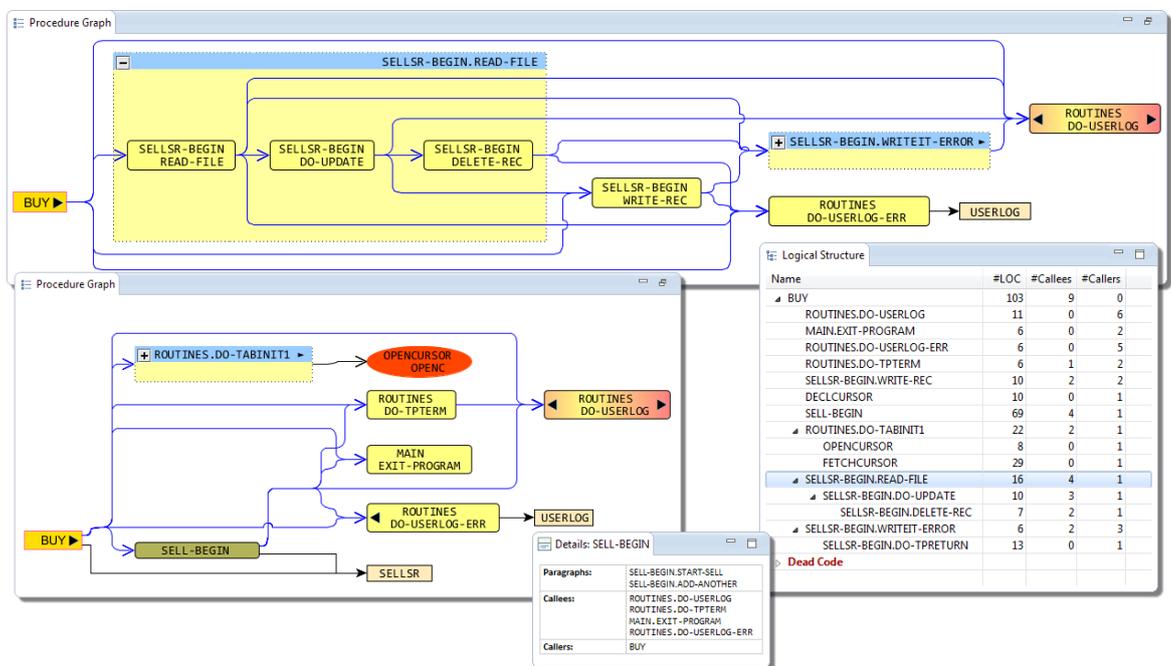


Procedures and Functions

Cobol does not have procedures and functions, at least not explicitly (in older COBOL-versions). Instead there is, in the Procedure Division, a collection of sections with paragraphs in them, which are sometimes executed individually and sometimes together and that call each other. Variables are always defined globally, even if they are used locally only. The concepts of COBOL causes this structure but complicates the understanding and modernization of the application.

AMELIO Logic Discovery identifies procedures and logical groups as well as their interfaces and the scope of variables by analysing calling relationships and usages. Results are presented in a clear and understandable way. This eases the understanding and modernization of the application. Suggestions for a refactoring are given.



Procedures

Sections and paragraphs build implicit procedures in COBOL. AMELIO Logic Discovery Logic determine these procedures and make them visible. The procedures are displayed together with their context.

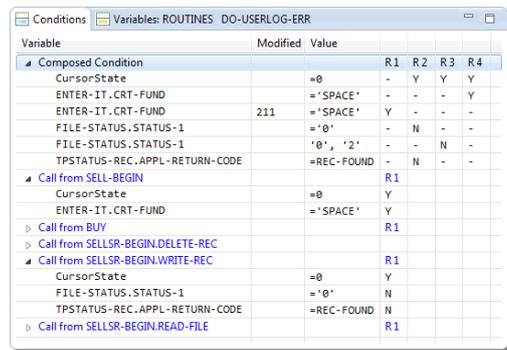
Composites

AMELIO Logic Discovery determines which procedures can be grouped logically. These logical groupings, the so-called composites, are represented in the overall context of the application.

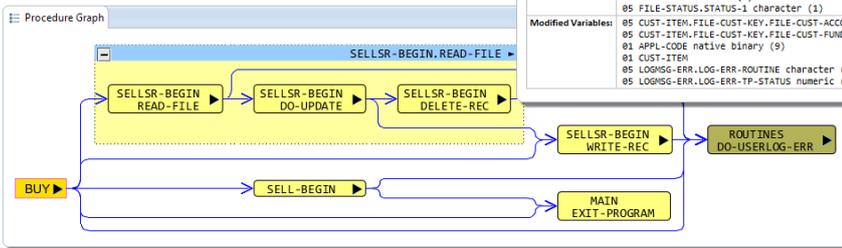
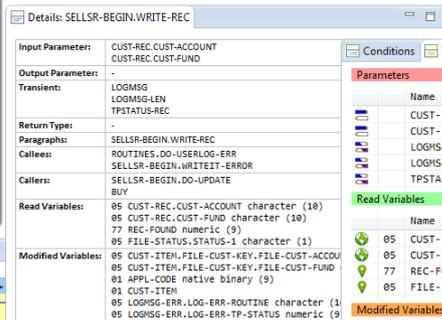
Call Relationships

AMELIO Logic Discovery analyses the call relations that exist between the determined procedures and composites. It also determines under what conditions a procedure or a composite is called.

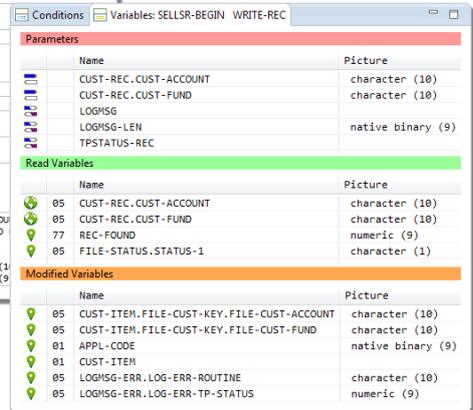
This analysis is performed both based on the calling procedure as well as from the program start.



Variable	Modified	Value	R1	R2	R3	R4
Composed Condition						
CursorState		=0	-	Y	Y	Y
ENTER-IT.CRT-FUND		='SPACE'	-	-	-	Y
ENTER-IT.CRT-FUND	211	='SPACE'	Y	-	-	-
FILE-STATUS.STATUS-1		='0'	-	N	-	-
FILE-STATUS.STATUS-1		'0', '2'	-	-	N	-
TPSTATUS-REC.APPL-RETURN-CODE		=REC-FOUND	-	N	-	-
Call from SELL-BEGIN						
CursorState		=0	Y			
ENTER-IT.CRT-FUND		='SPACE'	Y			
Call from BUY						
Call from SELLSR-BEGIN.DELETE-REC						
Call from SELLSR-BEGIN.WRITE-REC						
CursorState		=0	Y			
FILE-STATUS.STATUS-1		='0'	N			
TPSTATUS-REC.APPL-RETURN-CODE		=REC-FOUND	N			
Call from SELLSR-BEGIN.READ-FILE						
CursorState		=0	Y			
FILE-STATUS.STATUS-1		='0'	N			
TPSTATUS-REC.APPL-RETURN-CODE		=REC-FOUND	N			

Category	Value
Input Parameter:	CUST-REC.CUST-ACCOUNT CUST-REC.CUST-FUND
Output Parameter:	-
Transient:	LOGMSG LOGMSG-LEN TPSTATUS-REC
Return Type:	-
Paragraphs:	SELLSR-BEGIN.WRITE-REC
Callers:	ROUTINES.DO-USERLOG-ERR SELLSR-BEGIN.WRITET-ERROR SELLSR-BEGIN.DO-UPDATE
Called:	BUY
Read Variables:	05 CUST-REC.CUST-ACCOUNT character (10) 05 CUST-REC.CUST-FUND character (10) 77 REC-FOUND numeric (9) 05 FILE-STATUS.STATUS-1 character (1) 05 CUST-ITEM.FILE-CUST-KEY.FILE-CUST-ACCOU 05 CUST-ITEM.FILE-CUST-KEY.FILE-CUST-FUND 01 APPL-CODE native binary (9) 01 CUST-ITEM 05 LOGMSG-ERR.LOG-ERR-ROUTINE character (1) 05 LOGMSG-ERR.LOG-ERR-TP-STATUS numeric (9)
Modified Variables:	05 CUST-ITEM.FILE-CUST-KEY.FILE-CUST-ACCOUNT character (10) 05 CUST-REC.CUST-FUND character (10) 77 REC-FOUND numeric (9) 05 FILE-STATUS.STATUS-1 character (1) 01 APPL-CODE native binary (9) 01 CUST-ITEM 05 LOGMSG-ERR.LOG-ERR-ROUTINE character (1) 05 LOGMSG-ERR.LOG-ERR-TP-STATUS numeric (9)



Category	Name	Picture
Parameters	CUST-REC.CUST-ACCOUNT	character (10)
	CUST-REC.CUST-FUND	character (10)
	LOGMSG	
Read Variables	LOGMSG-LEN	native binary (9)
	TPSTATUS-REC	
Read Variables	05 CUST-REC.CUST-ACCOUNT	character (10)
	05 CUST-REC.CUST-FUND	character (10)
	77 REC-FOUND	numeric (9)
	05 FILE-STATUS.STATUS-1	character (1)
Modified Variables	05 CUST-ITEM.FILE-CUST-KEY.FILE-CUST-ACCOUNT	character (10)
	05 CUST-REC.CUST-FUND	character (10)
	01 APPL-CODE	native binary (9)
	01 CUST-ITEM	
	05 LOGMSG-ERR.LOG-ERR-ROUTINE	character (10)
	05 LOGMSG-ERR.LOG-ERR-TP-STATUS	numeric (9)

Refactoring Suggestions

The composites that are determined are candidates to be made into subroutines during a refactoring. Since AMELIO Logic Discovery analyzes the interface of each composite and determines which global variables are used, all information needed is available.



DELTA

Delta Software Technology GmbH

Eichenweg 16, 57392 Schmallenberg
phone +49 2972 9719-0
e-mail info@delta-software.com
www.delta-software.com

software
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