UFIT NEWS: Use of the COBOL Report Writer PreCompiler

EI&O Document ID: N0383
Last Updated: 1/7/2004

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NERDC News: N0383

July 10, 2003 COBOL programs that include IBM COBOL Report Writer language elements will need to be rewritten or will need to be compiled with the optional COBOL Report Writer PreCompiler. The IBM Enterprise COBOL for z/OS and OS/390 compiler is written to the COBOL 85 Standard specification which does not include support for the COBOL Report Writer feature. On August 19, 2003, when OS/VS COBOL is removed from our system, Enterprise COBOL will be the only compiler available at our installation.

You can recognize COBOL programs that use the Report Writer function by looking for particular language elements in your program code. One of the manuals in the Enterprise COBOL Library, specifies that COBOL programs using the Report Writer function may be indicated by the presence of the following language elements:

Figure 1.

**GENERATE statement**
**INITIATE statement**
- **LINE-COUNTER special register**
- Nonnumeric literal IS mnemonic-name
- **PAGE-COUNTER special register**
- **PRINT-SWITCH special register**
- **REPORT clause of FD entry**
- **REPORT SECTION**
- **TERMINATE statement**
- **USE BEFORE REPORTING declarative**

You can find this information and more in Chapter 10, "Upgrading OS/VS COBOL source programs," of the manual:
The list is included in a section called "Language elements that require other products for support." The chapter also references Appendix C, "Conversion tools for source programs," which includes a section on the "COBOL Report Writer PreCompiler" with a short description of the product.

Rewriting COBOL programs to meet the COBOL 85 Standard -- removing the COBOL Report Writer language elements -- is the best way to guarantee that your COBOL programs will compile correctly with the Enterprise COBOL compiler. The COBOL Report Writer PreCompiler may be used to assist with the process of permanently converting Report Writer statements to valid Enterprise COBOL statements.

Invoking the COBOL Report Writer PreCompiler as a preprocessing step or as an exit with the Enterprise COBOL compiler is another option, although a temporary one. The COBOL Report Writer PreCompiler product as installed is no longer receiving vendor service but it does generate code that meets the current COBOL 85 Standard. In most cases, the resulting code should be compatible with the Enterprise COBOL compiler.

Another consideration when deciding whether to rewrite a COBOL program or to temporarily use the COBOL Report Writer PreCompiler to compile your programs, is that the current draft COBOL ISO/IEC 1989:2002 Standard (http://www.cobolstandards.com) includes support for Report Writer language elements. This means that there is a possibility that a future release of the IBM COBOL compiler may include support for the Report Writer feature.

Converting Source Code with the COBOL Report Writer Precompiler

The following is an example of using the COBOL Report Writer PreCompiler to generate COBOL source code with the Report Writer language elements converted to COBOL 85 standard statements:

```
//PC EXEC PGM=SPCRWCOB,
  // PARM='RTNEST,NOXCAL'
  //STEPLIB DD DSN=NERDC.COBOL.REPORT.WRITER.SCXRPREC,DISP=SHR
  //SYSUT11 DD UNIT=SYSDA,SPACE=(512,(1600,100))
  //SYSLIB DD DSN=your.cobsrc,DISP=SHR
  //SYSPRINT DD SYSOUT=A
  //PHSLIBQ DD DSN=NERDC.COBOL.REPORT.WRITER.SCXRCOBQ,DISP=SHR
  //PHSLIBA DD DSN=NERDC.COBOL.REPORT.WRITER.SCXRCOBA,DISP=SHR
```
The documentation for the COBOL Report Writer PreCompiler includes information on the various PARM options, like RTNEST and NOXCAL, that may be used to control the source conversion. Note that even with the PreCompiler, additional conversion of other OS/VS COBOL language elements may be required, as the PreCompiler is only designed for converting Report Writer language elements.

Compiling and Linking with the COBOL Report Writer Precompiler

The following is an example of using the COBOL Report Writer PreCompiler as an exit for an Enterprise COBOL compile and link:

Figure 4.

```
//EXEC IGYWCL,
//PGMLIB=your.loadlib,GOPGM=cobolpgm,
//PARM.COBOL=('LIB,MAP,DYNAM',
//'EX(INX(''LGSEQ,RTNEST'',RW),PRTX(RW))')
//COBOL.STEPLIB DD
//DD DSN=NERDC.COBOL.REPORT.WRITER.SCXRPREC,DISP=SHR
//COBOL.SYSLIB DD DSN=your.cobsrcc,DISP=SHR
//COBOL.SYSUT11 DD UNIT=SYSDA,SPACE=(516,(1600,100))
//COBOL.PHSLIBA DD DSN=NERDC.COBOL.REPORT.WRITER.SCXRCOBA,DISP=SHR
//COBOL.PHSLIBQ DD DSN=NERDC.COBOL.REPORT.WRITER.SCXRCOBQ,DISP=SHR
//COBOL.SYSIN DD *
//your COBOL program
/*/ 
//LKED.SYSLIB DD
//DD DSN=your.objlib,DISP=SHR
//DD DSN=NERDC.COBOL.REPORT.WRITER.SCXRRUN,DISP=SHR
```

The COBOL PARM may need to include additional options required by your application. Essentially, the precompiler requires the addition of the INX(), input exit, and PRTX(), print exit, parameters; an additional COBOL STEPLIB DD for NERDC.COBOL.REPORT.WRITER.SCXRPREC; the SYSUT11, PHSLIBQ and/or PHSLIBA DD statements; and an additional LKED SYSLIB DD for NERDC.COBOL.REPORT.WRITER.SCXRRUN.

And, when executing the compiled load module, some functions, including the use of the file handler interface, may require the addition of a STEPLIB DD for NERDC.COBOL.REPORT.WRITER.SCXRRUN, like the following:
Figure 5.

//GO EXEC PGM=cobolpgm
//STEPLIB DD DSN=your.loadlib,DISP=SHR
//          DD DSN=NERDC.COBOL.REPORT.WRITER.SCXRRUN,DISP=SHR

There may be circumstances when the requirement for the COBOL Report Writer run-Time library can possibly be eliminated by altering the compile parameters to use an appropriate combination of the NODYN compiler option and the RTNEST precompiler option.

Documentation

The documentation for the IBM COBOL Report Writer PreCompiler is located at:

Figure 6.


This material includes extensive information on the many options for using the IBM COBOL Report Writer PreCompiler. It is important to note that these manuals actually apply to a more recent product level of the PreCompiler than is installed on our system; so, there may be some options that are not available.

If you have questions about using the IBM COBOL Report Writer PreCompiler or about whether or not you should rewrite your COBOL programs, please contact us at the NERDC Support Desk at 352/392-2061, e-mail consult@lists.ufl.edu [mailto:consult@lists.ufl.edu].

News articles, NERDC documents, and related information can be accessed on-line through DOCWEB, NERDC’s WWW-based documentation system, at http://docweb.cns.ufl.edu.

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