

# A LEGACY MODERNIZATION UPDATE

Marble Computer, Inc.

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## REFACTORING COBOL CODE

As day-to-day business life changes, so will your needs regarding your internal computer services. The code you may currently have may be outdated or may no longer serve its purpose.

There are two ways you can go about this situation, one can either completely replace the code or refactor it. Refactoring refers to the process of taking old code and reworking it to change the factoring and its functions without changing its external behaviors.

Refactoring is crucial because it yields many benefits. First off, refactoring can improve the overall design of your application. By rebuilding your current software, you can improve upon its architecture and quality.

Refactoring code can also make it easier for both the programmers and users to understand an application. Even better, when the code is easier to read and operate, your programmers will be able to detect bugs within the code much more easily.

Refactoring is most necessary whenever you need to add a new feature or functionality to your application. Refactoring can implement the new change with ease because it already works to optimize your coding.

Marble Computer has added new facilities to help code refactoring projects with Release 2.4 of Control/DCD. The revamped Alternate Compile Listing (ACL) in both Independent Mode (no compiler) and in Compile Mode now supports ISPF's 80 column viewer limit.

Control/DCD provides three new analytics. Perform Errors Analysis, Forward-Tracing and a Special Narrative for Data Fields in the Data Division and Procedure Division.

IBM estimates that there are around 250 billion lines of COBOL code being maintained throughout the world. These are mainframe production applications that store and serve as much as 70% of the world's Enterprise Data. Daily, over \$30 Trillion of economic activity are processed by IBM mainframe COBOL.

### Did you know.....

**Marble Computer has been in business since 1983.**

**Control/DCD creates Digital Documentation Manuals in .pdf format for COBOL programs.**

# Control/DCD Creates COBOL Documentation Without the use of a COBOL Compiler

The Solution is Control/DCD's Independent Mode

**Increase Programmer Productivity - Save Compile Time**

## Data Element information

```
(0051) &SORT-TYPE-SEQ-1  
In 1-1 of 01 SORT-RECORD in WORKING-STORAGE  
05 SORT-TYPE-SEQ-1 Pic X(001)
```

## Performed Hierarchy for this field -- shows PERFORM Hierarchy --

```
01      N-SORT-INPUT-PROCEDURE  
02      N500-WRITE-OUT-SORT-RECORD THRU N599-EXIT (5 Performs)  
02      N220-MATCH-FOR-MATCH THRU N299-EXIT  
03      N410-TEST-SEQ-IN-IPT-RANGE THRU N410-EXIT (Perform/Until)  
04      S-DO-FINAL-ADJUSTMENT  
02      P-SORT-OUTPUT-ROUTINE  
03      P110-CLEAR-QVW-LINE thru P195-EXIT  
01      R-CORRECT-MAST-CODE
```

## Data Usage in each Performed Routine --- Field use matches to above Hierarchy ---

```
N-SORT-INPUT-PROCEDURE  
    MOVE '1' TO SORT-TYPE-SEQ-1 (332), '2' TO SORT-TYPE-SEQ  
    (335), '3' TO SORT-TYPE-SEQ-1 (340,362)  
N220-LOOK-FOR-MATCH  
    MOVE '6' TO SORT-TYPE-SEQ-1 (394), '2' TO SORT-TYPE-SEQ (403)  
N410-TEST-SEQ-IN-IPT-RANGE  
    MOVE '7' To # SORT-TYPE-SEQ-1 (414)  
N500-WRITE-OUT-SORT-RECORD  
    MOVE '8' TO # SORT-TYPE-SEQ-1 (454)  
P110-CLEAR-QVW-LINE  
    IF SORT-TYPE-SEQ-1 NOT = '3' (478)  
    IF SORT-TYPE-SEQ-1 1 (500)  
S-FINAL-ADJUSTMENT  
    IF 'S' = SORT-TYPE-SEQ-1 (651)  
Indirectly Used @ (50)
```

## Control/DCD

The new way to manage the mainframe source code environment.

With over 39 years of mainframe experience Marble Computer is taking the legacy of it's DCD product line and utilizing the most advanced techniques for programmers to document and understand a program's logic and business rules.

Program modifications are made quickly, easily and accurately.

For more information:

Call (800) 252-1400 to arrange for a demo.



Marble Computer is an  
IBM Business Partner for  
z/OS Software.

# Control/DCD

## How It Works:

Control/DCD creates a new powerful way to use the ISPF editor that makes it simple for the COBOL programmer to quickly understand the flow of the program as to data and process. Business rules are easily interpreted, data analysis is made simple, coding errors are highlighted.

Choose your output, ISPF views or a Documentation Manual. The Digital Documentation Manual comes in .pdf format. Use FTP to transfer or store on the main-frame.

Sample command structure:

### Find &(Operand)

Some **OPERAND** Examples:

DATA-NAME

CALL

COPY

CODE-NOT-USED

ERRORS

FORWARD-TRACING

OPEN

PERFORM-ANALYSIS

PERFORMED-ROUTINES

SQL

HELP

```

ZBNKPRT1 - Notepad
File Edit Format View Help
581     MOVE SPOCES TO WS-EXEC-PARM-DATA.
**    COBCH0012S operand SPOCES is not declared : C:\MFETDUSER\BankDemo\Sources\cb1\ZBNKPR
582
583     SET WS-PARM-PTR TO ADDRESS OF LK-EXEC-PARM.
584     move 0 to WS-EXEC-PARM-LL
585     IF WS-PARM-PTR-NUM IS NOT EQUAL TO ZEROS
586     MOVE LK-EXEC-PARM-LL TO WS-EXEC-PARM-LL
587     IF WS-EXEC-PARM-LL IS GREATER THAN
588     LENGTH OF WS-EXEC-PARM-DATA
589     MOVE LENGTH OF WS-EXEC-PARM-DATA TO WS-EXEC-PARM-LL
590     END-IF
591     IF WS-EXEC-PARM-LL IS GREATER THAN ZERO
592     MOVE LK-EXEC-PARM-DATA (1:WS-EXEC-PARM-LL)
593     TO WS-EXEC-PARM-DATA (1:WS-EXEC-PARM-LL)
594     END-IF.
595     END-IF.
**    COBCH0564S A scope-delimiter did not have a matching verb and was discarded. : C:\MF
596
597     SET EMAIL-NOT-REQUIRED TO TRUE.
598     IF WS-EXEC-PARM-LL IS EQUAL TO ZERO
599     MOVE 'No exec card parm present'
  
```

The Problem: A Typical COBOL Program Listing via Notepad on PC

```

ZBNKPRT1.cbl  ZBNKSTMT.jcl
ZBNKPRT1.cbl ▶
.....*A.1.8.....2.....3.1.....4.....5.....6.....7.I.....8
021800  PERFORM RUN-TIME.
021900
022000  MOVE ZEROES TO WS-EXEC-PARM-LL.
022100  MOVE SPOCES TO WS-EXEC-PARM-DATA.
022200
022300  SET WS-PARM-PTR TO ADDRESS OF LK-EXEC-PARM.
022400  move 0 to WS-EXEC-PARM-LL
022500  IF WS-PARM-PTR-NUM IS NOT EQUAL TO ZEROS
022600  MOVE LK-EXEC-PARM-LL TO WS-EXEC-PARM-LL
022700  IF WS-EXEC-PARM-LL IS GREATER THAN
022800  LENGTH OF WS-EXEC-PARM-DATA
022900  MOVE LENGTH OF WS-EXEC-PARM-DATA TO WS-EXEC-PARM-LL
023000  END-IF
023100  IF WS-EXEC-PARM-LL IS GREATER THAN ZERO
023200  MOVE LK-EXEC-PARM-DATA (1:WS-EXEC-PARM-LL)
023300  TO WS-EXEC-PARM-DATA (1:WS-EXEC-PARM-LL)
023400  END-IF.
  
```

Console Problems Tasks Search

3 errors, 0 warnings, 0 others

Description	Resource	Path	Location	Type
COBCH0012S Operand SPOCES is not declare	ZBNKPRT1.cbl	/Bankdemo/Source...	line 221	COBOL Pro
COBCH0498S Procedure name RUN-TME unc	ZBNKPRT1.cbl	/Bankdemo/Source...	line 218	COBOL Pro
COBCH0564S A scope-delimiter did not have	ZBNKPRT1.cbl	/Bankdemo/Source...	line 235	COBOL Pro

Still A Problem — Eclipse Cobol Editor and Syntax Checker

# Control/DCD's Benefits

Adds a COBOL Analytical capability to your Code Refactoring Project.

## Use ISPF

A simple command structure, with the addition of one character (An & character) added to the Find Command that works with a program's data names, paragraph names, and more. So the adoption rate is fast and efficient.

The Digital Documentation Manual is an up to date detailed documentation of a Cobol program plus the DDM's analytics. The DDM can be stored on collaborative Clouds like SharePoint.

## Don't want to use ISPF

No problem, use Control/DCD's Independent Mode. No compile is necessary, just run batch Control/DCD. Control/DCD produces an Alternative Compile Listing (ACL) that makes the COBOL compiler listing obsolete. Control/DCD output is available under the ISPF viewer or on a PC.

Productivity is dramatically increased from the time the code is opened for remediation until it's ready for Alpha and Beta Testing.

Control/DCD's output can be stored with the production source code for faster Abend resolution.

The Digital Documentation Manual can be stored in collaborative environments like SharePoint and Eclipse based IDEs.

The Data Tracing Analysis function means less Job Failures which creates better utilization of the production environment, makes life easier for Data Center operations.

**Marble Computer software products are z/15 compliant, support z/OS V2.4 and COBOL Version 6.X.**



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