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Overview
ASSESS for Assembler, COBOL, and Java

ASSESS for Assembler, COBOL, and Java supports the analysis of large software packages. In contrast to our static quality assurance tool AUDITOR, ASSESS works with a homogeneous set of measures and metrics, in order to achieve languages independent result sets. A quality assessment like AUDITOR is not intended to perform any quality rules enforcement, but ASSESS delivers pure measures and metrics for the components. The user can easily create additionally specific measures and metrics.

ASSESS supports two different goal directions of the analysis:

- The tool creates basis numbers and produces individual as well as compressed results. The values can be saved in the Summary file for later comparative runs. For further evaluations, ASSESS offers an output in different formats.
- The tool produces a range of Cross Reference information in regard to the existing relationships inside the sources and store this data in an intermediate data format.

The following categories of information will be produced:

Count Measures:	Serve the analysis in regard to special attributes or features and reports the corresponding measure
Formula Metrics:	Standard set of metrics supplement for additional calculations
Cross References:	serve the production of relationship information in regard to the constructs inside of one source

All results are produced in a standard report format and with the Export Plug-In they can be exported into additional formats like CSV, XML, etc. This export function offers the possibility, to import the data into a repository for further evaluation for example. ASSESS does not contain a repository of its own and analyzes each component separately. Inversed Cross Reference statements (e. g. "Which programs call a special module?") can only be retrieved from a repository, and not directly out of ASSESS.

ASSESS is extremely variable in the adaptation on existing program conventions in oder to determine CALL relationships for example, even if the names of the called modules are identifiers and not literals. Furthermore ASSESS can be extended quickly, in order to receive additional measures and dependences.

The additional produced results will be produced in a processible format as well.

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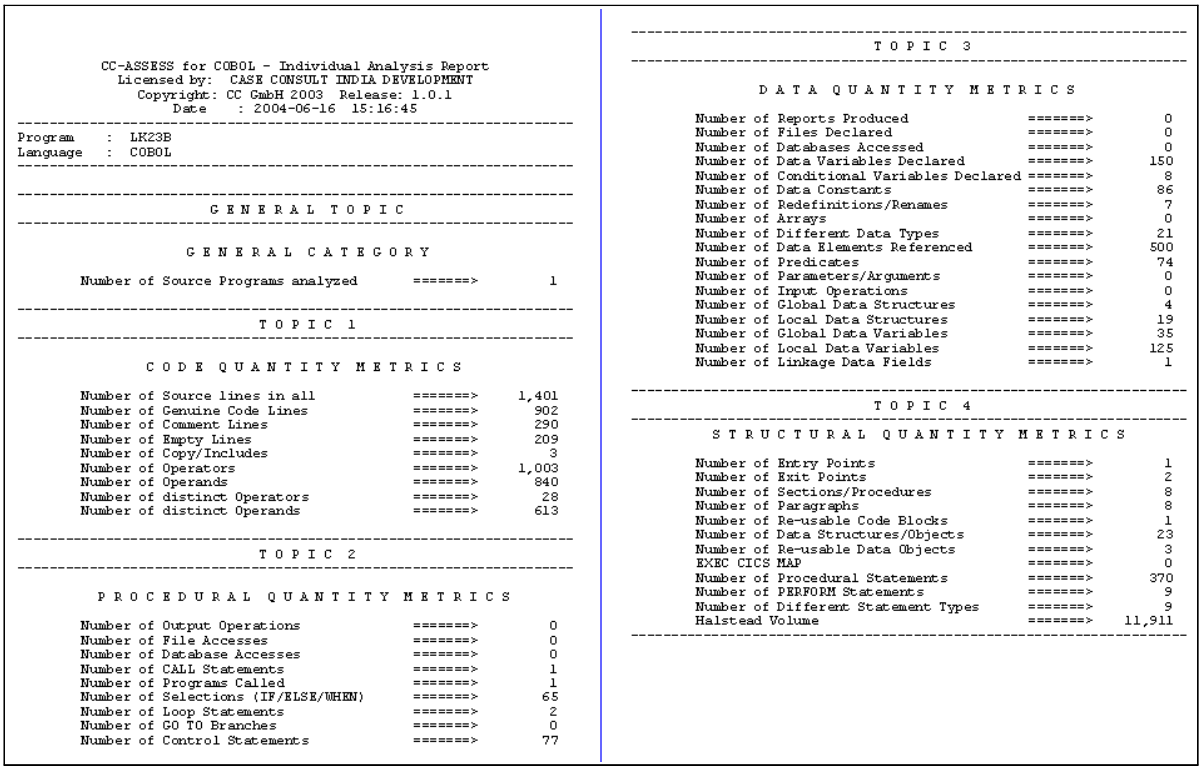
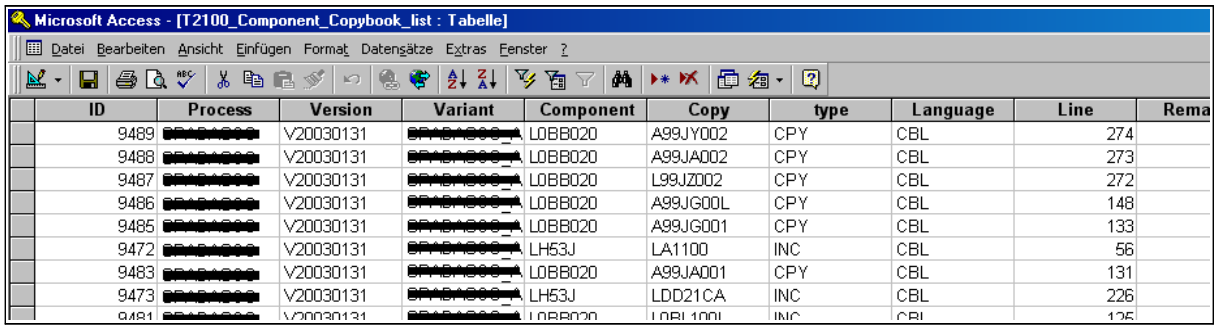


```
          CC-ASSESS for COBOL - Individual Analysis Report
            Licensed by:  CASE CONSULT INDIA DEVELOPMENT
              Copyright: CC GmbH 2003  Release: 1.0.1
                 Date    : 2004-06-16  15:16:45
------------------------------------------------------------------
Program    :  LK23B
Language   :  COBOL
------------------------------------------------------------------

------------------------------------------------------------------
                        G E N E R A L   T O P I C
------------------------------------------------------------------

                    G E N E R A L   C A T E G O R Y

      Number of Source Programs analyzed       =======>         1

------------------------------------------------------------------
                        T O P I C   1
------------------------------------------------------------------

                  C O D E   Q U A N T I T Y   M E T R I C S

      Number of Source lines in all            =======>     1,401
      Number of Genuine Code Lines             =======>       902
      Number of Comment Lines                  =======>       290
      Number of Empty Lines                    =======>       209
      Number of Copy/Includes                  =======>         3
      Number of Operators                      =======>     1,003
      Number of Operands                       =======>       840
      Number of distinct Operators             =======>        28
      Number of distinct Operands              =======>       613

------------------------------------------------------------------
                        T O P I C   2
------------------------------------------------------------------

              P R O C E D U R A L   Q U A N T I T Y   M E T R I C S

      Number of Output Operations              =======>         0
      Number of File Accesses                  =======>         0
      Number of Database Accesses              =======>         0
      Number of CALL Statements                =======>         1
      Number of Programs Called                =======>         1
      Number of Selections (IF/ELSE/WHEN)      =======>        65
      Number of Loop Statements                =======>         2
      Number of GO TO Branches                 =======>         0
      Number of Control Statements             =======>        77

------------------------------------------------------------------
                        T O P I C   3
------------------------------------------------------------------

                  D A T A   Q U A N T I T Y   M E T R I C S

      Number of Reports Produced               =======>         0
      Number of Files Declared                 =======>         0
      Number of Databases Accessed             =======>         0
      Number of Data Variables Declared        =======>       150
      Number of Conditional Variables Declared =======>         8
      Number of Data Constants                 =======>        86
      Number of Redefinitions/Renames          =======>         7
      Number of Arrays                         =======>         0
      Number of Different Data Types           =======>        21
      Number of Data Elements Referenced       =======>       500
      Number of Predicates                     =======>        74
      Number of Parameters/Arguments           =======>         0
      Number of Input Operations               =======>         0
      Number of Global Data Structures         =======>         4
      Number of Local Data Structures          =======>        19
      Number of Global Data Variables          =======>        35
      Number of Local Data Variables           =======>       125
      Number of Linkage Data Fields            =======>         1

------------------------------------------------------------------
                        T O P I C   4
------------------------------------------------------------------
              S T R U C T U R A L   Q U A N T I T Y   M E T R I C S

      Number of Entry Points                   =======>         1
      Number of Exit Points                    =======>         2
      Number of Sections/Procedures            =======>         8
      Number of Paragraphs                     =======>         8
      Number of Re-usable Code Blocks          =======>         1
      Number of Data Structures/Objects        =======>        23
      Number of Re-usable Data Objects         =======>         3
      EXEC CICS MAP                            =======>         0
      Number of Procedural Statements          =======>       370
      Number of PERFORM Statements             =======>         9
      Number of Different Statement Types      =======>         9
      Halstead Volume                          =======>    11,911
------------------------------------------------------------------
```

Abb.: Single Report

As described, ASSESS produces a variety of cross reference information. These results can be loaded into a data base or exported to different programs for a graphical view. CC usually uses an Access data base during projects, which is exemplary displayed at the bottom of the page. Here, the use of copy books in programs is shown.



Microsoft Access - [T2100_Component_Copybook_list : Tabelle]

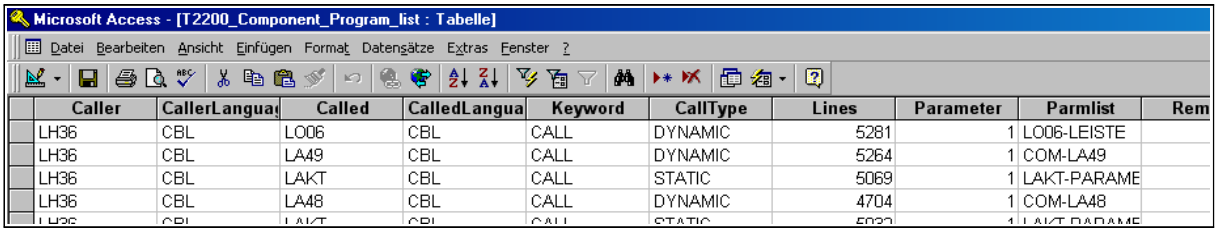
Datei Bearbeiten Ansicht Einfügen Format Datensätze Extras Fenster ?

ID	Process	Version	Variant	Component	Copy	type	Language	Line	Rema
9489	[redacted]	V20030131	[redacted]	L0BB020	A99JY002	CPY	CBL	274	
9488	[redacted]	V20030131	[redacted]	L0BB020	A99JA002	CPY	CBL	273	
9487	[redacted]	V20030131	[redacted]	L0BB020	L99JZ002	CPY	CBL	272	
9486	[redacted]	V20030131	[redacted]	L0BB020	A99JG00L	CPY	CBL	148	
9485	[redacted]	V20030131	[redacted]	L0BB020	A99JG001	CPY	CBL	133	
9472	[redacted]	V20030131	[redacted]	LH53J	LA1100	INC	CBL	56	
9483	[redacted]	V20030131	[redacted]	L0BB020	A99JA001	CPY	CBL	131	
9473	[redacted]	V20030131	[redacted]	LH53J	LDD21CA	INC	CBL	226	
9481	[redacted]	V20030131	[redacted]	L0BB020	L0BL100L	INC	CBL	125	

Abb.: Access data sheet for the relation between the components and the copy books resp. includes

Following, an example of CALL relationships is displayed. All basis information was produced by ASSESS and exported in a MS-Access format.

Please note: ASSESS does not require a special meta model of a repository, but it can deliver in any structure.



Caller	CallerLangua	Called	CalledLangua	Keyword	CallType	Lines	Parameter	Parmlist	Rem
LH36	CBL	LO06	CBL	CALL	DYNAMIC	5281	1	LO06-LEISTE	
LH36	CBL	LA49	CBL	CALL	DYNAMIC	5264	1	COM-LA49	
LH36	CBL	LAKT	CBL	CALL	STATIC	5069	1	LAKT-PARAME	
LH36	CBL	LA48	CBL	CALL	DYNAMIC	4704	1	COM-LA48	

Abb.: Access data sheet for the call structures

Summary:

ASSESS for Assembler, COBOL, and Java is an efficient tool for the determination of measures of software components and serves the production of cross reference information, which describe the relationship between different components.

ASSESS exports all results to a portable form, so that other tools can import the information without problems.

Therefore, ASSESS is a valuable component of a comprehensive software portfolio management system, even for large, and maybe with different languages implemented software systems.

ASSESS can be easily adapted to the specific requirements resp. complemented for further analysis, because it is based on a parser technology, which is very variable.

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