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Author: H. Dinsen Hansen

Title:

RC8000 Utility Program
Compresslib

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Abstract:

This manual describes the utility program compresslib used to collect on single backing storage areas libraries of external procedures or code procedures suitable for the ALGOL and FORTRAN compilers to link them into programs.

(16 printed pages)

Foreword:

In the two compilers ALGOL and FORTRAN, the linking phase, pass9, is able to pick up and link into a program any number of external ALGOL procedures, external FORTRAN subroutines/functions or code procedures described in the catalog.

The procedures may be picked up from procedure libraries, i.e. collections of procedures stored together on single backing storage areas being procedures themselves.

The present program, compresslib, is used to collect such libraries of procedures, being external ALGOL procedures, external FORTRAN subroutines/functions or code procedures in any mix.

F.G. Strøbech

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1. INTRODUCTION

The program compresses into one single area a number of external ALGOL / FORTRAN procedures or code procedures to occupy a minimum number of segments.

2. EXAMPLE:

The call

read = compresslib write arctan ln arcsin

collects into one single area the algol library procedures read, write, arctan, ln and arcsin and sets the descriptors of these procedures so that they may be found and accepted by the ALGOL and FORTRAN compilers.

3. CALL:

```

<collection area> = <compresslib>{<s><procedure area>}*1
<collection area> ::= <procedure area>
<procedure area> ::= <name>

```

A procedure area is an area entry with content 4, and with length > 0.

The intervals of the procedure areas must be equal to the catalog base of the process, which must be contained in or be equal to the standard interval of the process.

4. FUNCTION:

The contents of the collection area is examined so that it is known how much space the code and the external list take up in the area. Then the procedure areas on the right hand side are scanned from left to right and their code and external lists are placed one after the other as tight as possible after the external list and the code of the collection area. If necessary the collection area is extended as the processing proceeds. Parameters not accepted in this phase are dropped in the compression. When all procedure areas have been collected, the accepted areas are removed and the procedures are described as shared main entries (see the appendix), i.e. the content becomes 32 + first segment in the collection area, and the mode kind becomes bs.

Possible sub entries to the procedure areas are not changed.

5. STORAGE REQUIREMENTS

900 halfwords + room for FP + room for the largest external procedure.

6. ERROR MESSAGES.

All error messages have the following form:

***compresslib <param> <further explanation>

After an error message of this form, the standard actions are as follows:

If <param> is absent or it is the name of the collection area, the program terminates immediately. None of the procedure areas to the right will be changed.

If <param> is one of the right hand parameters, this parameter is dropped from the compression, but the other parameters will not be affected.

Further explanation may be:

connect error:		The area could not be connected for input or output. The reason may be that it is reserved for output by another process.
unknown	:	The area could not be found.
interval	:	The interval of the procedure area is not equal to the interval of the collection area.
content	:	The parameter does not denote an external procedure.
not area	:	The parameter does not denote an area (with length > 0).
intervals	:	The interval of the collection area is not equal to the catalog base of the process or the catalog base is not contained in or equal to the standard interval of the process.

no collection area: The program call has no left hand side.

transport error : Input from a procedure area or output to the collection area is impossible. Usually because of claims exceeded or bs_fault.

process too small : It is impossible to hold the entire procedure in the process area. If param is the collection area, it is impossible to hold the external list in the process area.

too many segments : The collection area has exceeded 4063 segments.

A. APPENDIX:

In the FP-system, file descriptors are usually either area descriptors or file descriptors describing (sub)files in a bs area or peripheral file. Usually only one level of indirect description of areas is allowed. For external procedures to ALGOL or FORTRAN programs however, two levels of indirect description of areas are allowed. An external procedure may be described in the catalog by the following descriptors

main entry:	length > 0,	content = 4
shared entry:	length = bs,	content = 4
shared main entry:	length = bs,	content >= 32

A shared entry will either have the name of a main entry or a shared main entry in its document name field.

A shared main entry has the name of a main entry (the collection area) in its document name field.

The value of the content field is segment no. of external list + 32.

RETURN LETTER

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Information Department
Lautrupbjerg 1
DK-2750 Ballerup
Denmark