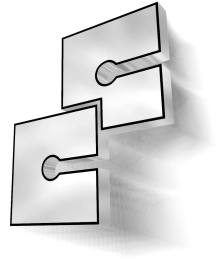


Case Consult

The Evolution En@bling Experts



Our Products

CC-AUDITOR

Quality Auditing
for ABAP, C/C++, COBOL, Java and PL/I



CC-AUDITOR

Quality Auditing for ABAP, C/C++, COBOL, Java and PL/I

Description

CC-AUDITOR is a quality assurance tool for the static quality analysis of ABAP, C/C++, COBOL, Java and PL/I programs and entire application systems.

CC-AUDITOR takes over the automatic testing of whether standard and company-specific quality guidelines are being met. AUDITOR also conducts quality analysis on the basis of company-specific definitions, allowing for the use of an unlimited range of quality characteristics to measure program quality. With constructive quality assurance features, AUDITOR allows developers, project leaders or auditors to test and evaluate programs according to the desired quality level.

Dialog language	English
Areas of application	Software maintenance Software quality assurance Conversion e-Commerce Software reengineering
Languages supported	ABAP C/C++ COBOL Java PL/I
Platforms	Windows 3.x, 9x, 2000, NT, XP IBM OS/390
ABAP version available for	Windows, Linux, Solaris
Java version available for	all platforms supported by Java

Once programs are developed and produced, they are very seldom developed further or even tested regarding quality after they are accepted. Even though quality standards and program guidelines are subject to constant change, preventive maintenance for quality improvement generally doesn't take place. There is simply not enough time for such time-consuming activities. As a direct result, program sources are difficult to read or understand, sometimes even directly after program acceptance. This often leads to poor quality and low productivity in maintenance. Universal programming standards generally don't exist, and often the time needed to realize such standards is simply not there.

The quality assurance tool CC-AUDITOR is predestined to fill in this gap. It can be used for automated quality assurance in the following areas:

- ❑ Static analysis
 - Building of quality models
 - Assurance of standards fulfillment
- ❑ Complexity measurement for
 - Planning of maintenance and reengineering projects
 - Measurable criteria for the control / acceptance of third-party software
- ❑ Quality control
 - Quantification of defined quality characteristics
 - Change management / recognition of quality changes after production take-over
- ❑ Special issues, e.g.
 - Portfolio analysis
 - Identification of modules in need of reengineering



Functional Characteristics

The basis for quality assurance with CC-AUDITOR is the high and flexible functionality of the program. The user can access a large number of provided or individually chosen metrics, so that company or user-specific quality standards can be automatically tested. Without being able to measure program content quality, it is impossible to achieve objective improvement, as for example after maintenance work.

Central functional characteristics of CC-AUDITOR:

- ❑ User can determine quality characteristics
- ❑ Choice of over
 - 200 standard metrics for ABAP
 - 50 standard metrics for C/C++
 - 500 standard metrics for COBOL
 - 250 standard metrics for Java
 - 300 standard metrics for PL/I
 - 300 user-specific metrics

- ❑ Portfolio analysis of entire program content
- ❑ Management reports
- ❑ Reduction of maintenance requirement through testing of program quality

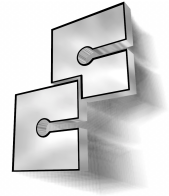
Product Advantages

- ❑ Author-independent quality assurance
- ❑ Automation of measurement of software
- ❑ Quality control of developed or changed programs in every phase of product cycle–
Constructive quality analysis
 - Analytical quality assurance
 - Documented and reliable quality statements
 - Production quality



CC-AUDITOR for ABAP

Quality Auditing



Sample Reports

CC-AUDITOR for ABAP - Output Results

Licensed by: CASE CONSULT DEVELOPMENT

(C) CC GmbH 2003 Release: 0.9.0

DATE: 2003-02-26 16:39:39

No	Report
1	AUDIT REPORT
2	DIAGNOSTIC REPORT
3	DIAGSUMM REPORT

[Back to Index](#)

CC-AUDITOR for ABAP - Diagnostic Report

Licensed by: CASE CONSULT DEVELOPMENT

(C) CC GmbH 2003 Release: 0.9.0

DATE: 2003-02-26 16:39:39

Program : Z_FORMAT_SOURCE_CODE.abp

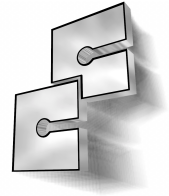
Grade : S-2

Grading : LOWEST

MetricId	Description	Count
1008	Variable Name Prefixed With Data Type	23
1009	Avoid Dash (-) in Variable or Field Name	1
1012	Use PARAMETERS instead of PARAMETER	0
1013	Avoid Hard-Coded Page in LINE COUNT	0
1014	Avoid Lowercase Function Module Names	0
1015	Avoid using EXIT inside Loops	0
1016	Avoid using CHECK in SELECT	0
1017	Avoid using CONTINUE in SELECT	0
1018	Avoid using OCCURS 0 Additions	9
1019	Use SORT instead of ORDER BY Additions	0
1020	Avoid using TYPE Additions in PARAMETERS	0

CC-AUDITOR for ABAP

Quality Auditing



Sample Reports

ANNOTATED SOURCE LISTING

```

00001
00002
00003 *-----
00004 * Please note:
00005 *Some lines have been deleted in this sample report!
...
...
00020 *-----
00021 REPORT z_format_source_code
00022
00023 TABLES:
00024     e071 , " Objects of a request or task (E070)
00025     tadir , "Catalog of R/3 Repository objects
00026     trdir ,      " System table TRDIR
00027     dd02t .      " R/3-DD: SAP Table Texts
00028

```

1018	Avoid using OCCURS 0 Additions	Next	Prev	Top
----------------------	--------------------------------	----------------------	----------------------	---------------------

```
00029 DATA: BEGIN of mtab_old_prog OCCURS 0,
```

1008	Variable Name Prefixed With Data Type	Next	Prev	Top
----------------------	---------------------------------------	----------------------	----------------------	---------------------

```

00030     line (72) TYPE c,
00031     END OF mtab_old_prog.
00032

```

1018	Avoid using OCCURS 0 Additions	Next	Prev	Top
----------------------	--------------------------------	----------------------	----------------------	---------------------

```
00033 DATA: BEGIN OF mtab_new_prog OCCURS 0
```

1008	Variable Name Prefixed With Data Type	Next	Prev	Top
1009	Avoid Dash (-) in Variable or Field Name	Next	Prev	Top

```

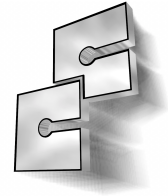
00034     line (72) TYPE c,
00035     END OF mtab_old_prog.

...
...
...

```

CC-AUDITOR for COBOL

Quality Auditing



Sample Reports

Formatted Output

```

000010 IDENTIFICATION DIVISION.
...
001740 WORKING-STORAGE SECTION.
001750 77 WS-TA-JUL-DATE          PIC 9(5)      VALUE ZERO.
001760 77 WS-DATE-DIFF          PIC S9(5)    VALUE ZERO.
...
002790 01 TRANS-IN.
002800 02 FILLER.
002810 03 TR-TA                  PIC X(6).
...
003660 05 INV-SSN4              PIC X(4).
003670 05 INV-SSN3              PIC X(3).
...
008330 PROCEDURE DIVISION.
...
008520      PERFORM WRITE-EXC THRU WRITE-EXC-EXIT.
...
008560      READ TABLES-FILE RECORD AT END GO TO T-OUT.
008570      IF TABID NOT = 'DT' GO TO T-IN.
...
008760      CALL 'DATCALC' USING RTNCD, DATE-CHECK-NUM, TA-JUL-DATE.
...
009460      IF TR-CONTROL GREATER THAN MA-CONTROL
009470          NEXT SENTENCE ELSE GO TO CHECK-FOR-LOW.
    
```

Balance Report

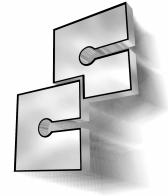
DATE: 2002-02-20 CC-AUDITOR (R) QUALITY BALANCE SHEET PAGE 1
 TIME: 15:22:01 (C) CC GmbH 2002

SELECTION CRITERIA: DATE SELECTED: 2002-02-20
 TIME SELECTED: 23:59:59

PROGRAM GRADE =====	NUMBER OF PROGRAMS =====	PERCENTAGE OF PROGRAMS =====
OK	1	2.63%
I	5	13.16%
W	1	2.63%
E	1	2.63%
S	30	78.95%
=====	=====	=====
TOTAL	38	100.00%

CC-AUDITOR for COBOL

Quality Auditing



Sample Reports

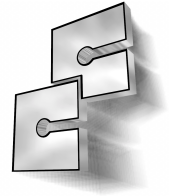
Diagnostic Report

```
/*QA *****/
/*QA * DATE: 2002-02-20 CC-AUDITOR (R) DIAGNOSTIC REPORT */
/*QA * TIME: 12:09:27 (C) CC GmbH 2002 */
/*QA *****/

...
000010 IDENTIFICATION DIVISION.
...
001740 WORKING-STORAGE SECTION.
001750 77 WS-TA-JUL-DATE PIC 9(5) VALUE ZERO.
/*QA * #007 77 IDENTIFIED. */
/*QA * #019 FND: WS-TA-JUL-DATE */
001760 77 WS-DATE-DIFF PIC S9(5) VALUE ZERO.
/*QA * #007 77 IDENTIFIED. */
/*QA * #019 FND: WS-DATE-DIFF */
...
002790 01 TRANS-IN.
002800 02 FILLER.
/*QA * #010 DATA LEVELS NOT MULTIPLE OF 5. */
002810 03 TR-TA PIC X(6).
/*QA * #010 DATA LEVELS NOT MULTIPLE OF 5. */
...
003660 05 INV-SSN4 PIC X(4).
/*QA * #006 PIC NOT WITHIN 4 OF COL 40 */
003670 05 INV-SSN3 PIC X(3).
/*QA * #006 PIC NOT WITHIN 4 OF COL 40 */
...
008330 PROCEDURE DIVISION.
...
008520 PERFORM WRITE-EXC THRU WRITE-EXC-EXIT.
/*QA * #002 PERFORM...THRU IDENTIFIED. */
...
008560 READ TABLES-FILE RECORD AT END GO TO T-OUT.
/*QA * #020 MISSING END- (01) */
008570 IF TABID NOT = 'DT' GO TO T-IN.
/*QA * #001 LITERAL IDENTIFIED */
/*QA * #004 VERB UNDER IF/ELSE NOT INDENTED 4 */
/*QA * #017 MCCABE ESSENTIAL COMPLEXITY */
/*QA * #018 INVALID GO TO (3) FOUND. */
/*QA * #020 MISSING END- (01) */
...
009460 IF TR-CONTROL GREATER THAN MA-CONTROL
/*QA * #012 THE WORD GREATER WAS USED. */
009470 NEXT SENTENCE ELSE GO TO CHECK-FOR-LOW.
/*QA * #003 ELSE NOT ALIGNED WITH IF */
/*QA * #004 VERB UNDER IF/ELSE NOT INDENTED 4 */
/*QA * #017 MCCABE ESSENTIAL COMPLEXITY */
/*QA * #018 INVALID GO TO (3) FOUND. */
/*QA * #020 MISSING END- (01) */
...
```

CC-AUDITOR for COBOL

Quality Auditing



Sample Reports

AUDIT Report

```

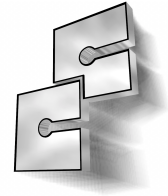
PROGRAM: SAMPLE2  CC-AUDITOR (R) AUDIT REPORT          2002-05-06  12:09:28
GRADE:   S      2   (C) CC GmbH 2002                 IMPROVABLE:  W      4
LICENSED BY: CASE CONSULT DEVELOPMENT                VERSION 4.3.0
STANDARD: CASE CONSULT
    
```

STANDARD	#	GRADE				
		OK	I	W	E	S
=====						
VERB STATISTICS		I	I	I	I	I
1 # LITERALS IN PROCEDURE	135	000+++001+++005+++010+++				1
2 PERFORM THRU	16	000===010===020			050	I
FORMATING ANALYSIS		I	I	I	I	I
3 IF/ELSE NOT ALIGNED	14	000+++005+++010+++			N/A	I
4 VERB UNDER IF NOT INDENT 4	99	000+++005+++010+++			N/A	I
5 PARA'S NOT IN COL 8	0	000	005	010	N/A	I
6 PIC NOT CLOSE TO 40	20	000+++	N/A	N/A	N/A	I
DATA DIVISION ANALYSIS		I	I	I	I	I
7 TOTAL 77 LEVELS	29	000+++005+++010+++			N/A	I
STANDARDS ANALYSIS		I	I	I	I	I
8 ISAM FILE ITEM FOUND	0	000	000	000	000	I
9 BDAM FILE ITEM FOUND	0	000	000	000	000	I
10 # NON-STANDARD LEVEL #'S	212	N/A	N/A	N/A	N/A	I
11 NUMBER OF COMMAS FOUND	18	N/A	N/A	N/A	N/A	I
12 SIGN (>,<=)/WORD CONSIST.	8	N/A	N/A	N/A	N/A	I
13 ELSE NEXT SENTENCE FOUND	2	N/A	N/A	N/A	N/A	I
14 UNSIGNED PIC/SIGNED VALUE	0	000	000	000	000	I
15 NUMERIC VALUE/ALPHA PIC	0	000	000	000	000	I
16 PARAGRAPH PERIOD MISSING	0	000	000	000	000	I
17 McCabe essential complexity	61	010===050===100			200	I
18 Invalid goto 3	60	010===050===100			200	I
19 Date fields, Century breaks	20	005===010===020			050	I
20 Missing Scope-Terminator	92	000+++005+++010+++050+++				I
=====						

* THE TOTAL CASE CONSULT RE/VISION SOLUTION:
 Q/AUDITOR MEASURES AND PRESERVES YOUR COBOL PROGRAMS
 WHILE Q/ARTISAN IMPROVES PROGRAMMERS' PRODUCTIVITY.

CC-AUDITOR for COBOL

Quality Auditing



Sample Reports

Impact Analyse Report

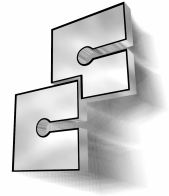
DATE: 2002-02-20 CC-AUDITOR IMPACT ANALYSIS REPORT PAGE: 1
 TIME: 12:21:40 (C) CC GmbH 2002

SELECTION CRITERIA: DATE SELECTED: 2002-02-20
 TIME SELECTED: 23:59:59

TOTAL	# PGMS	MAXIMUM	MINIMUM	MODIFICATION TIME (HH:MM) UNIT	TOTAL	MODIFICATION COST (100.00 DM/HR)
LITERALS	* # LITERALS IN PROCEDURE					
4710	36	485	0	0:10	785:00	78500.00
PERFTHRU	PERFORM THRU					
9	7	3	0	1:00	9:00	900.00
IFELSE	* IF/ELSE NOT ALIGNED					
40	7	32	0	0:10	6:40	666.67
IFINDENT	* VERB UNDER IF NOT INDENT	4				
8478	29	1771	0	0:05	706:30	70650.00
PARA08	* PARA'S NOT IN COL 8					
17	2	12	0	0:05	1:25	141.67
PICCLOSE	* PIC NOT CLOSE TO 40					
1720	35	354	0	0:05	143:20	14333.33
TOTAL77	* TOTAL 77 LEVELS					
7	7	1	0	0:05	0:35	58.33
WORDSymb	* SIGN(>, <, =)/WORD CONSIST.					
0	0	0	0	0:05	0:00	0.00
ELSENEXT	* ELSE NEXT SENTENCE FOUND					
12	6	2	0	0:05	1:00	100.00
PICSIGN	UNSIGNED PIC/SIGNED VALUE					
1	1	1	0	0:10	0:10	16.67
NUMALPHA	NUMERIC VALUE/ALPHA PIC					
92	1	92	0	0:30	46:00	4600.00
PARAPERIOD	*PARAGRAPH PERIOD MISSING					
0	0	0	0	0:05	0:00	0.00
ACCEPTCON	* ACCEPT FROM CONSOLE FOUND					
6	6	1	0	0:05	0:30	50.00
INVG03	Invalid goto 3					
225	21	36	0	2:00	450:00	45000.00
UNREFDATAAC	Unreferenced data elements C					
1165	35	156	0	0:05	94:10	9416.67
CUSTOM703-	Date fields, Century breaks					
252	18	79	0	0:00	0:00	0.00
CUSTOM918-	* Missing Scope-Terminator					
885	23	217	0	0:10	147:30	14750.00
TOTAL NUMBER OF PROGRAMS: 38						
TOTAL FOR NON-IMPROVABLE METRICS:					599:20	59933.34
TOTAL FOR IMPROVABLE METRICS:					1792:30	179250.00
(METRICS MARKED WITH ASTERISK)						
GRAND TOTAL:					2391:50	239183.34

CC-AUDITOR for Java

Quality Auditing



HTML Sample Report

CC-AUDITOR for Java - Output Results

Licensed by: CASE CONSULT DEVELOPMENT

(C) CC GmbH 2002 Release: 1.0.0

DATE: 2002-06-07 16:54:43

Program : count
Grade : W-2
Grading : LOWEST

No	Report
1	AUDIT REPORT
2	DIAGNOSTIC REPORT
3	DIAGSUMM REPORT

[Back to Index](#)

CC-AUDITOR for Java - Diagnostic Report (Full)

Licensed by: CASE CONSULT DEVELOPMENT

(C) CC GmbH 2002 Release: 1.0.0

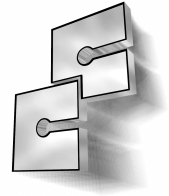
DATE: 2002-06-07 16:54:43

Program : count
Grade : W-2
Grading : LOWEST

MetricId	Description	Count
1002	IF formatting violation	2
1006	FOR formatting violation	0
1008	TRY/CATCH formatting violation	0
1010	WHILE formatting violation	1
1012	More than 1 statement per line	0
1014	No blank line before class/intrf./method	1
1016	Loop stmts without curly braces	3
1017	Comment indentation violation	0
1018	No space between operands	1
1021	Wrong indentation of stmts within CASE	0
1024	Presence of Package stmt	0
1025	Presence of Import stmt	1

CC-AUDITOR for Java

Quality Auditing



HTML Sample Report

ANNOTATED SOURCE LISTING

1025	Presence of Import stmt	Next	Prev	Top
----------------------	-------------------------	----------------------	----------------------	---------------------

```
import java.io.*;
```

```
public class Count {
```

1014	No blank line before class/intrf./method	Next	Prev	Top
----------------------	--	----------------------	----------------------	---------------------

```
public static void CountChars(Reader in) throws IOException
{
    int count = 0;
```

1010	WHILE formatting violation	Next	Prev	Top
1016	Loop stmts without curly braces	Next	Prev	Top
1018	No space between operands	Next	Prev	Top

```
while (in.read() != -1)
    count++;
System.out.println("No. of chars counted =" + count);
}
```

```
public static void main(String[] args) throws Exception
{
```

1002	IF formatting violation	Next	Prev	Top
1016	Loop stmts without curly braces	Next	Prev	Top

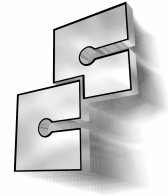
```
if (args.length >= 1)
    CountChars(new FileReader(args[0]));
```

1002	IF formatting violation	Next	Prev	Top
1016	Loop stmts without curly braces	Next	Prev	Top

```
else
    System.err.println("Enter the file name as arg to count chars");
}
}
```

CC-AUDITOR for PL/I

Quality Auditing



Sample Reports

Formatted Output

```

QAPLI:
  PROC OPTIONS(MAIN);
  DFT RANGE (*) STATIC;
/* ***** */
/* $LS1 */ DCL 1 LSTP STATIC,
/* $LS2 */ 3 LSX CHAR(60) INIT('$CCLS,K=CCI#TEST,M=0000,P=QAPLI ');
/* ***** */
DCL (ADDR,MOD,DIVIDE,SUBSTR,VERIFY,HIGH,
    LOW,HBOUND,STRING) BUILTIN;

...
CALL WRITEEXEC;
OPEN FILE(TABLESFILE) TITLE('UTSIPTABLE');

...
IF CTRL1 = 30 THEN DO;
  GO TO READOLDMASTER;
END;

...
ELSE DO;
  IF NMTAXCD = 'B' ! ( NMDOE = '210' ! NMDOE = '219' ) THEN DO;
    STFEDTAXWHELD = STAMTTHISRUN * FEDTAX;
    NMAMTTHISRUN = STAMTTHISRUN -
      (STFEDTAXWHELD + STSTATAWXHELD);
  END;
END;
NMTOTAMTPAID = NMTOTAMTPAID + NMAMTTHISRUN;
END FIGURENMRUNAMT;

...
PUT SKIP LIST('NO OF NEG CHECKS ',NEGCKCNT);
END QAPLI;

```

Diagnostic Summary Report

```

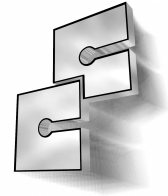
DATE: 2002-03-28 CC-AUDITOR (R) DIAGNOSTIC SUMMARY REPORT PAGE 1
TIME: 15:50:54 (C) CC GmbH 2002 PROGRAM: SAMPLE1
LICENSED BY: CASE CONSULT DEVELOPMENT VERSION 4.3.0

```

STANDARD NUMBER	STANDARD NAME	-- # OF STANDARDS VIOLATIONS --		
		ACTUAL FOUND	FOR THE NEXT HIGHEST GRADE	FOR THE TOP GRADE
65	ESSENTIAL COMPLEXITY	76	12	10
66	# OF INVALID GO TO'S	74	15	0
	PROGRAM LINE #	* DENOTES INCLUDED LINE #		
	409 412 416 423 427 430 440 444			
	... 888 892 898 903 914 956 1069 1074			
	1081 1087			

CC-AUDITOR for PL/I

Quality Auditing



Sample Reports

Diagnostic Report

```
/*QA *****/
/*QA * DATE: 2002-03-28          CC-AUDITOR (R) DIAGNOSTIC REPORT */
/*QA * TIME: 15:50:53           (C) CC GmbH 2002 */
/*QA *****/
...
QAPLI:
  PROC OPTIONS(MAIN);
/*QA * #059 PROGRAM ENTRY POINT IDENTIFIED */
  DFT RANGE (*) STATIC;
/*QA * #044 DEFAULT RANGE (*) STATIC FOUND. */
/* ***** */
/* $LS1 */ DCL 1 LSTP STATIC,
/*QA * #040 UNREFERENCED DATA */
/* $LS2 */ 3 LSX CHAR(60) INIT(' $CCLS,K=CCI#TEST,M=0000,P=QAPLI ');
/*QA * #040 UNREFERENCED DATA */
DCL (ADDR,MOD,DIVIDE,SUBSTR,VERIFY,HIGH,
/*QA * #040 UNREFERENCED DATA */
/*QA * #040 UNREFERENCED DATA */
/*QA * #040 UNREFERENCED DATA */
/*QA * #040 UNREFERENCED DATA */
/*QA * #040 UNREFERENCED DATA */
/*QA * #040 UNREFERENCED DATA */
  LOW,HBOUND,STRING) BUILTIN;
/*QA * #040 UNREFERENCED DATA */
...
CALL WRITEEXC;
/*QA * #010 MAINLINE VERB: CALL */
/*QA * #062 UNIQUE MAINLINE CALL FOUND. */
OPEN FILE(TABLESFILE) TITLE('UTSIPTABLE');
/*QA * #017 NUMBER OF TIMES FILE OPENED. */
...
  IF CTRL1 = 30 THEN DO;
/*QA * #012 WORD: THEN */
  GO TO READOLDMASTER;
/*QA * #065 ESSENTIAL COMPLEXITY INCREASED. */
/*QA * #066 INVALID GO TO. TARGET: READOLDMASTE */
  END;
...
  ELSE DO;
/*QA * #028 TOO MANY STATEMENTS IN PROCEDURE. */
  IF NMTAXCD = 'B' ! ( NMDOE = '210' ! NMDOE = '219' ) THEN DO;
/*QA * #012 WORD: THEN */
/*QA * #064 TOO MANY TEST CASES IN PROCEDURE. */
  STFEDTAXWHELD = STAMTTHISRUN * FEDTAX;
  NMAMTTHISRUN = STAMTTHISRUN -
    (STFEDTAXWHELD + STSTATAXWHELD);
  END;
  END;
  NMTOTAMTPAID = NMTOTAMTPAID + NMAMTTHISRUN;
END FIGURENMRUNAMT;
...
  PUT SKIP LIST('NO OF NEG CHECKS ',NEGCKCNT);
/*QA * #007 VERB: PUT */
/*QA * #060 HIDDEN MAINLINE STATEMENT FOUND. */
END QAPLI;
/*QA * #058 PROGRAM EXIT IDENTIFIED. */
/*QA * #065 ESSENTIAL COMPLEXITY INCREASED. */
```

CC-AUDITOR for PL/I

Quality Auditing



Sample Reports

AUDIT Report

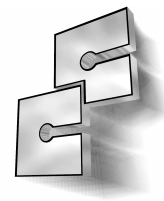
```

PROGRAM: SAMPLE1      CC-AUDITOR (R) AUDIT REPORT      2002-03-28 15:50:54
GRADE:   S    2      (C) CC GmbH 2002
LICENSED BY: CASE CONSULT DEVELOPMENT                VERSION 4.3.0
STANDARD: GENERAL PL/I STANDARD SET C (LOWEST+ GRADING)
    
```

STANDARD	#	GRADE				
		OK	I	W	E	S
VERB COUNTS		!	!	!	!	!
1 ALLOCATE'S FOUND	0	000	N/A	N/A	N/A	!
2 DISPLAY'S FOUND	0	000	N/A	N/A	N/A	!
...						
7 PUT'S FOUND	12	000===	N/A	N/A	N/A	!
8 WAIT'S FOUND	0	000	N/A	N/A	N/A	!
		!	!	!	!	!
9 MAINLINE ASSIGNMENT'S	158	020===	N/A	N/A	N/A	!
10 MAINLINE CALL'S	20	030	N/A	N/A	N/A	!
		!	!	!	!	!
WORD COUNTS		!	!	!	!	!
		!	!	!	!	!
11 INCLUDE'S FOUND	0	N/A	N/A	N/A	N/A	!
12 THEN'S FOUND	94	N/A	N/A	N/A	N/A	!
		!	!	!	!	!
DECLARE ATTRIBUTE COUNTS		!	!	!	!	!
		!	!	!	!	!
13 BACKWARDS ATTRIBUTE FOUND	0	000	N/A	N/A	N/A	!
14 GENERIC ATTRIBUTE FOUND	0	000	N/A	N/A	N/A	!
15 LABEL ATTRIBUTE FOUND	0	000	N/A	N/A	N/A	!
		!	!	!	!	!
VERB STATISTICS		!	!	!	!	!
		!	!	!	!	!
16 PROCS WITH > 5 LITERALS	2	005	N/A	N/A	N/A	!
17 MAXIMUM OPENS PER FILE	1	001	002	N/A	N/A	!
...						
		!	!	!	!	!
COMMENT ANALYSIS		!	!	!	!	!
		!	!	!	!	!
21 VALUABLE COMMENTS	48	030	020	010	N/A	!
22 PROCEDURE VALUABLE COMMENTS	25	020	010	005	N/A	!
23 PROC'S W/O 10 HEADER CMMTS	10	N/A	N/A	N/A	N/A	!
		!	!	!	!	!
SIZE ANALYSIS		!	!	!	!	!
		!	!	!	!	!
24 MAINLINE STATEMENTS	483	050===	N/A	N/A	N/A	!
25 PROCEDURE STATEMENTS (100S)	628	N/A	N/A	N/A	N/A	!
...						
28 # OF PROC'S OVER 15 STMTS	3	000===	N/A	N/A	N/A	!
29 # OF PROC'S OVER 40 LINES	0	000	N/A	N/A	N/A	!
...						

CC-AUDITOR for PL/I

Quality Auditing



Sample Reports

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...
          DATA DIVISION ANALYSIS
          !      !      !      !      !
          !      !      !      !      !
32 INTERNAL TABLES          0 005  N/A  N/A  N/A  !
33 1-DIMENSIONAL ARRAY      0 005  N/A  N/A  N/A  !
36 TOTAL OUTPUT FILES       9 005===005===N/A  N/A  !
37 TOTAL UPDATE FILES       0 005  005  N/A  N/A  !
          !      !      !      !      !
38 FILE DECLARES W/O ENV    0 000  000  N/A  N/A  !
39 FILE DECLARES W/O TOTAL  0 000  000  N/A  N/A  !
40 UNREFERENCED DATA ELEMENTS 207 005===010===N/A  N/A  !
          !      !      !      !      !
41 LOCAL DECLARES          0 000  005  N/A  N/A  !
42 TOTAL LABEL FIELDS       0 N/A  N/A  N/A  N/A  !
43 SMALL(<3 CHAR)DATA NAMES 0 000  010  N/A  N/A  !
          !      !      !      !      !
          STANDARDS ANALYSIS
          !      !      !      !      !
          !      !      !      !      !
44 DEFAULT RANGE (*) STATIC  1 001  001  001  N/A  !
45 COMMENTED CODE FOUND (#2) 0 010  N/A  N/A  N/A  !
...
          !      !      !      !      !
50 ON ERROR CONDITIONS FOUND 0 001  N/A  N/A  N/A  !
51 ON CONDITIONS NOT TOGETHER 0 000  N/A  N/A  N/A  !
          !      !      !      !      !
52 NULL ELSE'S (ELSE;) FOUND 0 000  N/A  N/A  N/A  !
53 NULL THEN'S (THEN;) FOUND 0 000  N/A  N/A  N/A  !
          !      !      !      !      !
54 EXCESSIVELY COMPLEX IF'S  2 000===005  010  020  !
55 EXCESSIVELY COMPLEX DO'S  0 000  005  010  020  !
56 EXCESSIVELY COMPLEX SELECT'S 0 000  005  010  020  !
          !      !      !      !      !
          FORMATTING ANALYSIS
          !      !      !      !      !
          !      !      !      !      !
57 MULTIPLE VERBS PER LINE   1 000===000===N/A  N/A  !
          !      !      !      !      !
          STRUCTURE ANALYSIS
          !      !      !      !      !
          !      !      !      !      !
58 NUMBER OF PROGRAM EXITS   2 001===N/A  N/A  N/A  !
59 NUMBER OF PROGRAM ENTRIES  1 001  N/A  N/A  N/A  !
60 HIDDEN MAINLINE STATEMENTS 344 000===000===005===N/A  !
61 UNREFERENCED PROCEDURES  0 000  000  000  005  !
          !      !      !      !      !
62 % MAINLINE CALLS TO PROCS 80% N/A  N/A  N/A  N/A  !
63 CYCLOMATIC COMPLEXITY     151 N/A  N/A  N/A  N/A  !
64 PROC'S > 5 TEST CASES     3 002===N/A  N/A  N/A  !
65 ESSENTIAL COMPLEXITY      76 010===010===012===012***!
66 # OF INVALID GO TO'S      74 000===000===015===015***!
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THIS IS A SAMPLE STANDARD FILE TO BE USED WITH LOWEST OR LOWEST+ GRADING.
 YOUR ORGANIZATION CAN ADD, DELETE, AND TUNE THESE STANDARDS TO MATCH
 YOUR DEFINITION OF PL/I PROGRAMMING QUALITY.

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