FUJITSU

Fujitsu Technology Solutions

COLUMBUS85 (BS2000)
*2   Version V1.1A
*2   June 2012

Release Notice

1   General

COLUMBUS85 supports the design of programs with pseudo-code and the development of COBOL85 programs. The PSEUDO-code can be written in COBOL85 as well as in COLUMBUS.
COLUMBUS85 prepares programs according to their structure and produces structure lists with cross-references. Furthermore it supports the work with execution counters and decision tables.
Decision tables can automatically be converted into COBOL85 programs.
COLUMBUS85 can easily be integrated in the development environment of the customer.
COLUMBUS85 actions are controlled via the SDF-interface.
This Release Notice is a summary of the major extensions, requirements and

*2   operating informations with regard to COLUMBUS85 V1.1A which runs under
*1   the operating system BS2000/OSD *).

*2   The release level is that of: June 2012.

*2   Changes to release level March 2009 are marked with '*2'.

This and other current Release Notices are shipped on the SoftBooks DVD and are available online at http://manuals.ts.fujitsu.com/

*2   If one or more previous versions are skipped when the product is installed, the in-
*2   stallation information from the Release Notices of the previous versions must be
*2   noted.

1.1   Ordering

*2   COLUMBUS85 V1.1A can be ordered from your local distributors.

This product is subject to the general terms and conditions of the software product use and service agreement.

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*1   *) BS2000/OSD (R) is a registered trademark of Fujitsu Technology Solutions

1.2   Delivery

*2   The files for COLUMBUS85 V1.1A are supplied via SOLIS.
            The current file and volume characteristics are listed in the SOLIS2 delivery
            cover letter.
*2   Components of COLUMUS85 V1.1A:

            dt: abbreviation of decision table
            c: abbreviation of execution counter

*2   SYSLNK.COL85.011   Runtime system containing, the following modules:
               COB   Beautifier in the EDT
               C85EXFRQ   Output of the execution counters
               COLETK1   dt-interpreter for small dt without c
               COLGTK1   dt-interpreter for large dt without c
               COLETK3   dt-interpreter for small dt with c
               COLGTK3   dt-interpreter for large dt with c

*2   SYSPRC.COL85.011   Activates SDF and messages
*2   SYSMES.COL85.011   Message file (MSGMAKER format)
*2   SYSMSV.COL85.011   Message primary file
*2   SYSPRC.COL85.011.INST-PROC   Installation procedure
*2   SYSPRC.COL85.011.INST-QUERY   procedure for installation command
*2   SYSPRG.COL85.011.COB   Precompiler
*2   SYSPRG.COL85.011.COLGA   COLUMBUS COPY expander and
*2   without execution counters
*2   SYSPRG.COL85.011.IND   Beautifier
*2   SYSPRG.COL85.011.TEST   Pretty printer with execution counters
*2   SYSPRG.COL85.011.TRANS   COLUMBUS -> COBOL85 translator
*2   SYSPRG.COL85.011.VERDI   Pretty printer with cross references
*2   SYSSDF.COL85.011.SYSTEM   SDF system syntax file
*2   SYSSDF.COL85.011.USER   SDF user syntax file
*2   SYSSII.COL85.011   IMON information file
*2   SYSSPR.COL85.011   SDF call prozedur
*2   SYSFGM.COL85.011.D/E   Release notices (german english)
*2   SYSRME.COL85.011.D/E   Readme File contains information
*2   about error messages
*2   SYSLIB.COL85.011.COLUMBUSCOB   COLUMBUS COBOL V4.2
*2   SYSPRC.COL85.011.INST-COLUMCOB Installation procedure

            COLUMBUS85 has its own SDF interface with which you can invoke the .COB,
            .COLGA, .IND, .LIST, .TEST, .TRANS and .VERDI programs
               .

1.3   Documentation

*2   The following manual apply for COLUMBUS85:

               COLUMBUS85 (BS2000) V1.0A
               User Guide

2   Software extensions

2.1   Modifications with respect to version COLUMBUS85 V1.0C.

2.1.1   Changing the delivery structure

The delivery structure in COLUMBUS85 V1.1A was changed as follows:

- The yet delivered files for discontinued products COLUMBUS-COBOL V4.2
  are removed from the package.

- The file names have been adapted to modern conventions and the delivery
  has been reduced.

2.1.2   Change of the system prerequisites

COLUMBUS V1.1A is executable as of OSD V7.0.

For the installation of private or public IMON installation to another as the default
system ID, the product SDF-A is required.

2.1.3   Messages

As of COLUMBUS85 V1.1A all COLUMBUS85 programs output all messages via
the message interface of BS2000 (except COLGA, action EXPAND COPY)

In COLUMBUS85 V1.1A there are following new Messages:
      COL2044 PRETTY-PRINTING INITIATED, VERSION V(&00).
      COL2045 BEAUTIFYING INITIATED, VERSION V(&00).
      COL2050 PRECOMPILATION INITIATED, VERSION V(&00).
      COL2051 TRANSLATION INITIATED, VERSION V(&00).
      COL2060 (SYSLST) USED BECAUSE MISSING 'CLIST'
      COL9999 INTERNAL COLUMBUS85 ERROR '(&00)'

2.1.4   Installation

About changes in the installation of COLUMBUS85 V1.1A see Chapter "Product
installation".

2.1.5   Adapting to newer software configurations

In COLUMBUS85 V1.1A the ability to run with newer software configurations was
made possible, for example the working with EDT V17.

Additional, some errors in the functionality of the previous version were corrected.

2.2   Modifications with respect to version V1.0B.

2.2.1   Delivery of files with standard file-names.

Two file-names of COLUMBUS85 V1.0B: COL85.RTSLIB and
COL85.PROFILE did not correspond to the conventions for product
file-names .

The library COL85.RTSLIB is renamed to SYSLNK.COL85.011.
Only the Element COB was modified.

The procedure SYSPRC.COL85.010 in COLUMBUS V1.0C replaces the
procedure COL85.PROFILE of COLUMBUS V1.0B

2.2.2   Readme-Dateien SYSRME.

The COPY-expansion-program (EXPAND-COPY) has the same error-behavior as
COLUMBUS V4.2A. In order to analyze an occuring error more exactly, the
SYSRME-file the required error-text. Furthermore, the SYSRME-file contains the
new ranges of the error-numbers after the Prefix COL

2.2.3   COLUMBUS COBOL V4.2
For customers of COLUMBUS COBOL the files of COLUMBUS COBOL V4.2
are included.

*2   The procedure SYSPRC.COL85.011.INST-COLUMBOB installs the programs
and libraries of COLUMBUS COBOL under the actual user-id.

2.2.4   Technical separation from COBOL85

2.2.4.1   General

COBOL2000 is delivered without structurizer.

*2
If a customer replaces COBOL85 by COBOL2000 and uses COLUMBUS85
with a version less than 1.1A, the customer cannot use the Beautifier nor the
Prettyprinter with XREF-Listing.
Furthermore, the error message text of COLUMBUS85 will be missing.

*2   For this reason COLUMBUS85 V1.1A is technically independent of COBOL85.
The files SYSPRG.COBOL85.023.IND SYSPRG.COBOL85.023.VERDI, are
*2   delivered together with COLUMBUS85 V1.1A.

*2   As COLUMBUS85 V1.1 and COBOL85 may be installed parallel, COLUMBUS85
*2   V1.1A got its own range of error message numbers.

*2   The message files SYSMES.COL85.011 and SYSMSV.COL85.011 contein the
*2   new numbers. They are delivered together with COLUMBUS85 V1.1A.

2.2.4.2   SYSPRG

All programs delivered with COLUMBUS85 now report "COLUMBUS85" at
start-up.
The header of the Pettyprinter with XREF-Listing output shows COLUMBUS85
instead of COBOL85.

2.2.4.3   SYSPRC

*2   The procedures (SYSPRC.COL85.011, SYSPRC.COL85.011.INST-PROC and
*2   SYSPRC.COL85.011.INST-QUERY) do no longer need information on COBOL85-
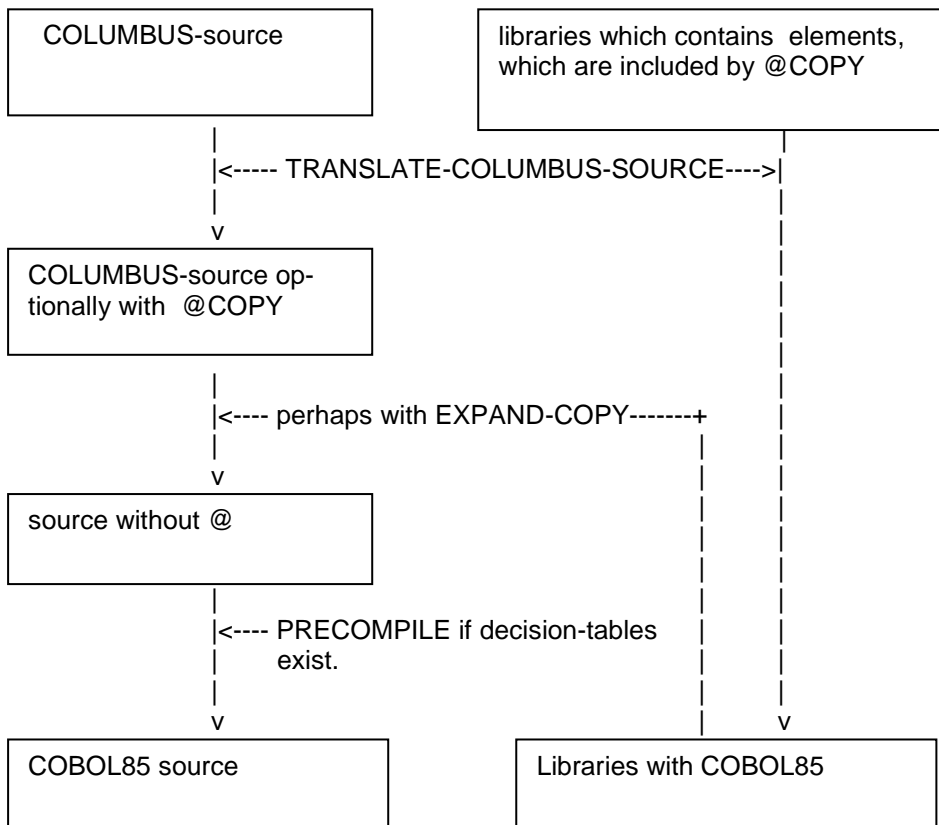Userid.
*2   Hence the parameter COBUSERID in SYSPRC.COL85.011 (earlier
COL85.PROFILE) is omitted.

2.3 Extensions and corrections against COLUMBUS85 version V1.0A.

2.3.1 Aim of the extensions.
These extensions support the migration from sources of COLUMBUS-COBOL to sources of COBOL85.

The way of migration is shown by the following picture.

```
┌─────────────────────────┐          ┌─────────────────────────────┐
│                         │          │                             │
│  COLUMBUS-source        │          │ libraries which contains  elements, │
│                         │          │ which are included by @COPY │
│                         │          │                             │
└─────────────────────────┘          └─────────────────────────────┘
              |                                    |
              |<----- TRANSLATE-COLUMBUS-SOURCE---->|
              |                                    |
              v                                    |
┌─────────────────────────┐                        |
│  COLUMBUS-source op-     │                        |
│  tionally with  @COPY    │                        |
│                         │                        |
└─────────────────────────┘                        |
              |                                    |
              |<---- perhaps with EXPAND-COPY-------+      |
              |                              |      |
              v                              |      |
┌─────────────────────────┐                  |      |
│  source without @        │                  |      |
│                         │                  |      |
│                         │                  |      |
└─────────────────────────┘                  |      |
              |                              |      |
              |<---- PRECOMPILE if decision-tables |      |
              |        exist.                 |      |
              |                              |      |
              v                              v      v
┌─────────────────────────┐          ┌─────────────────────────────┐
│  COBOL85 source         │          │  Libraries with COBOL85      │
│                         │          │                             │
└─────────────────────────┘          └─────────────────────────────┘
```

After the migration, the translation of decision-tables and translation of COBOL85-source, some modules of the decision-tables may be included from SYSLNK.COL85.011.

*2

TRANSLATE-COLUMBUS-SOURCE does not translate the COLUMBUS-COPY-statements to COBOL85-COPY-statements, if the predefine parameter COPY-PARAMETERS=NO is used, and if the COLUMBUS-COPY-statements contain parameters like REPLACING or IN filename.
If the text "@COPY" exist, after using TRANSLATE-COLUMBUS-SOURCE, these statements must be executed by EXPAND-COPY.
If the existing COLUMBUS REPLACING clauses are compatible to COBOL RE-PLACING clauses, the option COPY-PARAMETERS=YES of TRANSLATE-COLUMBUS-SOURCE may be used. In this case the EXPAND-COPY operation is not necessary.

REPLACING is not compatible in its effect on compound words. See the following example:

Let a library text contain the line

123456 01 A-B-LINE PIC X(80).

The EXPAND-COPY expansion, but not the COBOL expansion, of

 ... REPLACING B BY SINGLE

would result in

123456 01 A-SINGLE-LINE PIC X(80).

2.3.2   Support for the @LEAVE statement

The @LEAVE statement is used to leave a PERFORM block dynamically.
The TRANSLATE-COLUMBUS-SOURCE action of COLUMBUS85 previously
could not translate the @LEAVE statement.
In this version an EXIT PERFORM statement is generated. It is not possible to
leave an @IF, @ELSE or @CASE Block using @LEAVE statement.
In this case the error message
      COL0600 @LEAVE STATEMENT USED NEITHER IN @CYCLE LOOP
      NOR IN @WHILE LOOP
is output and the translation is terminated.

The mark 'mark' may be the string between @LEAVE and the line end.
If the mark 'mark' of the @LEAVE statement is not the same as the mark of a
neighboring block, the error message
      COL0601 MARK 'mark' OF @LEAVE STATEMENT DOES NOT AGREE
is output and the translation is terminated.

2.3.3   Expansion of Columbus copies

The expansion is controlled by the option EXPAND-COPY of the parameter
ACTION
ACTION = <u>PRETTY-PRINT</u> | BEAUTIFY-SOURCE | PRECOMPILE |
            TRANSLATE-COLUMBUS-SOURCE | EXPAND-COPY

```
EXPAND-COPY ()
    |       OUTPUT = *STD / <full-filename 1..54 without gen>
    |       |         / *LIBRARY-ELEMENT(...)
    |       |
    |       |  *LIBRARY ELEMENT ()
    |       |      LIBRARY = <full-filename 1.54>
    |       |      ELEMENT = <composed-name (1..40)>
    |
    |       COLUMBUS-DELIMITER = STD / PARAMETERS
    |         |   PARAMETERS()
    |         |
    |         |      STRUCTURE = '@' | '<character>'
    |         |      COLON    = ':' | '<character>'
    |         |      ASTERISK = '*' | '<character>'
    |         |      COMMA    = ',' | '<character>'
    |
    |       COPYLIBS = *NONE | PARAMETERS
    |         |   PARAMETERS()
    |         |
    |         |      COBLIB = *NONE | <full-filename 1..54 without gen>
    |         |      LIB1   = *NONE | <full-filename 1..54 without gen>
    |         |      until
    |         |      LIB15  = *NONE| <full-filename 1..54 without gen>
```

If the default setting "OUTPUT=*STD" is valid, the output is written to the file
"COLGA.COUT".

   If the @COPY-statement contain OF or IN related to a library or a
linkname, so the name is searched in PARAMETERS of COPYLIBS.
If the specified library is not found in one of the COPYLIBS-parameters and if the
linkname is not assigned by a
   /SET-FILE-LINK LINK-NAME=linkname
the @COPY-statement is not applied, and an error message would be given.
example:
     @COPY element1: IN library :
     @COPY element2: IN linkname :
One of the LIB-parameters must contain the used "library". If "linkname" is
connected to a library by the command
   /SET-FILE-LINK LINK-NAME=linkname, ...
the LIB-parameters should not contain the used "linkname".

2.3.4   TRANSLATE-COLUMBUS-SOURCE TRANSLATE UNIT

The TRANSLATE-COLUMBUS-SOURCE action has been extended.
These extensions support elements of libraries, which are included by COPY-
statements.
The new option is defined in the SDF-command:
TRANSLATE-COLUMBUS-SOURCE ()
                | PROGRAM
                | TRANSLATE-UNIT =   DATA-DIVISION
                | PROCEDURE-DIVISION
The default value is "PROGRAM".

TRANSLATE-UNIT = PROGRAM must be applied to a complete COBOL program.

The other parameter values are applied to translate source lines within a COBOL
division, which are included as COPY-elements.
If the element will be included in the PROCEDURE division, the element must be
translated with the parameter TRANSLATE-UNIT =PROCEDURE-DIVISION.
If the element will be included in the DATA division, the element must be trans-
lated with the parameter TRANSLATE-UNIT = DATA-DIVISION.

3   Technical information

3.1   Resource requirements

*2   COLUMBUS85 V1.1A requires at least 6 MB of virtual address space.
*2
*2   The COLUMBUS85 V1.1A product occupies approximately 6400 PAM pages of
*2   disk space.

3.2   Software configuration

*2   COLUMBUS85 V1.1A is released for BS2000/OSD V7.0 or newer.
            The following products are required

Product	As of version
SDF-P-BASYS	V2.3
EDT	V16.5A
SDF-A	V4.1

*2   SDF-A is used in the installation procedure.
*2   This installation procedure is only used to install COLUMBUS85 in non-standard
*2   user-id.

3.3   Product installation

            Standard installation takes place via SOLIS.

3.3.1   IMON-Installation under Standard System ID

*2   The default installation with IMON on the system default ID is supported as pre-
*2   viously. The dynamic determination of file names at the run time is not supported.

3.3.2   IMON-Installation under any user ID

*2   The product can be installed with IMON on a different than the system default ID.
*2   After this installation, a manual adjustment to the selected installation ID has to be
*2   performed (see Step 2 of the private installation).

3.3.3   Private installation

*2   The private installation on any ID can be executed by using the provided installa-
*2   tion procedure SINPRC.COL85.011.

*2   This procedure is as follows:
*2   1. Deploying the product installation files on the selected installation ID. It
*2   should be noted that the write rights for both of SDF syntax files are
*2   needed.
*2   2. Adaptation of the SDF syntax files to the installation ID by calling the in-
*2   stallation procedure:
*2   / CALL PROC SINPRC.COL85.011
*2   3. Sharing the product files with / MOD-FILE-ATT, if the private installation is
*2   used by other users.
*2   To call a private installed COLUMBUS85 version, the SDF syntax file and
*2   the message file have to be activated for this task.

3.4   Product use

COLUMBUS85 should be called via an SDF interface in menu-driven dialog or in expert mode.
The command is:

/START-COLUMBUS85? or

/COL?

3.5 Obsolete functions

None

3.6   Incompatibilities

None

3.7   Restrictions

3.7.1   @LEAVE

- It is not possible to leave an @IF or @CASE Block using @LEAVE statement.

- IF @LEAVE occurs in a COPY element in a nested loop, then necessary variable is not inserted in the DATA DIVISION.

3.7.2   @COPY

- The @COPY-statement is in the generated file modified to a comment line.
If the @COPY-statement is written in more then one line, then, started with of the second line of the @COPY-statement, the comment-char '*' is placed in the wrong column.

3.8   Procedure in the event of errors

- The @COPY-statement is in the generated file modified to a comment line.
If the @COPY-statement is written in more then one line, then, started with of the second line of the @COPY-statement, the comment-char '*' is placed in the wrong column.

*2
*2

4   Hardware

*2
*2
*2
*2
*2

COLUMBUS85 V1.1A is executable on all Business Servers supported by
BS2000/OSD as of Version 7.0

*2
*2
*2
*2

5   Appendix

5.1   Information for users

This chapter contains information and tips - not included in the User Guide - for COLUMBUS85 users.

5.2   Subprogram instrumentation

Manual amendment to chapter 3.4.1.
If you link non-instrumented programs to other instrumented programs (precompiled with TEST-INSTRUMENTATION=YES), you must enter the CALL "C85EXFRS" statement in the non-instrumented subprograms prior to compilation and before every STOP RUN so that the execution counters and their values are saved in a file or library during program termination for evaluation by the pretty printer.

This situation exists, for example, when only a subprogram is instrumented and the main program containing the STOP RUN is not.
The main program must then also be instrumented or be extended manually.

5.3   Output of the execution counters in a PLAM library

If you have run a test object and you then want to output the execution counters in a PLAM library element with version specification, you must specify the version in parentheses after the element. This is described incorrectly in the manual. It should read:
        *L-E(library,element(version))
You may omit the version if you want to use the *UPPER-LIMIT default.
The other output options *YES, *NO and <file> apply as described in the manual.