the time of execution.
For example:

- When the years "2007" and "2030" are supplied, CALFILE creates a calendar file that will contain exactly 24 years worth of unique Date Records.

Output Records are 35 bytes in length. (The sample below includes intentional spacing)

```
2008 02 22 07 29 4 1 5 FRI 053 313 L FR FR 000418
2008 02 23 06 29 4 0 4 SAT 054 312 L FR FR 000419
2008 02 24 05 29 4 0 4 SUN 055 311 L FR FR 000420
2008 02 25 04 29 4 0 4 MON 056 310 L FR FR 000421
2008 02 26 03 29 4 0 4 TUE 057 309 L FR FR 000422
2008 02 27 02 29 4 0 4 WED 058 308 L FR FR 000423
2008 02 28 01 29 4 0 4 THU 059 307 L FR FR 000424
2008 02 29 00 29 5 0 5 FRI 060 306 L FR FR 000425
2008 03 01 30 31 1 4 5 SAT 061 305 L SA MO 000426
2008 03 02 29 31 1 4 5 SUN 062 304 L SA MO 000427
2008 03 03 28 31 1 4 5 MON 063 303 L SA MO 000428
2008 03 04 27 31 1 3 4 TUE 064 302 L SA MO 000429
2008 03 05 26 31 1 3 4 WED 065 301 L SA MO 000430
2008 03 06 25 31 1 3 4 THU 066 300 L SA MO 000431
2008 03 07 24 31 1 3 4 FRI 067 299 L SA MO 000432
2008 03 08 23 31 2 3 5 SAT 068 298 L SA MO 000433
```

A separate document containing a sample multi-year calendar file is attached.

3.2 Output Record Description - CALFILE

Col 1-8: A Unique Date appearing in a Gregorian Date Format [CCYYMMDD]

Col 9-10: The number of days remaining in the month when this date occurs

Col 11-12: The total number of days in the month when this date occurs

Col 13: The 1st through 5th occurrence of this weekday name in the month when this date occurs

Col 14: The number of remaining occurrences of this weekday name in the month when this date occurs

Col 15: The total number of occurrences of this weekday name in the month when this date occurs

Col 16-18: The correct weekday name for this date

Col 19-21: This Unique Date appearing in a Julian Date Format

Col 22-24: The number of days remaining in the year when this date occurs

Col 25: An “L” or “C” to denote that this date occurs during a Leap or non-Leap Year

Col 26-27: The weekday name of the first day of the month when this date occurs

Col 28-29: The weekday name of the last day of the month when this date occurs

Col 30-35: A specific 6-digit sequence number that is uniquely assigned to this date

Each execution of CALFILE will create the exact calendar file that is required to solve the task at hand. The number of records produced will depend upon the starting and ending years that are supplied by the user at the time of execution.

For each execution, the first output record will always be January 1st of the “starting” year and column 30-35 will always contain a value of “000001”.

For each execution, the last output record will always be December 31st of the “ending” year and column 30-35 will always contain a value that represents the total number of records produced during this execution.

3.3 Execution JCL - CALFILE

```
//JOBCARD INFORMATION
//STEPNAME EXEC PGM=CALFILE
//STEPLIB  DD DSN=NAME.OF.LOADLIB
//         DD DSN=*.*.SCEERUN
//LICENSE  DD DSN=FILE.CONTAINING.LICENSE.RECORD
//CALINP   DD DSN=FILE.CONTAINING.START.AND.END.YEARS
//CALOUT   DD DSN=OUTPUT.FILE.CONTAINING.CALENDAR.DATE.RECORDS,
//         DCB=(RECFM=FB,LRECL=35,BLKSIZE=0)
//SYSOUT   DD *  (JOBSTEP MESSAGES)
```

SCEERUN Libraries should be included in the **STEPLIB** concatenation.

The DSN assigned to the **LICENSE DD** Statement must have these file attributes:

- RECFM=FB LRECL=80

This input file must contain ONLY1 RECORD which is provided at time of delivery
See Additional Instructions in Section 5: Software License Considerations

The DSN assigned to the **CALINP DD** Statement must have these file attributes:

- RECFM=FB LRECL=80

Optionally, Inline Data can be used for this DD Statement within the executable JCL
This input must contain a starting and ending year
“20012030” will produce a 30-year calendar file starting at 2001 and ending at 2030

When an input file is used, only the first record is read and it must contain:

- A numeric value in column 1 through 4 indicating the starting year
- A numeric value in column 5 through 8 indicating the ending year
- All subsequent values after column 8 in the first record are not used
- All subsequent records in this input file are not read by this program

An Invalid Request in the CALINP DD will cause a job failure and RC=20 because:

- Starting and Ending Years must be 4-byte numeric values
- Starting years are subject to a Minimum Value of 1753
- Ending years are subject to the Maximum Value specified in your Contract
- The Starting year cannot be greater than the Ending year

The DSN assigned to the **CALOUT DD** Statement must have these file attributes:

- RECFM=FB LRECL=35

The output from this program produces a Calendar in a File Format.
A separate document containing a sample multi-year calendar file is attached.

Note: Use the following as a guide to estimate the “SPACE” requirement:
A 100-year calendar will produce over 36,500 records at 35 bytes per record.
About 1.3 Mb of output data will consume less than 2 cylinders of DASD Space

4. Customized Printed Calendars – CALPRINT

4.1 Program Description - CALPRINT

Customized Printed Calendars are produced when CALPRINT processes an input file containing one or more request records. Each request is processed individually, one at a time.
Calendars can be selected from any years ranging from 1753 through 2600.
The Contract Maximum Year Limitation does not affect the CALPRINT program.
See Section 4.2: Creating Valid Request Records - CALPRINT
See Section 4.3: Sample Request Records - CALPRINT

To assist the user with tracking multiple requests, all input records are re-written as follows:

- Valid Request Records are written to the VALID DD
- Invalid Request Records are written to the REJECTS DD
- Any Individual Invalid Request Record will not cause a job failure – it is only rejected

Output Produced - Customized Calendars

Customized Calendars are produced when a Request Record contains any combination selected from the following styles and formats. A separate document containing actual calendar output with samples of all four styles is attached.

4 Available Styles:

1. The 1-Year - A Standard 1-Year calendar per printed page.

2. The 2-Year - 2 consecutive calendar years per printed page.
   - e.g., 2010-2011 2012-2013 2014-2015 2016-2017 etc.

3. The Repeater - Similar to above, but where the 2nd year is repeated.
   - e.g., 2010-2011 2011-2012 2012-2013 2013-2014 etc.

4. The Julian - A 1-Year Calendar that also displays all corresponding Julian Dates.

2 Available Formats:

1. The Single Year Format:
   - Creates a 1-page calendar using any of the calendar styles shown above
   - 1 to 50 copies of the same page can be produced per request record
   - Each printed calendar will contain the same personalized title per request record

2. The Series Format:
   - Creates consecutive calendars using any of the calendar styles shown above
   - Only 1 copy of a series of consecutive calendars can be produced per request record
   - Each printed calendar will contain the same personalized title per request record

4.2 Creating Valid Request Records - CALPRINT

Valid Request Records produce Customized Printed Calendars

- The input file assigned to the CALINP DD contains 125-byte Fixed-Length Records
- CALPRINT uses the first 74 bytes - the user has access to the remaining 51 bytes
- The Contract Maximum Year Limitation does NOT apply to CALPRINT
- Any Individual Invalid Request Record will not cause a job failure – it is only rejected

The Contents of Column 1 determines the Calendar Style that will be created.
Column 1 must always contain 1 of these values:

- 1 = 1 Year Style
- 2 = 2 Year Style
- R = The Repeater Style
- J = Julian Style

An Invalid Request will occur when other values are used.

The Contents of Columns 2 to 5 determines the Calendar Year that will be created.

- This value can be used to indicate the year selected for a Single Year Request
- This value can be used to indicate the First year selected for a Series Request
    - These values must range from 1753 through 2600

An Invalid Request will occur when other values are used.

The Contents of Columns 6 to 9 determines the Calendar Format (Single/Series).

- The Single Year Format is determined when this field contains a value ranging from 0001 through 0050. This indicates the number of copies for a Single Year Request
- The Series Format is determined when this field contains a value ranging from 1753 through 2600. This indicates the Final Year for a Series Request

An Invalid Request will occur when other values are used.

Special Note for the Series Format:
An Invalid Request will occur when the First Year is greater than the Final Year

Personalized Calendar Titles: Columns 10 through 74:

- Personalized Titles can contain up to 65 characters. This information should be placed in each Request Record starting at column 10 and extending to column 74.

- CALPRINT automatically centers all Titles shorter than 65 characters in length. This feature will execute when the requested Title begins in column 10. However, this feature will not execute when column 10 contains a space.

- When all 65 positions contain spaces, a Blank Heading will appear on the Title Line for all Calendars produced for that specific Request Record.

4.3 Sample Request Records - CALPRINT

All requests will execute successfully with any Style and Format combination. The 2-Year and the 2-Year Repeating styles were primarily designed to work with Series Formats, but these styles will also execute with the Single Year Format.

The values in Cols 6 through 9 determine the Calendar Format. (Single Year or Series)
The Single Year Format creates multiple copies of 1 single year
The Series Format creates 1 copy of a series of years

Single Year Requests can have values ranging from 0001 through 0050 in cols 6 through 9

```
120050001JOHN AND MARY JONES                  2005 only -  1 copy   1-Yr
220060002THE ACME COMPANY                     2006-2007 -  2 copies 2-Yr
R20070049BROWN AND WHITE OPTICAL SERVICES     2007-2008 - 49 copies 2-Yr-Repeat
J20080050WILLIAM BLACK, ESQ.                  2008 only - 50 copies Julian
```

Series Requests can have values ranging from 1753 through 2600 in cols 6 through 9

```
117531955JOHN AND MARY JONES                  1753-1955 -  1 copy   1-Yr
219222177THE ACME COMPANY                     1922-2177 -  1 copy   2-Yr
R21662355BROWN AND WHITE OPTICAL SERVICES     2166-2355 -  1 copy   2-Yr-Repeat
J23442600WILLIAM BLACK, ESQ.                  2344-2600 -  1 copy   Julian
```

```
AN INVALID REQUEST WILL OCCUR
  WHEN COLS 6 THROUGH 9 CONTAIN VALUES THAT DO NOT FOLLOW THESE GUIDELINES

AN INVALID REQUEST WILL OCCUR
  WHEN THE FIRST YEAR IS GREATER THAN THE FINAL YEAR USING A SERIES REQUEST

ANY INDIVIDUAL INVALID REQUEST RECORD WILL NOT CAUSE A JOB FAILURE
  IT IS ONLY REJECTED AND WRITTEN TO THE REJECTS DD STATEMENT


NOTE: ALL OF THE FOLLOWING REQUESTS ARE VALID.

HOWEVER, EACH SET OF REQUESTS WILL PRODUCE IDENTICAL OUTPUT BECAUSE:
  A SINGLE YEAR REQUEST WITH ONE COPY IS EQUIVALENT TO
  A SERIES REQUEST THAT SPANS ONLY ONE YEAR.

120060001JOHN AND MARY JONES  ← Single Year Request with 1 copy
120062006JOHN AND MARY JONES  ← Series Request spanning 1 year

220070001THE ACME COMPANY  ← Single Year Request with 1 copy
220072007THE ACME COMPANY  ← Series Request spanning 1 year

R20080001BROWN AND WHITE OPTICAL SERVICES  ← Single Year Request with 1 copy
R20082008BROWN AND WHITE OPTICAL SERVICES  ← Series Request spanning 1 year

J20090001WILLIAM BLACK, ESQ.  ← Single Year Request with 1 copy
J20092009WILLIAM BLACK, ESQ.  ← Series Request spanning 1 year
```

4.4 Execution JCL - CALPRINT

```
//JOBCARD INFORMATION
//STEPNAME EXEC PGM=CALPRINT
//STEPLIB  DD DSN=NAME.OF.LOADLIB
//         DD DSN=*.*.SCEERUN
//LICENSE  DD DSN=FILE.CONTAINING.LICENSE.RECORD
//CALINP   DD DSN=FILE.CONTAINING.REQUEST.RECORDS
//CALOUT   DD SYSOUT=A (CALENDARS DIRECTED TO PRINT QUEUE)
//VALID    DD DSN=OUTPUT.FILE.CONTAINING.VALID.REQUESTS
//REJECTS  DD DSN=OUTPUT.FILE.CONTAINING.INVALID.REQUESTS
//SYSOUT   DD *  (JOBSTEP MESSAGES)
```

SCEERUN Libraries should be included in the **STEPLIB** concatenation.

The DSN assigned to the **LICENSE DD** Statement must have these file attributes:

- RECFM=FB LRECL=80

This input file must contain ONLY1 RECORD which is provided at time of delivery
See Additional Instructions in Section 5: Software License Considerations

The DSN assigned to the **CALINP DD** Statement must have these file attributes:

- RECFM=FB LRECL=125

Inline Data cannot be used for this DD Statement
This input file should contain one or more individual Request Records
See Section 4.2: Creating Valid Request Records - CALPRINT
See Section 4.3: Sample Request Records – CALPRINT

This program creates customized printed calendars producing 132-byte output records

- The **CALOUT DD** Statement is used for this purpose:
  - The output can be forwarded directly to a printer using SYSOUT=*, etc.
  - The output can also be “stored” in an output DSN for printing at a future date

All Request Records are re-written for tracking purposes.

All Valid Request Records are written to the **VALID DD** Statement DSN.

- At execution time a physical sequential Data Set is created having these attributes:
  RECFM=FB LRECL=125

All Invalid Request Records are written to the **REJECTS DD** Statement DSN.

- At execution time a physical sequential Data Set is created having these attributes:
  RECFM=FB LRECL=125

Any Individual Invalid Request Record will not cause a job failure – it is only rejected

5. Software License Considerations

Software Licenses are used to protect the vendor and all prospective buyers from the unauthorized use of software products. Our Programs are protected with a valid License Record that is issued to our customers at the time of delivery. Our License Records have an immediate effective date and should be checked for validity upon receipt. Any unauthorized change made to a License Record after being issued can cause this record to become "invalid".

- Both JCLs contain a LICENSE DD Statement
- Pre-Allocate only 1 DSN that must have these data set attributes:
  RECFM=FB LRECL=80
- As a convenience, CALFILE and CALPRINT can use the same DSN file name
- Jobs will fail with RC=16 when this input file does not contain exactly 1 License Record
- Jobs will fail with RC=16 when this input file contains an Invalid License Record

The following is a sample License Record:

P12345ABCD 11-2010 MAX-2150 201012345CO41 COMPANY NAME

Our programs will execute after the License Record is read and validated. Each License Record contains the following information:

- Encrypted Information
- A Contract Expiration Date (Month and Year)
- A Maximum value that only applies to the CALFILE Program
- License Record Tracking Information (for our internal use only)

Refer to the sample above. The Contract Expiration Date (Month and Year) appears after the encrypted information. Our Contracts are designed to expire on the first day of the month of the posted Expiration Date. However, an automatic grace period is built-in that will allow for uninterrupted access until the last day of the month of the posted Expiration Date. Using the sample above, this grace period will last until midnight, November 30. Please note that our licenses cannot be extended beyond this point making it necessary to obtain a new License before the grace period comes to an end.

There is one additional benefit. All executions which occur during the grace period will complete successfully along with an RC=4 warning message. Customers who wish to disable this warning feature may contact us for further instructions.

CALFILE creates multi-year calendars in a file format for any range of years selected from 1753 up to the maximum year specified in your contract. As a convenience, this maximum also appears in the License Record. The sample above indicates MAX-2150 as the maximum allowable year and this limit only applies to the CALFILE Program.

For additional information about the CALFILE Maximum Limit, please contact us.

6. Output Messages

6.1 SYSOUT MESSAGES - CALFILE

A: For a normal job completion with a Valid License: RC=0

```
PROGRAM: CALFILE
  TODAY:  08-01-10
P12345ABCD 11-2010 MAX-2150 201012345CO41 COMPANY NAME
THIS LICENSE IS VALID
YEARS REQUESTED: 1968-2025
BALANCE: COLUMN 9 THROUGH 72 OF HEADER RECORD
```

B: For a job completion after the Contract Expiration Date: RC=4

```
PROGRAM: CALFILE
  TODAY:  11-30-10
P12345ABCD 11-2010 MAX-2150 201012345CO41 COMPANY NAME
THIS LICENSE HAS EXPIRED
THE GRACE PERIOD IS IN EFFECT UNTIL THE LAST DAY OF THIS MONTH
CONTACT THE VENDOR - WARNING - THE RC4 FEATURE IS ON
YEARS REQUESTED: 1968-2025
BALANCE: COLUMN 9 THROUGH 72 OF HEADER RECORD
```

C: When the job does not execute because the Grace Period has ended: RC=16

```
PROGRAM: CALFILE
  TODAY:  12-01-10
P12345ABCD 11-2010 MAX-2150 201012345CO41 COMPANY NAME
THIS LICENSE AND THE ENTIRE GRACE PERIOD HAS EXPIRED, CONTACT THE VENDOR
```

D: When the job does not execute because of an INVALID License Record: RC=16

```
PROGRAM: CALFILE
  TODAY:  09-01-10
P12345ABCZ 11-2010 MAX-2150 201012345CO41 COMPANY NAME
THIS LICENSE IS INVALID, CONTACT THE VENDOR
```

In all above cases, the SYSOUT will display the following:

- The Program Name being executed
- The Date of Execution from the System Clock
- The License Record found in the DSN assigned to the LICENSE DD Statement
- The Status of the License Record: VALID, INVALID, EXPIRED

With RC=0 and RC=4, the SYSOUT will also display the following:
The Start and End Years found in the CALINP DD
Columns 9 through 72 of the first record are displayed as a courtesy

E: RC=16 is issued when the LICENSE DD does not contain exactly 1 Record

F: RC=20 is issued when there is an Invalid Request. See Section 3.3: **CALINP DD**

6.2 SYSOUT MESSAGES - CALPRINT

A: For a normal job completion with a Valid License: RC=0

```
PROGRAM: CALPRINT
  TODAY:  08-01-10
P12345ABCD 11-2010 MAX-2150 201012345CO41 COMPANY NAME
THIS LICENSE IS VALID
REQUESTS: VALID       = 0026
REQUESTS: REJECTS     = 0007
REQUESTS: TOTAL       = 0033
```

B: For a job completion after the Contract Expiration Date: RC=4

```
PROGRAM: CALPRINT
  TODAY:  11-30-10
P12345ABCD 11-2010 MAX-2150 201012345CO41 COMPANY NAME,
THIS LICENSE HAS EXPIRED
THE GRACE PERIOD IS IN EFFECT UNTIL THE LAST DAY OF THIS MONTH
CONTACT THE VENDOR - WARNING - THE RC4 FEATURE IS ON
REQUESTS: VALID       = 0022
REQUESTS: REJECTS     = 0003
REQUESTS: TOTAL       = 0025
```

C: When the job does not execute because the Grace Period has ended: RC=16

```
PROGRAM: CALPRINT
  TODAY:  12-01-10
P12345ABCD 11-2010 MAX-2150 201012345CO41 COMPANY NAME
THIS LICENSE AND THE ENTIRE GRACE PERIOD HAS EXPIRED, CONTACT THE VENDOR
```

D: When the job does not execute because of an INVALID License Record: RC=16

```
PROGRAM: CALPRINT
  TODAY:  09-01-10
P12345ABCZ 11-2010 MAX-2150 201012345CO41 COMPANY NAME
THIS LICENSE IS INVALID, CONTACT THE VENDOR
```

In all above cases, the SYSOUT will display the following:

- The Program Name being executed
- The Date of Execution from the System Clock
- The License Record found in the DSN assigned to the LICENSE DD Statement
- The Status of the License Record: VALID, INVALID, EXPIRED

With RC=0 and RC=4, the SYSOUT will also display the following:
The Number of Valid, Invalid, and Total Request Records that were processed

E: RC=16 is issued when the LICENSE DD does not contain exactly 1 Record

F: Any Individual Invalid Request Record will not cause a job failure – it is only rejected

7. Addendum

Over the years, I have seen many calendar routines, but none that can compare to the features available in CALFILE and CALPRINT. To begin with, a user will find these programs extremely easy to use. But the additional features make this a practical choice: accuracy, speed of execution, and great flexibility with the unique search values. Here are some examples where the Interval Calendar (CALFILE) can be helpful:

Example 1: Create a List of Dates when Thanksgiving Day occurs.

- Search for the Fourth Thursday in November.
- Search for the following:
  - When Column 1 (for 4) = "search year" Any specific year or a range of years
  - When Column 5 (for 2) = 11 Always in November
  - When Column 13 (for 1) = 4 Always the fourth occurrence
  - When Column 16 (for 3) = THU Always a Thursday
- You will create a list for all Thanksgiving Day Dates for the range specified.
- You may also request 1 specific year and locate only 1 Date.

Example 2: A Bank grants a loan on a specific date, October 22, and the loan is payable exactly 180 days later. It will occur in April but what is the exact due date? You have to deal with Month Overlaps, a Year Overlap, and a Leap year might also be a factor.

- With CALFILE, simply locate the specific date of the loan. Then obtain the sequence number in column 30 (for 6). Then perform a second search for a new sequence number in column 30 that is 180 days plus the sequence number found in the first search. The second search will provide the date you are looking for easily, accurately, and very quickly.

Example 3: You are asked to create a list of Dates that contain the Last Tuesdays for all Months that occur between January 2005 and December 2013. That will be 9 years of dates at 12 dates per year for a total of 108 Tuesdays. The final Tuesday of any month could have a "date" value ranging from the 22nd to the 31st depending upon the month in question.

- Search for Last Tuesday for all months included in the range of years GT 2004 and LT 2014
  - When Column (1 for 4) = GT 2004 and LT 2014 To provide 2005 through 2013 as requested
  - When Column (14 for 1) = 0 The Last Occurrence – None Remain
  - When Column (16 for 3) = TUE Always a Tuesday
- This will produce 108 Dates

For questions or issues not covered in this manual, please contact us at:

service@mainframecalendars.com