

Fujitsu Software

NetCOBOL V13.0.0

Release Notes

Linux(64)

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Preface

This book explains Release Note of NetCOBOL.

Abbreviations

The name of the product described in this book is written for short as follows.

Product Name	Abbreviation
Red Hat(R) Enterprise Linux(R) 9 (for Intel64) Red Hat(R) Enterprise Linux(R) 8 (for Intel64)	Linux or Linux(64)
Red Hat(R) Enterprise Linux(R)	Red Hat Enterprise Linux
Microsoft(R) Windows Server(R) 2022 Datacenter Microsoft(R) Windows Server(R) 2022 Standard	Windows Server 2022
Microsoft(R) Windows Server(R) 2019 Datacenter Microsoft(R) Windows Server(R) 2019 Standard	Windows Server 2019
Microsoft(R) Windows Server(R) 2016 Datacenter Microsoft(R) Windows Server(R) 2016 Standard	Windows Server 2016
Microsoft(R) Windows Server(R) 2012 R2 Datacenter Microsoft(R) Windows Server(R) 2012 R2 Standard Microsoft(R) Windows Server(R) 2012 R2 Foundation	Windows Server 2012 R2
Microsoft(R) Windows Server(R) 2012 Datacenter Microsoft(R) Windows Server(R) 2012 Standard Microsoft(R) Windows Server(R) 2012 Foundation	Windows Server 2012
Windows(R) 11 Home Windows(R) 11 Pro Windows(R) 11 Enterprise Windows(R) 11 Education	Windows 11
Windows(R) 10 Home Windows(R) 10 Pro Windows(R) 10 Enterprise Windows(R) 10 Education	Windows 10

Microsoft Windows products listed in the table above are referred to in this manual as "Windows".

Purpose of This Manual

This documentation explains the additional function, the bug fix and the interchangeable information from the old edition.

It has aimed can the smoother shift of the customer who was using the old edition to this product.

Intended Readers

This document is for customers who are using old edition of this products and intended for shift or shifting to this product.

Positioning of This Manual

This document explains only fragments of the additional function, the bug fix, and the interchangeable information from the old edition. For details and to get the overall look of the product, refer to each product manual.

Related Manuals

The manual of this product and a related product includes the following manuals besides this document.

- NetCOBOL Language Reference
- NetCOBOL Syntax Samples
- NetCOBOL User's Guide
- NetCOBOL User's Guide (Third-Party COBOL Resource Migration)
- NetCOBOL COBOL File Access Subroutines User's Guide
- NetCOBOL CBL Subroutines User's Guide
- NetCOBOL LE Subroutines User's Guide
- NetCOBOL Messages
- NetCOBOL Getting Started
- J Adapter Class Generator User's Guide
- PowerFORM Runtime Reference
- PowerBSORT (64bit) User's Guide

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Chapter 1 Outline of Additional Functionality

New product functionality and content is outlined below by version and level.

1.1 All Products

The following Information applies to all products.

Table 1.1 Outline of additional functionality in NetCOBOL V13

NO.	V/L	Function Name	Content	Location in Manual
1	V13.0.0	OS support	Red Hat Enterprise Linux 9 is supported.	-

Table 1.2 Outline of additional functionality in NetCOBOL V12/V12a

NO.	V/L	Function Name	Content	Location in Manual
1	V12a (V12.2.0A)	Replacing internal components	Replaced the internal components used by the installer.	-
2	V12.2.0	OS support	Red Hat Enterprise Linux 8 is supported.	-

Table 1.3 Outline of additional functionality in NetCOBOL V11

NO.	V/L	Function Name	Content	Location in Manual
1	V11.0.0	Fujitsu Common Tools	Fujitsu Middleware Installation System and FJQSS (Information Collection Tool)	Software Release Guide - Appendix D FJQSS (Information Collection Tool)
2	V11.0.0	OS support	Red Hat Enterprise Linux 7 is supported.	-



Note

The V/L column lists the version and level of NetCOBOL Enterprise Edition.

1.2 NetCOBOL

Information described here is applied to the following products:

- NetCOBOL Enterprise Edition Developer and Runtime (64bit) for Linux
- NetCOBOL Enterprise Edition Runtime (64bit) for Linux

Table 1.4 Outline of additional function of NetCOBOL V13

NO.	V/L	Function Name	Content	Location in Manual
1	V13.0.0	Integration with other systems	Provides a library to help to call COBOL programs from Java. This allows you to work with rich features that Java supports, and utilize COBOL programs in many locations including the cloud. For example, you can develop a service which call a COBOL program via REST API by calling	COBOL Invoker for Java API Reference (*1) COBOL Invoker for Java Getting Started (*1)

NO.	V/L	Function Name	Content	Location in Manual
			the COBOL program from a REST service written in Java.	
2	V13.0.0	Support for the replacement of text by partial word of international standard COBOL 2014	The source text manipulation (COPY and REPLACE statements) can now specify partial word supported by the international standard COBOL 2014.	NetCOBOL Language Reference - 7.1 COPY Statement - 7.2 REPLACE Statement
3	V13.0.0	Micro Focus user-defined word compatibility mode support	By specifying the compiler option MF or USERWORD, Micro Focus specific user-defined words can be defined in NetCOBOL. This makes it easier to migrate from third-party COBOL.	NetCOBOL User's Guide - A.2.34 MF (Micro Focus compatible mode) - A.2.66 USERWORD (User-defined words mode) - A.2.8 COPYHYPN (Character specification added or replaced by the compiler in the COPY statement)
				NetCOBOL Language Reference - 10.10 User-defined word Compatibility Mode
4	V13.0.0	Third-party COBOL compatibility	The TRAILING phrase of the INSPECT statement can now search for a string from the rightmost position of a character string. This makes it easier to migrate from Micro Focus COBOL.	NetCOBOL Language Reference - 10.9.1.1 INSPECT statement (Micro Focus native)
5	V13.0.0	Extending where integer function and numeric function can be used	Integer function and numeric function can now be described as sending items of MOVE statements. You can now describe the LENGTH function wherever you can specify an integer. This makes it easier to migrate from Micro Focus COBOL.	NetCOBOL Language Reference - 6.5.4 Function Types - 6.6.19 LENGTH Function
6	V13.0.0	COMMAND-LINE support	You can now manipulate command line data using the ACCEPT and DISPLAY statements with the function name COMMAND-LINE. This makes it easier to migrate from Micro Focus COBOL.	NetCOBOL User's Guide - 9.4 Command Line Data Handling Function
				NetCOBOL Language Reference - 10.11 Command Line Data
7	V13.0.0	Other formats of zoned decimal compatibility mode support	Support the Micro Focus COBOL compatible format and the 88 consortium compatible format as the format expressing the sign part of signed zoned decimal data item without the SEPARATE phrase.	NetCOBOL User's Guide - A.2.13 DECIMAL (Internal format of zoned decimal items without SEPARATE phrase) - A.2.14 DECIMALCHK (Mixed checking of zoned decimal mode at runtime)

NO.	V/L	Function Name	Content	Location in Manual
			This makes it easier to migrate from Micro Focus COBOL.	- Appendix Q Compatibility of Zoned Decimal Modes with Other Formats
8	V13.0.0	Embedded exception declaration specification extension for database (SQL)	Warnings can now be detected in embedded exception declarations in the database (SQL). You can now also write a PERFORM statement in addition to the GO TO statement when an exception occurs. This allows processing to continue immediately after a SQL statement after a warning or error has been addressed.	NetCOBOL Language Reference - 8.4 Embedded Exception Declaration NetCOBOL User's Guide - A.2.53 SQLEXCP (Notification area referenced during embedded exception declarations) - A.2.55 SQLWARNING (Determines whether embedded exception declaration warnings are detected)
9	V13.0.0	Support for ODBC positioning updates	Position updates are now available when using the Enterprise Postgres ODBC driver.	NetCOBOL User's Guide - 16.2.8.1.2 Creating an ODBC Information File
10	V13.0.0	Action specification when setting NULL character	When accessing a database through ODBC, you can now specify what happens when a NULL character is set.	NetCOBOL User's Guide - 16.2.8.1.2 Creating an ODBC Information File
11	V13.0.0	ACCEPT/DISPLAY function	You can now change the input mode of an ACCEPT statement that is associated with no function name or the function name SYSIN.	NetCOBOL User's Guide - Appendix E Environment Variable List / CBR_ACCEPT_FROM_SYSIN
12	V13.0.0	Reading the tabs in a line sequential file	Tabs contained in records in a line sequential file can now be read as part of the record data.	NetCOBOL User's Guide - 6.3.3 Processing Line Sequential Files - 6.8.9 Specifying the Reading of Tabs in a Line Sequential File
13	V13.0.0	Shift-JIS support for external file handlers	Applications that process data from COBOL programs as Shift-JIS can now use external file handlers.	NetCOBOL User's Guide - 6.8.8 External file handler
14	V13.0.0	ACCEPT/DISPLAY function	You can now suppress messages when executing the ACCEPT statement associated with the function name CONSOLE.	NetCOBOL User's Guide - Appendix E Environment Variable List / CBR_JMP0201A_MESSAGE
15	V13.0.0	Memory check function	You can now check runtime system area before or after executing a CALL statement.	NetCOBOL User's Guide - 5.5 Using the Memory Check Function
16	V13.0.0	Inter-program communication	The command line length has been extended.	NetCOBOL Language Reference - B.7 Inter-program Communication
17	V13.0.0	Improved Makefile created by Makefile creation support	For remote development of NetCOBOL Studio for Windows, the Makefile created by the Makefile creation function can be	-

NO.	V/L	Function Name	Content	Location in Manual
		command (cobmkmf command)	used in the build by the make command on the server side for the COBOL project whose extension association was changed in the File Content.	
18	V13.0.0	Object comparison tool	Improved comparison between object files and object programs linked to executable files. It is now easier to identify the source file. Information of compiler options and compiler fix that do not affect execution are not compared.	-
19	V13.0.0	PROCEDURE-POINTER support	PROCEDURE-POINTER can be used.	NetCOBOL Language Reference - 10. 6.1.1 USAGE Clause - 10.6.2.2 SET Statement (Nucleus)

*1: For information on where to find these documents, see "COBOL Invoker for Java" in "Software Release Guide."

Table 1.5 Outline of additional function of NetCOBOL V12 / V12a

NO.	V/L	Function Name	Content	Location in Manual
1	V12.2.0	Pre-compilation source convert function	The pre-compilation source convert function converts the source program written in the third-party COBOL syntax, into a source program which can be compiled by NetCOBOL. Using this function, it can automatically convert source programs and can perform migration efficiently.	NetCOBOL User's Guide (Third-Party COBOL Resource Migration) NetCOBOL User's Guide - 3.3.1.2 -CV (Specify use of the pre-compiler source conversion function) - A.2.17 FLAG (Diagnostic Message Level) - Appendix N cobpreconv Command NetCOBOL Messages
2	V12.2.0	Micro Focus COBOL file migration tool	Micro Focus COBOL file migration tool converts the COBOL file created by an application written in Micro Focus COBOL syntax into a format accessible by NetCOBOL. Using this tool, you can automatically convert COBOL files and can perform migration efficiently.	NetCOBOL User's Guide (Third-Party COBOL Resource Migration) - Chapter 3 Migration COBOL File
3	V12.2.0	Program repair support function (*1)	In the program repair, you can identify the source file used to create an executable file when multiple source files may have been used during development. In build, you can skip the option to re-compile programs that are not affected by the change.	NetCOBOL User's Guide - Chapter 23 Program Repair Support Function - A.2.36 OBJECT (whether an object program should be output) - Appendix O cobcmpo Command

NO.	V/L	Function Name	Content	Location in Manual
4	V12.2.0	Dump function	Support for dump information written from the executable file and object program. This allows you to check the following information: - Compiler options specified when creating an object program. - Object programs constituting an executable file. - Recommended compiler options to be unified between programs.	NetCOBOL User's Guide - Appendix P cobdump Command
5	V12.2.0	Data item boundary specification support	Compiler can align the data item with SYNCHRONIZED clause specified on NetCOBOL native boundary or system boundary.	NetCOBOL User's Guide - A.2.53 SYNC (Handling of data item boundary with SYNCHRONIZED clause specified)
6	V12.2.0	cobol command improvements	Compiler control levels can be displayed using the -v option of the COBOL command.	NetCOBOL User's Guide - 3.3.1.19 -v (Specification for type of information to be output)
7	V12.0.0	COMP-6 support	The data of packed decimal data item without sign half-byte of the Micro Focus native can be used by describing USAGE IS COMPUTATIONAL-6.	Language Reference - 10.7 Packed decimal data item without sign half-byte
8	V12.0.0	Fujitsu mainframe format floating-point support (*2)	The data of Fujitsu mainframe format floating-point can be operated by using the Fujitsu mainframe format floating-point arithmetic emulator.	NetCOBOL User's Guide - A.2.19 FLOAT (Internal format of internal floating-point item) - A.2.20 FLOATCHK (Mixed check of internal format of internal floating-point items at execution time) - Appendix P Format of floating-point
9	V12.0.0	LE subroutine support	The LE subroutines of IBM can be used.	NetCOBOL LE Subroutines User's Guide
10	V12.0.0	Switch of compiler diagnostic message format	Compiler diagnostic message format can be switched. The message is displayed in the standard error output.	NetCOBOL User's Guide - 3.1.1.5 COBMSG_FORMAT (Specification of diagnostic message format)
11	V12.0.0	Relational operator "<>" support	Relational operator "<>" is supported.	NetCOBOL Language Reference - 6.3.3 Conditional Expressions

*1: The program recovery support function is available in the following products:

- NetCOBOL Enterprise Edition Developer and Runtime (64bit) for Linux

*2: The Fujitsu mainframe format floating-point is available in the following products:

- NetCOBOL Enterprise Edition Developer and Runtime (64bit) for Linux
- NetCOBOL Enterprise Edition Runtime (64bit) for Linux

Table 1.6 Outline of additional function of NetCOBOL V11

NO.	V/L	Function name	Content	Location in Manual
1	V11.1.0	Enhanced file-identifier and file-identifier literal	Up to 30 characters can now be specified for file-identifier. The file-identifier literal can be treated as an environment variable name.	NetCOBOL User's Guide - A.2.16 FILELIT (file-identifier literal handling)
				NetCOBOL Language Reference - 4.3.1.3 ASSIGN Clause (Sequential File, Relative File, and Indexed File)
2	V11.1.0	ODBC support	The database access by ODBC is supported.	NetCOBOL User's Guide - Chapter 16 Database (SQL) - A.2.46 SQLGRP (SQL host variable definition expansion)
				NetCOBOL Language Reference - Chapter 8 Database (SQL)
3	V11.1.0	ltrace support	When the shared library is created specifying optional PLT, this library of the dynamic linking structure can be traced by using the ltrace command. Moreover, the processing time of the external program can be measured.	NetCOBOL User's Guide - A.2.36 PLT (Specifies to trace the external program calls that are included in a shared library) - Appendix M ltrace Command
4	V11.1.0	PRINTER_n support	In the ASSIGN clause, PRINTER_n phrase is supported. n for PRINTER-n is an integer from 1 through 99.	NetCOBOL Language Reference - 4.3.1.3 ASSIGN Clause (Sequential File, Relative File, and Indexed File) - 11.8.6.17 The WRITE Statement (Object-oriented Programming)
5	V11.1.0	Enhanced cobmkmf command	The extensions other than default (*.cob, *.cobol) can be used as an extension of the source files that the cobmkmf command handles. Moreover, the files in the subdirectory can be included in the build target.	man manual of the cobmkmf command.
6	V11.1.0	CBL subroutines support	Support of CBL subroutines that are compatible with COBOL CBL subroutines from Micro Focus Co., Ltd.	NetCOBOL CBL Subroutines User's Guide
7	V11.1.0	Supports specification of data area allocation method	Specify whether the memory which allocates the program data area is acquired statically or dynamically.	NetCOBOL User's Guide - 8.1.2.3 Program data area allocation

NO.	V/L	Function name	Content	Location in Manual
				- A.2.11 DATAAREA (Specifies the method of data area allocation)
8	V11.0.0	UTF-32 support	Encoding form UTF-32 and Shift-JIS can now be used.	NetCOBOL User's Guide - Chapter 18 Unicode
9	V11.0.0	Hadoop support (*1)	The hadoop integration function can now be used.	Hadoop Integration Function User's Guide
10	V11.0.0	Named pipes of COBOL File Access Routines	Named pipes of COBOL File Access Routines is supported.	COBOL File Access Subroutines User's Guide - 3.27 Named pipe

*1: The hadoop integration function is available in the following products:

- NetCOBOL Enterprise Edition Developer and Runtime (64bit) for Linux
- NetCOBOL Enterprise Edition Runtime (64bit) for Linux

Table 1.7 Outline of additional function of NetCOBOL V10

NO.	V/L	Function name	Content	Description place of manual
1	V10.4.0	31-digit support	Up to 31 digits can now be used for numeric items.	NetCOBOL Language Reference - 1.2.3.1 Numeric Literal - 1.7 Operation Mode - 5.4.8 PICTURE Clause - 5.4.16 USAGE Clause - 8.2.2 Host Variable Definitions - Appendix D Intermediate Results
				NetCOBOL User's Guide - 6.8 Other File Functions - A.2.2 ARITHMETIC
				NetCOBOL Messages
2	V10.4.0	Recursive calls	Programs can now be called recursively. Data items used by the recursive program are defined in the LOCAL-STORAGE SECTION.	NetCOBOL Language Reference - 1.3.5.2 Slack Bit - 2.1 Nucleus - 2.3 Input-Output Facility - Inter-program Communication Module - 2.3.3 External Attribute and Internal Attribute - 2.3.5 Program Activation - 2.3.7 Initial State of a Program - 2.3.8 Recursive Attribute of the Program - 3.1.1 Program-Id Paragraph - 4.3.1.1 ACCESS MODE Clause

NO.	V/L	Function name	Content	Description place of manual
				<ul style="list-style-type: none"> - 4.3.1.3 ASSIGN Clause (Sequential File, Relative File, and Indexed File) - 4.3.1.8 FILE STATUS Clause - 4.3.1.9 FORMAT Clause - 4.3.1.10 GROUP Clause - 4.3.1.23 PROCESSING MODE Clause - 4.3.1.30 SELECTED FUNCTION Clause - 4.3.1.32 SYMBOLIC DESTINATION Clause - 4.3.1.33 UNIT CONTROL clause - 5.1 Composition of the Data Division - 5.2.9 RECORD Clause - 5.4 Data Description Entry - 5.4.3 CHARACTER TYPE Clause - 5.4.13 SYNCHRONIZED Clause - 5.4.17 VALUE Clause - 6.4.7 CALL Statement - 8.2.1 Embedded SQL Declare Section - 10.2.3 Data Description Entry - Appendix A List of Reserved Words
3	V10.4.0	Unified specification of high-speed file processing	High-speed file processing can be specified for record sequential and line sequential files with one configuration specification as opposed to requiring specification for each file.	NetCOBOL User's Guide <ul style="list-style-type: none"> - 8.1 Calling Relationship Types
4	V10.4.0	Syslog output	The Syslog can be specified as the output destination for DISPLAY statements.	NetCOBOL User's Guide <ul style="list-style-type: none"> - 4.1.1 Runtime Environment - 9.1 ACCEPT/DISPLAY Function - 9.1.9 Programs Using Syslog - Appendix E Environment Variable List <ul style="list-style-type: none"> - CBR_DISPLAY_CONSOLE_S YSLOG_LEVEL - CBR_DISPLAY_CONSOLE_S YSLOG_IDENT

NO.	V/L	Function name	Content	Description place of manual
				<ul style="list-style-type: none"> - CBR_DISPLAY_CONSOLE_OUTPUT - CBR_DISPLAY_SYSERR_SY SLOG_LEVEL - CBR_DISPLAY_SYSERR_SY SLOG_IDENT - CBR_DISPLAY_SYSERR_OUTPUT - CBR_DISPLAY_SYSOUT_SY SLOG_LEVEL - CBR_DISPLAY_SYSOUT_SY SLOG_IDENT - CBR_DISPLAY_SYSOUT_OUTPUT
5	V10.4.0	CHECK function suppress option	Runtime options are provided to suppress individual CHECK functions. <ul style="list-style-type: none"> - nocb - noci - nocn - nocp 	NetCOBOL User's Guide <ul style="list-style-type: none"> - 4.2.2 Specifying Runtime Options - 4.2.2.2 [c count { noc nocb noci nocn nocp }] - 5.3.2 Output Messages
6	V10.4.0	TRACE function suppress option	Runtime option is provided that suppresses the TRACE function. <ul style="list-style-type: none"> - nor 	NetCOBOL User's Guide <ul style="list-style-type: none"> - 4.2.2 Specifying Runtime Options - 4.2.2.1 [r count nor] (Set the trace data limit, and suppress the TRACE function)
7	V10.4.0	TRACE information file for separate processes	Separate TRACE information files can be generated for different processes to avoid conflicts in writing to the file.	NetCOBOL User's Guide <ul style="list-style-type: none"> - 4.1.1 Runtime Environment - 5.2.2 Trace Information

1.3 J Adapter Class Generator

Information described here is applied to the following products:

- NetCOBOL Enterprise Edition Developer and Runtime (64bit) for Linux
- NetCOBOL Enterprise Edition Runtime (64bit) for Linux

Table 1.8 Outline of additional function of J Adapter Class Generator V11

NO.	V/L	Function name	Content	Location in Manual
1	V11.0.0	Encoding form Shift JIS support.	Encoding form Shift JIS can now be used.	J Adapter Class Generator User's Guide

1.4 PowerFORM

Information described here is applied to the following products:

- NetCOBOL Enterprise Edition Developer and Runtime (64bit) for Linux
- NetCOBOL Enterprise Edition Runtime (64bit) for Linux

Table 1.9 Outline of additional function of PowerFORM V12

NO.	V/L	Function Name	Content	Location in Manual
1	V12.2.0	Enhanced print features	New era (Reiwa) is supported.	-
2	V12.2.0	Security enhancement	The permission of files and directories related to the trace log after the installation changes.	PowerFORM Runtime Reference - Appendix D Trace Log
3	V12.0.0	Enhanced print features	The era name of Japanese calendar can be customized.	PowerFORM Runtime Reference - C.6.19 GENGO (Japanese era name)

Table 1.10 Outline of additional function of PowerFORM V11

NO.	V/L	Function name	Content	Location in Manual
1	V11.0.0	31-digit support	Up to 31 digits can now be used for numeric fields in COBOL applications.	PowerFORM Runtime Reference - Output field declarations
2	V11.0.0	Form exporting	The Form can now be outputted to PDF.	PowerFORM Runtime Reference - Chapter 4. Extended Functions - Appendix C. Printer Information File
3	V11.0.0	UTC (Coordinated Universal Time) support	UTC (Coordinated Universal Time) can be specified.	PowerFORM Runtime Reference - Appendix C. Printer Information File
4	V11.0.0	Enhanced print features	The Form Descriptor (free frame) can be used.	PowerFORM Runtime Reference - Chapter 4. Extended Functions
5	V11.0.0	Enhanced print features	The new function added in PowerFORM V11 can be used.	PowerFORM Runtime Reference - What's New in PowerFORM V11

1.5 Fujitsu mainframe format floating-point arithmetic emulator

The Fujitsu mainframe format floating-point arithmetic emulator is provided from V12 or later.

Information described here applies to the following products.

- NetCOBOL Enterprise Edition Developer and Runtime (64bit) for Linux
- NetCOBOL Enterprise Edition Runtime (64bit) for Linux

Table 1.11 Outline of additional function of Fujitsu mainframe format floating-point arithmetic emulator V12

NO.	V/L	Function Name	Content	Location in Manual
1	V12.0.0	Fujitsu mainframe format floating-point support	The data of Fujitsu mainframe format floating-point can be operated by using the Fujitsu mainframe format floating-point arithmetic emulator.	NetCOBOL User's Guide - A.2.19 FLOAT (Internal format of internal floating-point item)

NO.	V/L	Function Name	Content	Location in Manual
				<ul style="list-style-type: none"> - A.2.20 FLOATCHK (Mixed check of internal format of internal floating-point items at execution time) - Appendix P Format of floating-point

1.6 PowerBSORT

Information described here is applied to the following products:

- NetCOBOL Enterprise Edition Developer and Runtime (64bit) for Linux
- NetCOBOL Enterprise Edition Runtime (64bit) for Linux

Table 1.12 Outline of additional function of PowerBSORT V8

NO.	V/L	Function Name	Content	Location in Manual
1	V8.0.0	Data format	The COMP-6 format and Fujitsu mainframe format floating-point were supported with NetCOBOL.	PowerBSORT User's Guide <ul style="list-style-type: none"> - 1.6.3 Data format - 1.6.4 Data forms that can be specified in each field

Table 1.13 Outline of additional function of PowerBSORT V7

NO.	V/L	Function name	Content	Location in Manual
1	V7.0.0	Data format	The Unicode UTF-32 form was supported as data format.	PowerBSORT User's Guide <ul style="list-style-type: none"> - 1.4 Environment variables and Startup file - 1.6.3 Data format - 1.6.4 Data forms that can be specified in each field - 3.2.16 Input code system option (-q) - 3.2.26 COBOL file index specification option (-X) - 4.2.7.3 icode operand - 4.2.8.10 idxkey operand - 6.5.1 BSRTPRIM structure - 6.5.10 BSIDXKEY structure
2	V7.0.0	Record summation option	The length of data formats that can be specified for the binary file has been enhanced	PowerBSORT User's Guide <ul style="list-style-type: none"> - 1.6.4.2 Data formats that can be specified in the summation field
3	V7.0.0	Record selection option	The length of data formats that can be specified by a literal value has been enhanced.	PowerBSORT User's Guide <ul style="list-style-type: none"> - 1.6.4.3 Data formats that can be specified in the selection field

NO.	V/L	Function name	Content	Location in Manual
4	V7.0.0	Record reconstruction option	The length of data formats that can be specified by a literal value has been enhanced.	PowerBSORT User's Guide - 1.6.4.4 Data formats that can be specified in the literal value of the reconstruction field
5	V7.0.0	File types	The physical sequential file format supported by COBOL85 that operated on the Fujitsu mainframe was supported.	PowerBSORT User's Guide - 1.4.2 Startup file - 1.5 PowerBSORT Input Output Environment - 3.2.3 I/O file system option (-F) - 4.2.5.3 filesys operand - 6.5.8 BSFSYS structure - B.8 Important Notes about the NetCOBOL File system

Table 1.14 Outline of additional function of PowerBSORT V6

NO.	V/L	Function name	Content	Location in Manual
1	V6.1.0	Data format	The external decimal number of Micro Focus COBOL form was supported as data format.	PowerBSORT User's Guide - 3.2.16 Input code system option (-q) - 4.2.7.3 icode operand - 6.5.1 BSRTPRIM structure

Chapter 2 Information on interchangeability

Here, information on the interchangeability changed from the version and level before is described.

2.1 NetCOBOL Development Environment

Information described here is applied to the following products:

- NetCOBOL Enterprise Edition Developer and Runtime (64bit) for Linux

2.1.1 Debugging source programs under Red Hat Enterprise Linux 9 or later

Content

In Red Hat Enterprise Linux 9 or later, the following debugging operations cannot be performed on programs compiled with the NetCOBOL compiler V12.2.0 or earlier, but they do not affect program behavior.

- Setting breakpoints with a line number
- One-step executes of a COBOL program statement

Action

To debug the source program, recompile the source program with NetCOBOL V13.0.0 or later.



See

You can check the version of the NetCOBOL compiler that created the object file using the cobdump command. For more information about the cobdump command, refer to "cobdump Command" in "NetCOBOL User's Guide."

2.1.2 Enhanced compiler check of a national item, national edited item and NATIONAL function

Content

- V11.0 or earlier

In the following locales, the COBOL compiler is able to compile the program that contains the national item, national edited item and NATIONAL function as described.

- C

- V11.1 or later

In the following locales, when the COBOL compiler compiles the program that the national item, national edited item and NATIONAL function are described, the following message is output.

- C

```
JMN1859I-S
'@1@' cannot be specified in the coded character set being used. '@1@' is ignored.
```

Parameter explanation

@1@: national item, national edited item or NATIONAL function

Action

You will modify the source in the following way.

- Remove or rewrite the cause of the error (national item, national edited item and NATIONAL function).



J Adapter Class Generator

Java-lang-String class generated with the java2cob command (in V11.0 or earlier) contains the national item.

In the locale environments other than xx_XX.UTF-8, when this adapter class is compiled by using the compiler V11.1 or later, the above error is output. In this case, you should regenerate the adapter class by using java2cob command (in V11.1 or later).

In the locale environments other than xx_XX.UTF-8, if you use the adapter class, the adapter class should be the one generated with the following conditions.

- Use the java2cob command with -cs option
- Specify "Option Code=SJIS" in the optional file, and use the java2cob command.

2.1.3 Change the file association by using PRINTER_n phrase

Content

- V11.0 or earlier
The ASSIGN clause with PRINTER_n phrase associates file-name with a physical file.
- V11.1 or later
The ASSIGN clause with PRINTER_n phrase associates file-name with a printing device.

Action

Change PRINTER_n to another name.

2.1.4 Interchangeable information regarding bug fixes

Here, it explains bug fixes corrected by NetCOBOL V10.1.0 and later version in which the operation of the NetCOBOL development environment changes in the following tables.

Table 2.1 Interchangeable information on bug fixes of NetCOBOL Development Environment

NO.	V/L (*)	P number	Content of change
1	V11.1.0 to V12.2.0A	PH20814	<p>Under the following Condition 1 or Condition 2, when a COBOL program is compiled, fixed an issue that prevented the cobol command from terminating.</p> <p>Condition 1</p> <ol style="list-style-type: none"> 1. It is compiled using NetCOBOL (64bit) for Linux V11.1.0 or later. 2. If any of the following (2-1) or (2-2) applies. <p>(2-1)</p> <ol style="list-style-type: none"> 1) A national item that satisfies one of the following conditions is described: <ul style="list-style-type: none"> - the compiler option ENCODE(UTF8, UTF32) is enabled. and, the ENCODING clause is not specified. - the alphabet-name associated with the following encoding in the ALPHABET clause is specified in the ENCODING clause: <ul style="list-style-type: none"> - UTF32 - UTF32BE - UTF32LE

NO.	V/L (*)	P number	Content of change
			<p>3. A READ or START statement is described for the file of 2.</p> <p>4. The split key defined after the second is described in KEY phrase of 3.</p>
3	V10.1.0 to V12.0.0	PH14815	<p>Under the following conditions, when a COBOL program is executed, it might not behave correctly.</p> <p>Condition</p> <ol style="list-style-type: none"> 1. Compiler option INITVALUE is specified, and a value other than 00 is specified as the value of INITVALUE. 2. A data item is defined without an initial value in the working-storage section of the factory data or object data. 3. Reference without setting a value in the data item of 2.
4	V10.1.0 to V11.0.0	PH06787	<p>Under the following Condition 1 or Condition 2, when a COBOL program is executed, there are times when correct value cannot be passed to the temporary parameter.</p> <p>Condition 1</p> <ol style="list-style-type: none"> 1. When calling of any of the following is being used. <ul style="list-style-type: none"> - Method calling with the INVOKE statement - In-line calling of the method 2. In the calling of 1, any of the following parameter is specified. <ul style="list-style-type: none"> - Parameter which specifies BY CONTENT - data item of the constant section - nonnumeric literal 3. JUSTIFIED clause is being specified in the temporary parameter of the calling destination of 1. 4. When length of parameter of 2, and length of temporary parameter of 3 varies. <p>Condition 2</p> <ol style="list-style-type: none"> 1. When calling of any of the following is being used. <ul style="list-style-type: none"> - Method calling by INVOKE statement - In-line calling of the method 2. In the calling of 1, any of the following parameters are specified. <ul style="list-style-type: none"> - Parameter specified with BY CONTENT - data item of the constant section - nonnumeric literal 3. In the temporary parameter of calling destination of 1, BLANK WHEN ZERO clause is being specified. 4. The result of move from parameter of 2 to the temporary parameter of 3 becomes 0. <p>Supplement</p> <ul style="list-style-type: none"> - The temporary parameter specifies the data items specified by the RETURNING or USING of the header of the procedure division - Moving to the temporary parameters is performed in the parameter passing specified with BY CONTENT. For details, refer to "NetCOBOL Language Reference."

NO.	V/L (*)	P number	Content of change
			<p>Example of condition 1</p> <p>- Calling program</p> <pre data-bbox="598 331 1417 584"> : WORKING-STORAGE SECTION. 01 VAR PIC X(3). 01 OBJ OBJECT REFERENCE CCC. PROCEDURE DIVISION. MOVE "ABC" TO VAR. INVOKE CCC "NEW" RETURNING OBJ. INVOKE OBJ "MMM" USING BY CONTENT VAR. </pre> <p>- Called program</p> <pre data-bbox="598 651 1417 958"> CLASS-ID. CCC INHERITS FJBASE. : METHOD-ID. MMM. DATA DIVISION. WORKING-STORAGE SECTION. LINKAGE SECTION. 01 VAR PIC X JUSTIFIED. PROCEDURE DIVISION USING VAR. DISPLAY "VAR=" VAR. END METHOD MMM. </pre> <p>- Execution result</p> <pre data-bbox="598 1025 1417 1070"> VAR=A <- A correct result is "C". </pre> <p>Example of condition 2</p> <p>- Calling program</p> <pre data-bbox="598 1234 1417 1487"> : WORKING-STORAGE SECTION. 01 OBJ OBJECT REFERENCE CCC. 01 RET-VAL PIC 9. PROCEDURE DIVISION. INVOKE CCC "NEW" RETURNING OBJ. MOVE OBJ::"MMM" ("000") TO RET-VAL. END PROGRAM PPP. </pre> <p>- Called program</p> <pre data-bbox="598 1554 1417 1890"> CLASS-ID. CCC INHERITS FJBASE. : METHOD-ID. MMM. DATA DIVISION. WORKING-STORAGE SECTION. LINKAGE SECTION. 01 VAR PIC 9(3) BLANK WHEN ZERO. 01 RET-VAL PIC 9. PROCEDURE DIVISION USING VAR RETURNING RET-VAL. DISPLAY "VAR=" VAR. END METHOD MMM. </pre> <p>- Execution result</p> <pre data-bbox="598 1957 1417 2002"> VAR=000 <- A correct result is " ". </pre>

NO.	V/L (*)	P number	Content of change
5	V10.1.0 to V11.0.0	PH05861	<p>Under the following conditions, the following execution results are incorrect.</p> <ul style="list-style-type: none"> - When moving from reference modification of a zoned decimal item to numeric-edited items or floating-point items, the reference modification range of the sending side is shifted 1-digit to the left. <p>Condition</p> <ol style="list-style-type: none"> 1. There is a MOVE statement. (*1) <ul style="list-style-type: none"> - The sending side is a signed zoned decimal item - The receiving side is a numeric edited item or floating point item 2. In the sending side of 1, a SIGN IS TRAILING SEPARATE CHARACTER clause is being specified. 3. There is a reference modification of the sending side. 4. The length of reference modification of 3 is being specified with a numeric literal. <p>*1: Includes the implicit MOVE statement.</p> <p>Example:</p> <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <pre>WORKING-STORAGE SECTION. 01 SND PIC S9(13) SIGN TRAILING SEPARATE VALUE -0098765432100. 01 RCV PIC Z(10)9. PROCEDURE DIVISION. MOVE SND (3:11) TO RCV. *> Sending value is 98765432100 DISPLAY "RCV= " RCV.</pre> </div> <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p>Result: RCV= 9876543210</p> </div>
6	V10.1.0 to V11.0.0	PH05538	<p>Under the following Condition 1, Condition 2, or Condition 3, the COBOL program execution result is incorrect or terminates abnormally (segmentation fault).</p> <p>Condition 1</p> <ol style="list-style-type: none"> 1. The data item declared to based-storage section is used by either of the following methods. <ul style="list-style-type: none"> - There is a subscript. - There is a reference modifier. The high-order-end-character-position of the reference modifier is a variable. 2. The compiler option OPTIMIZE (*1) is effective <p>*1: Default is OPTIMIZE.</p> <p>Condition 2</p> <ol style="list-style-type: none"> 1. In the based-storage section, the declared data items are specified in one of the following statements. <ul style="list-style-type: none"> - INSPECT statement - STRING statement (nucleus) - UNSTRING statement (nucleus) <p>Condition 3</p> <ol style="list-style-type: none"> 1. In the based-storage section, the data items specified the OCCURS clause are being declared.

NO.	V/L (*)	P number	Content of change
			2. The data items of 1 are being specified in the INITIALIZE statement.
7	V11.0.0	PH04570	<p>Under the following conditions, the following either Phenomenon 1 or Phenomenon 2 occur.</p> <p>Phenomenon 1</p> <p>The COBOL compiler terminates normally (*1) without giving an error message.</p> <div data-bbox="560 456 1417 562" style="border: 1px solid black; padding: 2px;"> <p>JMN2038I-S Length of the literal in the VALUE clause must not exceed the length of the item. The extra characters at the right end of the literal are truncated</p> </div> <p>*1: In the created object program, the following literal values are set to the data item of the object program.</p> <ul style="list-style-type: none"> - The extra characters at the right end of the literal are truncated to match the item length <p>Phenomenon 2</p> <p>The COBOL compiler outputs the following error message to a correct syntax.</p> <div data-bbox="560 797 1417 902" style="border: 1px solid black; padding: 2px;"> <p>JMN2106I-S The value of the literal following 'THROUGH' in the VALUE clause of the condition-name must be greater than the value of the literal preceding 'THROUGH'.</p> </div> <p>Condition</p> <ol style="list-style-type: none"> 1. There is a national item or national edited item in one of the following encodes: <ul style="list-style-type: none"> - UTF32 - UTF32LE - UTF32BE 2. The VALUE phrase is specified in either of the following. <ul style="list-style-type: none"> - The data item of 1 - The condition-name of which conditional variable is the data item of 1 3. In the VALUE phrase of 2, the national nonnumeric literal (*2) is specified to meet one of the following. <ul style="list-style-type: none"> - National nonnumeric literal is larger than the sizes specified by the PICTURE phrase - The value of the national nonnumeric literal following 'THROUGH' is greater than the value of the national nonnumeric literal preceding 'THROUGH' 4. National nonnumeric literal of 3 are from 41 to 80 characters. <p>*2: The concatenation expression of national nonnumeric literal is contained.</p>
8	V11.0.0	PH04215	<p>Under the following conditions, the execution results are incorrect. In the execution of the INVOKE statement and the in-line method invocation, the parameter is cut or garbled.</p> <p>Condition</p> <ol style="list-style-type: none"> 1. The runtime code set is Unicode, 2. The national item or the national language nonnumeric literal is specified for either of the following. <ul style="list-style-type: none"> - USING or RETURNING parameter of an INVOKE statement - Parameter of in-line method invocation 3. In the formal parameter of the method invoked by 2, the following is defined.

NO.	V/L (*)	P number	Content of change
			<p>- National item for which ANY LENGTH phrase is specified</p> <p>4. Either of the following conditions exist.</p> <p>a. National item is specified for 2. And, the encode mode of the parameter of 2 and the parameter of 3 are different. (*1)</p> <p>Or</p> <p>b. National language nonnumeric literal is specified for 2. And, the encode mode of national item of 3 is UTF32.</p> <p>*1: In this situation, even though the syntax is wrong, the compile error is not output.</p>
9	V10.1.0	PG75097	<p>Under the following conditions, the COBOL application running under Red Hat Enterprise Linux (for Intel64) cannot be remotely debugged from the NetCOBOL Studio for Windows. "Error occurred in debugger or engine. (65535)" is displayed.</p> <p>Condition</p> <ol style="list-style-type: none"> 1. The server is Red Hat Enterprise Linux (for Intel64) or Red Hat Enterprise Linux (for Itanium). 2. Installed the following products in the server. <ul style="list-style-type: none"> - Alchemy NetCOBOL Enterprise Edition (64bit) for Linux V10.1.0 3. gdb used on the server is gdb-7.0 (*1) or later. <p>*1: Red Hat Enterprise Linux 5.5 is installed or gdb-7.0 is installed alone.</p>
10	V10.1.0	PG78440	<p>Under the following conditions, the execution results are incorrect.</p> <p>Condition</p> <ol style="list-style-type: none"> 1. The compiler option BINARY(BYTE) or BINARY(WORD,MLBOFF) is specified, along with 2. There is one of the following intrinsic functions: <ul style="list-style-type: none"> [A] <ul style="list-style-type: none"> - FUNCTION MAX - FUNCTION MIN - FUNCTION MEAN - FUNCTION MEDIAN - FUNCTION RANGE [B] <ul style="list-style-type: none"> - FUNCTION ANNUITY - FUNCTION NUMVAL - FUNCTION NUMVAL-C - FUNCTION RANDOM 3. The arguments of the function in 2. above are fixed point of 9-digit or less. 4. The number of the arguments in [A] above is 4 or more.
11	V10.1.0	PG77383	<p>Under the following conditions, the execution results are incorrect.</p> <p>Condition</p> <ol style="list-style-type: none"> 1. The compiler option OPTIMIZE is specified (*1).

NO.	V/L (*)	P number	Content of change																		
			<p>2. There is a statement that sets packed decimal item to numeric edited data item.</p> <p>3. The number of digits for integer part of packed decimal item and numeric edited data item are the same and neither have a decimal-part.</p> <p>4. The numeric edited data item specifies only zero suppression for the edit (Only '9', 'Z', and '*' are used for PICTURE character-string).</p> <p>5. Before the statement in 2 (*2), there is a statement that sets data item (or intermediate result) to packed decimal item.</p> <p>6. The relation between number of digits for the data item in 5 (or intermediate result) and number of digits for the packed decimal part in 2 is the following :</p> <table border="1" data-bbox="619 607 1417 976"> <thead> <tr> <th data-bbox="619 607 1098 689">Data item (or intermediate result)</th> <th data-bbox="1098 607 1417 689">Packed decimal item</th> </tr> </thead> <tbody> <tr><td data-bbox="619 689 1098 734">2</td><td data-bbox="1098 689 1417 734">3</td></tr> <tr><td data-bbox="619 734 1098 779">4</td><td data-bbox="1098 734 1417 779">5</td></tr> <tr><td data-bbox="619 779 1098 824">6</td><td data-bbox="1098 779 1417 824">7</td></tr> <tr><td data-bbox="619 824 1098 869">8</td><td data-bbox="1098 824 1417 869">9</td></tr> <tr><td data-bbox="619 869 1098 913">10</td><td data-bbox="1098 869 1417 913">11</td></tr> <tr><td data-bbox="619 913 1098 958">12</td><td data-bbox="1098 913 1417 958">13</td></tr> <tr><td data-bbox="619 958 1098 1003">14</td><td data-bbox="1098 958 1417 1003">15</td></tr> <tr><td data-bbox="619 1003 1098 1048">16</td><td data-bbox="1098 1003 1417 1048">17</td></tr> </tbody> </table> <p>7. The data item in 5 (or intermediate result) and the packed decimal item in 2 do not have the decimal-part.</p> <p>*1: The default is NOOPTIMIZE.</p> <p>*2: MOVE statement, COMPUTE statement, and so on.</p>	Data item (or intermediate result)	Packed decimal item	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Data item (or intermediate result)	Packed decimal item																				
2	3																				
4	5																				
6	7																				
8	9																				
10	11																				
12	13																				
14	15																				
16	17																				
12	V10.1.0 to V10.4.0	PH02265	<p>Under the following conditions, a compilation error may not be generated.</p> <p>Condition</p> <ol style="list-style-type: none"> 1. Concatenation expression is described in the external name of program, class or method. 2. One of the following is described at the beginning of the concatenation expression. <ul style="list-style-type: none"> - Character constant - National character constant 3. When one of the following is described in the concatenation expression. <ul style="list-style-type: none"> - Hexadecimal character constant 4. National hexadecimal character constant 																		
13	V10.1.0 to V10.4.0	PG76651	<p>Under the following conditions, when a COBOL program is executed, a size comparison of national items varying in length (national language edited item, including the intrinsic function) was incorrect.</p> <p>Condition</p> <ol style="list-style-type: none"> 1. Compiler option RCS(UCS2,LE) or RCS(UTF16,LE) is specified. 2. There is a size comparison of a National item and a National item or National language character constant. 3. At least one side is an item with the ANY LENGTH clause is specified or reference modification. 4. The length of the compared targets differs. 																		

*: V/L is a scope where the bug exists.

2.2 NetCOBOL Runtime Environment

Information described here is applied to the following products:

- NetCOBOL Enterprise Edition Developer and Runtime (64bit) for Linux
- NetCOBOL Enterprise Edition Runtime (64bit) for Linux

2.2.1 Hadoop integration function

Content

With the end of sale of Interstage Big Data Parallel Processing Server, Hadoop integration is no longer available in V13.0 or later.

The replacement for the Interstage Big Data Parallel Processing Server is the Big Data Integration Server. For information about combining NetCOBOL with the Big Data Integration Server, contact your Big Data Integration Server representative.

2.2.2 Adding variable Information for runtime messages

Content (JMP0828I-E/U)

Added variable information to runtime messages JMP0828I-E/U.

- V12.2 or earlier

```
INVALID VALUE SPECIFIED. $1. LINE=$2. OPD=$3.
```

- V13.0 or later

```
INVALID VALUE SPECIFIED. $1. LINE=$2. OPD=$3. VALUE=$4. ADDR=$5. LEN=$6.
```

\$4 is set the content of the data stored in the data item.

\$5 is set the address of data item.

\$6 is set the data item length.

Content (JMP0009I-U,JMP0010I-U)

Added variable information to runtime messages JMP0009I-U and JMP0010I-U.

- V12.1 or earlier

```
JMP0009I-U INSUFFICIENT STORAGE AVAILABLE. '$1'
```

```
JMP0010I-U LIBRARY WORK AREA IS BROKEN.
```

- V12.2 or later

```
JMP0009I-U INSUFFICIENT STORAGE AVAILABLE. '$1' '$2'
```

\$2 is set to the desired library work area length.

```
JMP0010I-U LIBRARY WORK AREA IS BROKEN. BRKADR=0x$1
```

\$1 is set to the address of the broken library work area.

2.2.3 About the BOM of the UTF-8 file

Content

Operation differs when input the UTF-8 file with BOM.

- V11.0 or earlier

BOM is read as part of the data when it is included in the UTF-8 file.

When a valid keyword is described at the first line of the input file, but the file is read with BOM added at the beginning of the keyword, the keyword might be invalid.

- V11.0 or later

BOM is identified as UTF-8 identification code and it is skipped.

When a valid keyword is described at the first line of the input file, the keyword is considered as valid as the BOM in the beginning of the file is skipped.

Influence

When the input resource file is UTF-8 with BOM, the content described in the first line is valid after V11.0 however the content described in the first line is invalid before V11.0.

There is no change in the operation of the application when the first line is a comment line or null line. The input resource when executing it becoming an object is as follows.

- Runtime initialization file
- Entry information file
- Class information file
- Print information file
- Printer information file

Action

Please delete or make the first line a comment.

2.2.4 Process ID notified by the subroutine (COB_GET_PROCESSID)

Content

The process ID notified by the subroutine (COB_GET_PROCESSID) was changed.

- V11.0 or earlier

When an executable file was started from the shell script and service, etc., process group ID (process ID in the process that had started first) was notified.

Example: When an executable file is started from the shell script, process ID of the shell script is notified.

- V11.1 or later

When an executable file was started from the shell script and service, etc., process ID (of the process that calls this subroutine) is notified.

2.2.5 Interchangeable information regarding bug fixes

Here, it explains bug fixes corrected by NetCOBOL V10.1.0 or later version in which the operation of the NetCOBOL development environment changes in the following tables.

Table 2.2 Interchangeable information on bug fixes of NetCOBOL Runtime Environment

NO.	V/L (*)	P number	Content of change
1	V11.1.0 to V12.2.0A	PH22132	Under the following Condition 1 or Condition 2 , when a COBOL application is executed, when a SQL statement is executed with 0 specified for the data length of a variable-length string type host variable, the data of the host variable was not set as null character data (character string data with a character string length of 0). This has been fixed. Condition 1

NO.	V/L (*)	P number	Content of change
			<p>1. The operating system is a Linux system.</p> <p>2. Create a COBOL program as a Unicode application by specifying one of the following compiler options:</p> <ul style="list-style-type: none"> - compiler option ENCODE(UTF8,UTF32,LE) - compiler option ENCODE(UTF8,UTF32,BE) <p>3. The application is accessing the database through the ODBC interface.</p> <p>4. The length part of the national data item host variable that handles variable-length string data is set to 0.</p> <p>5. Executing the SQL statement with the host variable in 4 specified in one of the following SQL statements:</p> <ul style="list-style-type: none"> - The insert value of insert value list in INSERT statement - The value specification of the set clause in UPDATE statement - The search condition in the WHERE clause - The USING clause in dynamic SQL statement - The argument list of the CALL statement <p>Condition 2</p> <p>1. The operating system is a Linux system.</p> <p>2. Create a COBOL program as a Shift-JIS application by specifying the compiler options ENCODE(SJIS,SJIS) (*).</p> <p>3. The application is accessing the database through the ODBC interface.</p> <p>4. The length part of the alphabetic item host variable that handles variable-length string data is set to 0.</p> <p>5. Executing the SQL statement with the host variable in 4 specified in one of the following SQL statements:</p> <ul style="list-style-type: none"> - The insert value of insert value list in INSERT statement - The value specification of the set clause in UPDATE statement - The search condition in the WHERE clause - The USING clause in dynamic SQL statement - The argument list of the CALL statement <p>*: If the compiler option RCS(SJIS) is specified, the compiler option ENCODE(SJIS,SJIS) is assumed.</p>
2	V11.1.0 to V12.2.0A	PH22664	<p>Under the following condition, when a COBOL application is executed, data truncation occurs while executing SQL statements (*1). The COBOL program may not be notified of the SQLSTATE/ SQLCODE/ SQLMSG value when truncation occurs.</p> <p>Condition</p> <p>1. The operating system is a Linux system.</p> <p>2. The application is accessing the database through the ODBC interface.</p> <p>3. The compiler option ENCODE(SJIS,SJIS) is specified (*2).</p> <p>4. The SQL statement is executed under either of the following conditions:</p> <ul style="list-style-type: none"> a. Use host variables of alphanumeric data item and execute SELECT and FETCH statements to reference data of the following conditions:

NO.	V/L (*)	P number	Content of change
			<ul style="list-style-type: none"> - The data contains characters other than national (less than 3 bytes in UTF-8). and - The number of bytes of received data exceeds the item length of the host variable. (*3) <p>b. Executes a SQL statement using a host variable of a national data item containing 4-byte characters (surrogate pairs). (*4)(*5)</p> <p>*1: When executing SQL statements, if the data contains 4-byte characters (surrogate pairs), characters may break apart in addition to truncation.</p> <p>*2: If the compiler option RCS(SJIS) is specified, the compiler option ENCODE(SJIS,SJIS) is assumed.</p> <p>*3: The range of the number of bytes in the occurrence condition changes depending on the content of the data to be referenced. The maximum size of the range is when all the data to be referenced are 1-byte characters of UTF-8, and the range is from the item length of the host variable +1 to the item length of the host variable x 3.</p> <p>*4: Interstage Charset Manager is required when handling 4-byte characters (surrogate pairs) when the compiler option ENCODE(SJIS,SJIS) is specified.</p> <p>*5: If data truncation occurs when referencing 4-byte character (surrogate pair), the COBOL program is notified of the SQLSTATE/ SQLCODE/ SQLMSG value returned by the ODBC driver.</p> <p>Depending on the content of the data to be referenced, breaking up of data may occur. In this case, the runtime system outputs JMP0086I-W and sets SQLSTATE/ SQLCODE/ SQLMSG as follows.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <pre>SQLSTATE=????? SQLCODE =-99999992 SQLMSG = Illegal action occurred</pre> </div>
3	V10.4.0 to V11.0.0	PH08017	<p>Under the following conditions, the data cannot be read from the input file of the redirection specification by the execution of the ACCEPT statement.</p> <p>Condition</p> <ol style="list-style-type: none"> 1. Compiler option RCS(SJIS) is specified. 2. The ACCEPT statement of the system standard input is executed by the redirection specification. 3. The line feed code is not included in the specified input file.
4	V10.1.0	PG87520	<p>Under the following Condition 1 or Condition 2, the move result by internal bool item is incorrect.</p> <p>Note: The move result is different according to the state of the area allocated just behind the sending data item.</p> <p>Condition 1</p> <ol style="list-style-type: none"> 1. Move from internal boolean item to internal boolean item. 2. The data start position (*1) of the sending data item is different from data start position of the receiving data item. 3. [a] + [b] > 32, or [c] + [d] > 32 <ul style="list-style-type: none"> a: data start position (*1) of the sending data item b: the length of sending data item or the length of receiving data item, whichever is smaller. c: data start position (*1) of the receiving data item

NO.	V/L (*)	P number	Content of change
			<p>d: the length of receiving data item</p> <ol style="list-style-type: none"> 4. The receiving data item is subordinate to the group item. 5. The data start position of the receiving data item is not one byte alignment of the group item in 4. 6. "Bit length of sending data item" < " Bit length from bit data starting location on the receiving side to the first byte boundary " 7. The bit data of sender data item is outside the byte boundary or Byte boundary exist between the start position of the sender's data item of paragraphs 6 (*1) (bit length till the byte boundary of the first recipient). <p>*1: relative bit position in byte</p> <p>Example of Condition 1</p> <pre style="border: 1px solid black; padding: 5px;"> DATA DIVISION. WORKING-STORAGE SECTION. 01 DATA1. 02 DATA1-1 PIC 1(5) BIT. 02 DATA1-2 PIC 1(4) BIT. 02 DATA1-3 PIC 1(7) BIT. 01 DATA2. 02 DATA2-1 PIC 1(1) BIT. 02 DATA2-2 PIC 1(32) BIT. 01 ANS-DATA PIC 1(32) BIT VALUE B"1111". PROCEDURE DIVISION. MOVE X"FFFF" TO DATA1. MOVE DATA1-2 TO DATA2-2. IF DATA2-2 = ANS-DATA THEN DISPLAY "OK" ELSE DISPLAY "NG" *> B"11111110-00000000" END-IF. </pre> <p>Condition 2</p> <ol style="list-style-type: none"> 1. Move from internal boolean item to internal boolean item. 2. The sending data item or the receiving data item is referred by the subscript. 3. "The length of receiving data item " > 1 4. It is either the following. <ul style="list-style-type: none"> - "The length of sending data item" > 1 - The receiving data item is referred by the subscript. - " The length of receiving data item " > 25 5. There is not the data starting location of the receiving data item on byte boundary. 6. "Bit length of sending data item" < " Bit length from bit data start position of first byte of the receiving data item 7. The bit data of the sending data item overlaps the byte boundary, or there is byte boundary between from start position of the sending data item to "Bit length from bit data start position of the receiving side to the first byte boundary" in 6. <p>Example of Condition 2</p> <pre style="border: 1px solid black; padding: 5px;"> DATA DIVISION. WORKING-STORAGE SECTION. 01 DATA1. 02 DATA1-1 PIC 1(5) BIT. </pre>

NO.	V/L (*)	P number	Content of change
			<pre> 02 DATA1-2 PIC 1(4) BIT. 02 DATA1-3 PIC 1(7) BIT. 01 DATA2. 02 DATA2-1 PIC 1(10) BIT OCCURS 5 TIMES. 01 ANS-DATA PIC 1(10) BIT VALUE B"1111". 01 CNT PIC 9 VALUE 2. PROCEDURE DIVISION. MOVE X"FFFF" TO DATA1. MOVE DATA1-2 TO DATA2-1(CNT). IF DATA2-1(CNT) = ANS-DATA THEN DISPLAY "OK" ELSE DISPLAY "NG" *> B"11111110-00000000" END-IF. </pre>
5	V10.1.0 to V10.4.0	PG76651	<p>When all of the following conditions are met while executing a COBOL program, a size comparison of national items varying in length (national edited item, including the intrinsic function) was incorrect.</p> <p>Condition</p> <ol style="list-style-type: none"> 1. Compiler option RCS(UCS2,LE) or RCS(UTF16,LE) is specified. 2. There is a size comparison of a national item and a national item or national nonnumeric literal. 3. At least one side is an item with the ANY LENGTH clause is specified or reference modification. 4. The length of the compared targets differs.
6	V10.1.0	PG75097	<p>Under the following conditions, the COBOL application running under Red Hat Enterprise Linux (for Intel64) cannot be remotely debugged from the NetCOBOL Studio for Windows. "Error occurred in debugger or engine. (65535)" is displayed.</p> <p>Condition</p> <ol style="list-style-type: none"> 1. The server is Red Hat Enterprise Linux (for Intel64) or Red Hat Enterprise Linux (for Itanium). 2. Installed the following products in the server. <ul style="list-style-type: none"> - Alchemy NetCOBOL Enterprise Edition (64bit) for Linux V10.1.0 3. The gdb used on the server is gdb-7.0 (*1) or later. <p>*1: Red Hat Enterprise Linux 5.5 is installed or gdb-7.0 is installed alone.</p>
7	V10.1.0	PG72597	<p>Under the following conditions, the WRITE AFTER ADVANCING PAGE is not valid at execution time.</p> <p>Condition</p> <ol style="list-style-type: none"> 1. The line sequential file is used. 2. The line sequential file is linked with the external file handler. 3. After an OPEN statement is executed for file in 2, the WRITE statement of the AFTER ADVANCING PAGE phrase is executed.
8	V10.1.0	PG73346	<p>Under the following conditions, at execution, unnecessary zero string is set to four subordinate position digits of the hexadecimal character of eight digits buried under execution time message JMP0320I-I/JMP0320I-U.</p> <p>Condition</p> <ol style="list-style-type: none"> 1. File operation using COBOL file system (except BSAM specification) is done. 2. Either of the following I/O statements is executed.

NO.	V/L (*)	P number	Content of change
			<ul style="list-style-type: none"> - READ statement - WRITE statement - REWRITE statement - DELETE statement - START statement <p>3. The execution of I/O statement failed.</p>

*: V/L is a scope where the bug exists.

2.3 J Adapter Class Generator

Information described here is applied to the following products:

- NetCOBOL Enterprise Edition Developer and Runtime (64bit) for Linux
- NetCOBOL Enterprise Edition Runtime (64bit) for Linux

There is no information on interchangeability.

2.4 PowerFORM

Information described here is applied to the following products:

- NetCOBOL Enterprise Edition Developer and Runtime (64bit) for Linux
- NetCOBOL Enterprise Edition Runtime (64bit) for Linux

2.4.1 Trace log

Content

The permission of files and directories related to the trace log after the installation changes.

- V12.0.0 or earlier

The write permission for all users is set.

- V12.2.0 or later

The write permission is set only for the root user.

It can be selected whether to set the write permission for all users when installing it at interactive installation.

Action

When you output the trace log, set the write permission for the execution user of the application program to the files and directories related to the trace log. Set this using the operating system command.



See

.....
Refer to "Trace Log" in "PowerFORM Runtime Reference."
.....

2.5 Fujitsu mainframe format floating-point arithmetic emulator

Information described here applies to the following products.

- NetCOBOL Enterprise Edition Developer and Runtime (64bit) for Linux
- NetCOBOL Enterprise Edition Runtime (64bit) for Linux

There is no information on interchangeability.

2.6 PowerBSORT

Information described here is applied to the following products:

- NetCOBOL Enterprise Edition Developer and Runtime (64bit) for Linux
- NetCOBOL Enterprise Edition Runtime (64bit) for Linux

2.6.1 Interchangeable information regarding bug fixes

Here, it explains bug fixes corrected by PowerBSORT V7 and later version in which the operation of the PowerBSORT changes in the following tables.

Table 2.3 Interchangeable information on bug fixes of PowerBSORT

NO.	V/L (*)	P number	Content of change
1	V6.0.0 to V7.0.0	PH05442	<p>Under the following Condition 1 or Condition 2, PowerBSORT cannot correctly check whether the reconstruction field and the selection field exist in the record. As a result of an error in usage or implementation, the output may produce unpredictable or abnormal results.</p> <p>Condition 1</p> <ol style="list-style-type: none"> 1. The bsortex command is used. 2. The record format is one of the following. <ul style="list-style-type: none"> - Binary file variable-length record form (-record recform=var), or - Text file fixed field specification (-record recform=txtfix) 3. Two output file information options (-output) or more are specified. 4. The following options are specified by two output file information options (-output) or more. <ul style="list-style-type: none"> - Record reconstruction option (-output reconst=...) - Record selection option (-output include=.../omit=.../case=...) 5. The field in the record is specified for a reconstruction field for the record reconstruction option (form of "pos.len" or "pos.END"). 6. The maximum position of the reconstruction field specified by each output file information option (-output) is different. or, The maximum position of the selection field specified by each output file information option (-output) is different. <p>Condition 2</p> <ol style="list-style-type: none"> 1. The bsortex command is used. 2. The record format is one of the following. <ul style="list-style-type: none"> - Binary file variable-length record form (-record recform=var), or

NO.	V/L (*)	P number	Content of change
			<ul style="list-style-type: none"> - Text file fixed field specification (-record recform=txtfix) 3. The copy function (-copy option) is used. 4. The input file information option (-input) does not specify any of the following functions: <ul style="list-style-type: none"> - The record reconstruction function (reconst operand) of the input file - The record selection function (include/omit operand) of the input file 5. The output file information option (-output) specifies the following functions. <ul style="list-style-type: none"> - The record selection function (include/omit/case operand) of the output file
2	V6.0.0	PG76539	<p>Under the following conditions, PowerBSORT may cause result error or abnormal termination.</p> <p>Condition</p> <ol style="list-style-type: none"> 1. The bsortex command is used. 2. The text file CSV format or text file TSV format is used. 3. The record reconstruction option for the output files is used.
3	V6.0.0	PG76059	<p>Under the following conditions, PowerBSORT may cause result error, infinite loop or abnormal termination.</p> <p>Condition</p> <ol style="list-style-type: none"> 1. The bsort command, the bsortex command or the BSORT function is used. 2. The sort function is used. 3. The text file CSV format or text file TSV format is used. 4. The record summation option or the record selection option for the output files is specified. 5. The summation field or selection field is enclosed with a double quotation.

*: V/L is a scope where the bug exists.

2.7 Functions No Longer Supported

This section describes functions and environments that are no longer supported in NetCOBOL V13.0 or later.

2.7.1 Features Dropped in NetCOBOL for Linux

Describes features no longer provided by each component.

NetCOBOL

Features no longer provided in V13.0.0

- Hadoop Integrations

For details, refer to "[2.2.1 Hadoop integration function.](#)"

J Adapter Class Generator

No features are no longer available.

PowerFORM

No features are no longer available.

Fujitsu mainframe format floating-point arithmetic emulator

No features are no longer available.

PowerBSORT

No features are no longer available.

2.7.2 Environments no longer supported

Environments no longer supported in V13.0.0

- Operating software
 - Red Hat Enterprise Linux 7 (for Intel64)
 - Red Hat Enterprise Linux 6 (for Intel64)

Chapter 3 Program Fix List

In this software, the trouble that occurs by the version and level before is corrected.

This document explains the content of the correction corrected by this software of this version level.

3.1 NetCOBOL Development Environment

Information described here is applied to the following products:

- NetCOBOL Enterprise Edition Developer and Runtime (64bit) for Linux

Table 3.1 Program fix list of NetCOBOL Development Environment

NO.	V/L (*)	P number	Content of change
1	V11.1.0 to V12.2.0A	PH20814	<p>Under the following Condition 1 or Condition 2, when a COBOL program is compiled, fixed an issue that prevented the cobol command from terminating.</p> <p>Condition 1</p> <ol style="list-style-type: none"> 1. It is compiled using NetCOBOL (64bit) for Linux V11.1.0 or later. 2. If any of the following condition (2-1) or (2-2) applies. <p>(2-1)</p> <ol style="list-style-type: none"> 1) A national item that satisfies one of the following conditions is described: <ul style="list-style-type: none"> - the compiler option ENCODE(UTF8, UTF32) is enabled. and, the ENCODING clause is not specified. - the alphabet-name associated with the following encoding in the ALPHABET clause is specified in the ENCODING clause: <ul style="list-style-type: none"> - UTF32 - UTF32BE - UTF32LE 2) The national item of 1) and the national nonnumeric literal of 63 characters are described in one of the following: <ul style="list-style-type: none"> - the receiving side or sending side in the MOVE statement, INITIALIZE statement, or implicit MOVE statement - conditional variable of the SET statement and VALUE clause of condition-name - operand of relation condition in the IF statement, EVALUATE statement, PERFORM statement, or SEARCH statement - INSPECT statement, STRING statement, or UNSTRING statement <p>(2-2)</p> <p>The compiler option ENCODE(UTF8, UTF 32) is enabled. and, the national nonnumeric literal of 63 characters is described in one of the following:</p> <ul style="list-style-type: none"> - USING BY CONTENT phrase of a CALL statement - argument of DISPLAY-OF function <p>Condition 2</p> <ol style="list-style-type: none"> 1. It is compiled using NetCOBOL (64bit) for Linux V11.1.0 or later. 2. One of the following items is defined:

NO.	V/L (*)	P number	Content of change
			<p>precedes the character in (3-3-2) of condition, the result is not expected because there is no space immediately after the character in (3-2-2).</p> <p>Example 1: If one or more blanks immediately precede the word COPY, "ABC" is correctly replaced with "DEF".</p> <pre data-bbox="571 443 1418 544" style="border: 1px solid black; padding: 5px;"> 000010 REPLACE ==ABC== BY ==DEF==. 000020 DISPLAY ABC, COPY X. 000030 REPLACE OFF.</pre> <p>Example 2: If there are no spaces immediately before the word COPY, compiler errors for a COPY statement are not output. Compilation continues without replacing "ABC" in "ABC," with "DEF" because there is no space immediately after the comma.</p> <pre data-bbox="571 674 1418 775" style="border: 1px solid black; padding: 5px;"> 000010 REPLACE ==ABC== BY ==DEF==. 000020 DISPLAY ABC,COPY X. 000030 REPLACE OFF.</pre> <p>Condition</p> <ol style="list-style-type: none"> 1. The REPLACE statement is described. 2. The COPY statement is described in the range (*1) that can be replaced by the REPLACE statement of 1. 3. One of the following conditions is satisfied: <ul style="list-style-type: none"> (3-1) The character position of the REPLACE statement in 1 is not the beginning of the line (*2), and the character position of the COPY statement in 2 is the beginning of the line (*2). (3-2) The character position of the REPLACE statement in 1 is the beginning of a line (*2), and the character position of the COPY statement in 2 is not the beginning of a line (*2), and the character immediately before the word COPY in 2 is one of the following: <ul style="list-style-type: none"> - (3-2-1) A separator that is not one of the following: <ul style="list-style-type: none"> - space - comma - semicolon - period - (3-2-2) Any of the following characters that are not separators: <ul style="list-style-type: none"> - comma - semicolon - period 4. The compiler option NONUMBER (*3) is enabled. <p>*1: The range is until the next REPLACE statement appears or until the end of the compilation unit.</p> <p>*2: The beginning of a line is the position of the next character in each reference format.</p>

NO.	V/L (*)	P number	Content of change
			<ul style="list-style-type: none"> - Fixed format and Variable format: character position 8 - Free format: character position 1 <p>*3: The default value for the compiler option is NONUMBER.</p>
5	V10.1.0 to V12.2.0A	PH22148	<p>Under the following condition, when a COBOL program is compiled, the contents written after the character positions that the source program does not compile is considered to be on the next line and may be subject to compilation. Therefore, incorrect errors may be output.</p> <p>Supplement: Since the contents of the line after the number of bytes on the condition line are compiled as if they were written on the next line, the resulting compiler error is not unique.</p> <p>Condition</p> <p>The source program contains one of the following lines (*):</p> <ul style="list-style-type: none"> - Lines of 256 bytes or more in the library file - Lines of 1024 bytes or more in the source file <p>*: The target line includes the comment line.</p>
6	V10.1.0 to V12.2.0A	PH22316	<p>Under the following condition, when a COBOL program is compiled, the compiler may terminate abnormally with the following message.</p> <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <pre>JMN0102I-U The compilation process cannot be continued. If other diagnostic messages have been generated, correct those errors and try the compilation again. (substep-name=JMN300, module-name=SC30XCNM, detailcode=3037, line-number=8)</pre> </div> <p>Condition</p> <ol style="list-style-type: none"> 1. The left side of the relation condition is the figurative constant ZERO. 2. The right side of the 1 is the intrinsic function. 3. The intrinsic function of 2 satisfies any of the following conditions: <ul style="list-style-type: none"> - Numeric literal from 0 to 19 (integer) is specified as an argument to the FACTORIAL function. - Numeric literal of fixed-point is specified as an argument to the INTEGER function. - Numeric literal of fixed-point is specified as an argument to the INTEGER-PART function. - Fixed-length data item is specified as an argument to the LENG function. - Numeric literal of fixed-point is specified as one of the arguments to the MAX function. - Numeric literal of fixed-point is specified as one of the arguments to the MEDIAN function. - Numeric literal of fixed-point is specified as one or two of the arguments to the MIDRANGE function. - Numeric literal of fixed-point is specified as one of the arguments to the MIN function. - Possible nonnumeric literal is specified as one of the arguments to the NUMVAL function.

NO.	V/L (*)	P number	Content of change
			<ul style="list-style-type: none"> - Possible nonnumeric literal is specified as one of the arguments to the NUMVAL-C function. - Numeric literal of fixed-point is specified as two of the arguments to the RANGE function, and the sum of their maximum number of digits in the integer-part and their maximum number of digits in the decimal-part does not exceed 18 digits. - Numeric literal of fixed-point is specified as one of the arguments to the SUM function, or Numeric literal of fixed-point is specified as two of the arguments to the SUM function and the sum of their maximum number of digits in the integer-part and their maximum number of digits in the decimal-part does not exceed 30 digits.
7	V12.2.0 to V12.2.0A	PH22365	<p>Under the following condition, when converting a COBOL program using the pre-compiler source conversion function, the compiler always outputs the sequence of key items for the first defined split key as the split key (*) specified on the READ or START statement for the indexed file.</p> <p>As a result, when you run the COBOL program after conversion, the READ or START statement on the indexed file might produce different results than the program before migration.</p> <p>*: For third-party COBOL, you can declare a name, called a split key, for a sequence of key items in the RECORD KEY or ALTERNATE RECORD KEY clause of an indexed file. The pre-compiler source conversion function converts the split key specified in the READ or START statement to the corresponding key item.</p> <p>Examples of COBOL programs for third-party COBOL</p> <pre style="border: 1px solid black; padding: 5px;"> SELECT IXFILE ASSIGN TO IXFILE2 ORGANIZATION IS INDEXED ACCESS MODE IS DYNAMIC RECORD KEY IS RKEY1=K1 K2 ALTERNATE RECORD KEY IS RKEY2=A1 A2 START IXFILE KEY IS = RKEY1. *> Equivalent to describing "K1 K2" READ IXFILE KEY IS RKEY2. *> Equivalent to describing "A1 A2" </pre> <p>Correct conversion result</p> <pre style="border: 1px solid black; padding: 5px;"> SELECT IXFILE ASSIGN TO IXFILE2 ORGANIZATION IS INDEXED ACCESS MODE IS DYNAMIC * RECORD KEY IS RKEY1=K1 K2 RECORD KEY IS K1 K2 * ALTERNATE RECORD KEY IS RKEY2=A1 A2. ALTERNATE RECORD KEY IS A1 A2. START IXFILE * KEY IS = RKEY1 KEY IS = K1 K2. READ IXFILE * KEY IS RKEY2. KEY IS A1 A2. </pre> <p>Incorrect conversion result:</p> <pre style="border: 1px solid black; padding: 5px;"> SELECT IXFILE ASSIGN TO IXFILE2 ORGANIZATION IS INDEXED ACCESS MODE IS DYNAMIC </pre>

NO.	V/L (*)	P number	Content of change
			<pre> * RECORD KEY IS RKEY1=K1 K2 RECORD KEY IS K1 K2 * ALTERNATE RECORD KEY IS RKEY2=A1 A2. ALTERNATE RECORD KEY IS A1 A2. START IXFILE * KEY IS = RKEY1. KEY IS = K1 K2. READ IXFILE * KEY IS RKEY2. KEY IS K1 K2. *> point of failure </pre> <p>Condition</p> <ol style="list-style-type: none"> The pre-compiler source conversion function is used by one of the following methods: <ul style="list-style-type: none"> Compiled using the cobol command with the -CVm option Compiled using NetCOBOL Studio with the compiler option PRECONV(MF) Converting using the cobpreconv command Declares an indexed file that defines at least two split keys. A READ or START statement is described for the file of 2. The split key defined after the second is described in KEY phrase of 3.
8	V12.2.0 to V12.2.0A	PH22368	<p>Under the following condition, the following errors occur in the object comparison tool and COBOL compiler:</p> <p>Symptoms</p> <ul style="list-style-type: none"> Comparison using object comparison tool (cobcmpo command) Either of the following occurs. <ol style="list-style-type: none"> The cobcmpo command causes a segmentation violation or infinite loop. The command terminates with the following message. <div data-bbox="671 1323 1418 1397" style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <pre>"xxxx : The program name is different." (xxxx is file name)</pre> </div> Compiling with the COBOL compiler <p>Either of the following occurs.</p> <ol style="list-style-type: none"> The COBOL compiler emits a segmentation violation or enters an infinite loop. The COBOL compiler outputs an object file even if the translation results do not differ from the destination object file. <p>Condition</p> <ul style="list-style-type: none"> Comparison using object comparison tool (cobcmpo command) <ol style="list-style-type: none"> The object file (*1) specified in the cobcmpo command is compiled with the compiler option SCS(UTF8) enabled (*2). The program name (or class name, method name) of the source program in which the object file of 1 was compiled contains AS phrase. A national nonnumeric literal is specified in the AS phrase of 2. The national nonnumeric literal for 3 exceeds 53 characters (*3). Compiling with the COBOL compiler

NO.	V/L (*)	P number	Content of change
			<ol style="list-style-type: none"> 1. Compiler Options OBJECT(DIFF) and SCS(UTF8) are enabled (*2). 2. The program name (or class name, method name) contains an AS phrase. 3. A national nonnumeric literal is specified in the AS phrase of 2. 4. The national nonnumeric literal for 3 exceeds 53 characters (*3). <p>*1: If a directory or folder is specified, it is the object file under it.</p> <p>*2: The compiler option SCS(UTF8) is enabled by default in NetCOBOL (64bit) for Linux.</p> <p>*3: Symptoms vary depending on the number of characters.</p> <ul style="list-style-type: none"> - For 54 to 58 characters: Symptom a or c - For 59 to 80 characters: Symptoms b or d
9	V10.1.0 to V12.2.0A	PH22371	<p>Under the following Condition 1 or Condition 2, when a COBOL program is compiled, any compiler option might be handled incorrectly, and one of the following may occur.</p> <p>Symptoms</p> <ul style="list-style-type: none"> - When Condition 1 is satisfied <p>The string specified after byte 257 (*1) on 1 line of the option file is considered a compiler option. As result, the following compiler error, or it may be valid as a compiler option (*2).</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>JMN0021I-E The character '@1@' is invalid as a compile option name or delimiter. Skips to next delimiter.</p> </div> <ul style="list-style-type: none"> - When Condition 2 is satisfied <p>The code-system of explicitly or implicitly specified source files is not enabled and may be compiled with the wrong code-system (*3).</p> <p>*1: A single line in an option file can contain up to 246 bytes of compiler option sequences. In the event of a failure, any string between 247 and 256 bytes is truncated.</p> <p>*2: If an invalid compiler option is enabled, the detection of compiler errors depends on the coding of the program and the type of compiler option enabled.</p> <p>*3: Whether a compiler error is output depends on the description of the source program. If a compiler error is output, the following compiler errors may occur:</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>JMN1000I-S A character that is excluded from the COBOL character set is used. That character is ignored. JMN1008I-S A character not in the national character set is used in a national user-defined word. '@1@' is the assumed national user-defined word. JMN1022I-S The ending quotation mark of the literal is missing. The characters at the end of Area B are assumed to be a literal.</p> </div> <p>Supplement:</p> <p>If Condition 2 is satisfied, the compiler will behave incorrectly as follows:</p> <ul style="list-style-type: none"> - When (a) of 2 is satisfied <p>The compiler disables the specified compiler option SCS or RCS.</p> <ul style="list-style-type: none"> - When (b) of 2 is satisfied <p>The compiler enables strings as compiler option SCS or RCS in locations that are not valid compiler options.</p> <ul style="list-style-type: none"> - When (c) of 2 is satisfied

NO.	V/L (*)	P number	Content of change									
			<p>The compiler enables a sequence of options in the cobol command or a portion of the file name as compiler options SCS or RCS.</p> <p>Condition 1</p> <p>When 256 bytes or more are specified in one line of the option file.</p> <p>Condition 2</p> <ol style="list-style-type: none"> 1. NetCOBOL (64bit) for Linux V10.2 or later is used. 2. When any of the following conditions is satisfied. <ol style="list-style-type: none"> a. The compiler option SCS or RCS is described in more than 2048 bytes from the beginning of the option file. b. The compiler option SCS or RCS is described within 2048 bytes of the beginning of the option file and more than 246 bytes from the beginning of the line. c. A sequence of options other than the -WC option of the cobol command, a file name, or the value of the COBOLOPTS environment variable contains one of the following strings. <table border="1" data-bbox="692 860 1418 965"> <tr> <td>SCS(SJIS)</td> <td>SCS(UTF8)</td> <td>RCS(SJIS)</td> </tr> <tr> <td>RCS(UTF16)</td> <td>RCS(UTF16,LE)</td> <td>RCS(UTF16,BE)</td> </tr> <tr> <td>RCS(UCS2)</td> <td>RCS(UCS2,LE)</td> <td>RCS(UCS2,BE)</td> </tr> </table>	SCS(SJIS)	SCS(UTF8)	RCS(SJIS)	RCS(UTF16)	RCS(UTF16,LE)	RCS(UTF16,BE)	RCS(UCS2)	RCS(UCS2,LE)	RCS(UCS2,BE)
SCS(SJIS)	SCS(UTF8)	RCS(SJIS)										
RCS(UTF16)	RCS(UTF16,LE)	RCS(UTF16,BE)										
RCS(UCS2)	RCS(UCS2,LE)	RCS(UCS2,BE)										
10	V12.2.0 to V12.2.0A	PH22372	<p>Under the following condition, when converting a COBOL program using the pre-compiler source conversion function, one of following symptoms may occur:</p> <ul style="list-style-type: none"> - When (2-A) is satisfied <p>The contents written after the character positions that the source program does not compile is considered to be on the next line and may be subject to compilation. Therefore, incorrect errors may be output. As a result, an invalid conversion error is output, or an invalid description is output to the source program after conversion (*).</p> <ul style="list-style-type: none"> - When (2-B) is satisfied <p>The following error message is output, and the conversion process is interrupted.</p> <table border="1" data-bbox="612 1346 1418 1424"> <tr> <td>PRCV-ER022U A fatal conversion error has occurred. (module-name=C2GETTKN, detail-code=001)</td> </tr> </table> <p>*: The contents of the source program beyond 1024 bytes are assumed to be on the next line. Whether it is detected as a conversion error or not depends on the coding of the program. Also, if the converted source program is compiled, some compiler errors may be output.</p> <p>Condition</p> <ol style="list-style-type: none"> 1. The pre-compiler source conversion function is used by one of the following methods: <ul style="list-style-type: none"> - Compiled using the cobol command with the -CVm option - Compiled using NetCOBOL Studio with the compiler option PRECONV(MF) - Converting using the cobpreconv command 2. One of the following conditions is satisfied: <ol style="list-style-type: none"> (2-A) A line of 1024 bytes or more (*1) is included in the source file or library file. (2-B) The path name (*2) of the pre-conversion library file is 1009 bytes or more. <p>*1: The target line includes the comment line.</p>	PRCV-ER022U A fatal conversion error has occurred. (module-name=C2GETTKN, detail-code=001)								
PRCV-ER022U A fatal conversion error has occurred. (module-name=C2GETTKN, detail-code=001)												

NO.	V/L (*)	P number	Content of change
			<p>*2: The library files are searched in the following order. A path name is a concatenation of a directory name and a file name.</p> <ol style="list-style-type: none"> 1. -I option 2. Environment variable COBCOPY 3. Current directory (. /)
11	V11.0.0 to V12.2.0A	PH22430	<p>Under the following condition, when a COBOL program is compiled, one of the following compile-time messages is output.</p> <ul style="list-style-type: none"> - JMN2880I-S The number of characters for the host variable defined as a national item cannot exceed 16346. - JMN2886I-S The number of characters for a national item that is subordinate to a host variable of variable-length string type cannot exceed 16344 characters. <p>Condition</p> <ol style="list-style-type: none"> 1. The compiler option ENCODE(UTF8,UTF32) is enabled. 2. It describes one of the following host variables: <ul style="list-style-type: none"> - Host variables for national data items longer than 8173 characters - Host variables of variable-length string type subordinating national data items longer than 8172 characters <p>Supplement</p> <p>Host variables for national data items in UTF-32 encoding must have the following number of characters.</p> <ul style="list-style-type: none"> - For fixed length, 8173 characters or less - For variable length, 8172 characters or less
12	V10.1.0 to V12.2.0A	PH22556	<p>Under the following condition, when a COBOL program is compiled, the following message is incorrectly output for the SET statement, resulting in a compiler error.</p> <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p>JMN3366I-S An integer function and a numeric function cannot be specified in the SET statement.</p> </div> <p>Condition</p> <ol style="list-style-type: none"> 1. One of the following SET statements is described: <ul style="list-style-type: none"> - SET statement in format 1, specifying the index-name as the receiving operand - SET statement in format 2 2. A LENG function is specified as the sending operand of 1. <p>Supplement:</p> <p>The LENG function is a function that can be described in the position where integer numeric literal can be described in the PROCEDURE DIVISION.</p> <p>The SET statement of the condition must be compilable.</p>
13	V10.1.0 to V12.2.0A	PH22571	<p>Under the following condition, the value of the maximum record length in the following compiler message is incorrect.</p> <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p>JMN2247I-S The record length of a sequential file with a variable length format cannot exceed 32752 bytes. A record length of 32752 bytes is assumed.</p> </div> <p>Condition</p>

NO.	V/L (*)	P number	Content of change
			<p>1. Describe one of the following files to the program.</p> <p>a. The file is sequential organization (*1) and does not fall under any of (1) through (3).</p> <p>(1) The file-identifier-name is in one of the following formats:</p> <ul style="list-style-type: none"> - [DA-][nn-]VS-name (nn is a two-digit number) - [comment-]AS-name <p>(2) A print file with a FORMAT clause</p> <p>(3) A presentation file (*2)</p> <p>b. The file is line sequential organization (*1)</p> <p>c. The file is sort-merge file (*3)</p> <p>2. The record format of the file for 1 is variable. (*4)</p> <p>3. The maximum record length (*4) of the file in 1 exceeds 32756 bytes.</p> <p>*1: For information about file organization, see "File Organization" in "NetCOBOL Language Reference."</p> <p>*2: For information about presentation file, see "Presentation File Module" in "NetCOBOL Language Reference."</p> <p>*3: For information about sort-merge file, see "Sort-Merge Module" in "NetCOBOL Language Reference."</p> <p>*4: For the record format and maximum record length, see "Record Format" in "NetCOBOL Language Reference."</p>
14	V11.1.0 to V12.2.0A	PH22600	<p>Under the following condition, when the debugging function of NetCOBOL Studio is used to reference a national data item whose encoding is UTF-32, half-size kana characters are displayed as "?".</p> <p>Condition</p> <ol style="list-style-type: none"> 1. You are debugging a COBOL application with the debugging features of NetCOBOL Studio. 2. A national data item that corresponds to one of the following is described: <ol style="list-style-type: none"> a. The compiler option ENCODE(UTF8, UTF32) is enabled. and the ENCODING clause is not specified. b. The alphabet-name is associated with the following encodings in the ALPHABET clause and is specified to the ENCODING clause. <ul style="list-style-type: none"> - UTF32 - UTF32BE - UTF32LE 3. Half-size kana is set for the value of national data item. 4. Use the following function of NetCOBOL Studio to display values for national data item. <ul style="list-style-type: none"> - COBOL Editor Tooltips - Watch View
15	V11.1.0 to	PH22668	<p>If any of the following Condition 1 through Condition 3 are met, in the SRCLIST file generated by the Makefile generation function (*1) provided by NetCOBOL, it is possible</p>

NO.	V/L (*)	P number	Content of change
	V12.2.0A		<p>that the wrong file is set in the macro (*2) that defines the file list. As a result, the following occurs:</p> <ul style="list-style-type: none"> - If you build using the generated Makefile, make fails due to a build error. (*3) - If you run the make command with fix as the target, then tar will pack the wrong resources. - If you run the make command with echo as the target, it lists the resources that are wrong. <p>*1: The following functions are affected:</p> <ul style="list-style-type: none"> - Server-side makefile generation with the remote development function of NetCOBOL Studio V 12.0.0 or later for Windows - Makefile generation with the cobmkmf command - Make with srclist as target using the Makefile generated by the cobmkmf command <p>*2: The following macros are affected:</p> <ul style="list-style-type: none"> - COBSRCS: list of COBOL sources - COPYS: List of COBOL library and screen form descriptor The COBCOPYS macro is not referenced at build time, so it has no impact on the build. - PCOM_SRCS: list of precompiler input sources This macro is output only when a precompiler is used for remote development of NetCOBOL Studio. <p>*3: The error depends on the contents of the configured file. For example, if a binary file was set in the source file list, the following message is output.</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>JMN1000I-S A character that is excluded from the COBOL character set is used. That character is ignored.</p> </div> <p>Condition 1</p> <p>To create a Makefile on the server side using the remote development function of NetCOBOL Studio V12.0.0 or later for Windows under the following conditions.</p> <ol style="list-style-type: none"> 1. The OS of the remote development server is Linux(x64). 2. Check Make subdirectory on the Remote Development page in the properties of the COBOL project. 3. In the Source Files folder of the Dependency view, there is a file whose last character string of the file name is the same as the extension of the COBOL source or the precompiler input source, or there is a file that contains the same character string as the extension of the library or the screen form descriptor in the reference directories of the library and the screen form descriptor. (*4) <p>Condition 2</p> <ol style="list-style-type: none"> 1. The cobmkmf command was executed with the -R option. 2. A file with the last character string of the file name as the extension of the COBOL source exists in the current directory and the subdirectory, or a file with the same character string as the extension of the library or the screen form descriptor exists in the reference directory of the library and the screen form descriptor. (*4) <p>Condition 3</p> <p>Execute the make command under the following conditions.</p> <ol style="list-style-type: none"> 1. A Makefile generated under Condition 2 is used.

NO.	V/L (*)	P number	Content of change
			<p>2. Run make with srclist as the target.</p> <p>3. A file with the last character string of the file name as the extension of the COBOL source exists in the current directory and the subdirectory, or a file with the same character string as the extension of the library or the screen form descriptor exists in the reference directory of the library and the screen form descriptor. (*4)</p> <p>*4:</p> <p>Example 1: If the COBOL source has the extension cob and the following files exist in the current directory and subdirectories, these file names will be incorrectly set in the COBSRCS macro (as will the PCOM_SRCS macro).</p> <div data-bbox="571 586 1418 663" style="border: 1px solid black; padding: 2px;"> <pre>test.acob (the last string in the filename is the same as the extension)</pre> </div> <p>Example 2: If the library extension is cbl and the following files exist in the current directory and subdirectories, these file names will be incorrectly set in the COBCOPY macro.</p> <div data-bbox="571 790 1418 866" style="border: 1px solid black; padding: 2px;"> <pre>testcbl.txt (the file name contains the same string as the extension)</pre> </div>
16	V10.1.0 to V12.2.0A	PH22693	<p>If any of the following Condition 1 through Condition 3 are met, the line number in a NetCOBOL runtime message may be inaccurate. The actual error may have occurred on a different line.</p> <p>Condition 1</p> <p>A conditional expression using AND or OR.</p> <p>Condition 2</p> <p>Contains one of the following statements:</p> <ul style="list-style-type: none"> - EVALUATE statement with ALSO phrase - PERFORM statement with VARYING phrase - SEARCH statement with VARYING phrase <p>Condition 3</p> <p>The same line contains one of the following sentences followed by one or more verbs:</p> <ul style="list-style-type: none"> - Arithmetic statement with an ON SIZE ERROR or NOT ON SIZE ERROR phrase - CALL statement that calls a nested program - EVALUATE statement - IF statement - PERFORM statement - MERGE statement with OUTPUT PROCEDURE phrase - SEARCH statement - SORT statement with INPUT PROCEDURE or OUTPUT PROCEDURE phrase - STRING statements with ON OVERFLOW or NOT ON OVERFLOW phrase - UNSTRING statement with ON OVERFLOW or NOT ON OVERFLOW phrase - RAISE statement - INVOKE statement with RAISING phrase

NO.	V/L (*)	P number	Content of change
			<p>- Input-output statements for which the USE statement specifies an error handling procedure.</p> <p>Program example</p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p>Example 1: IF I = 1 THEN DISPLAY "A" ELSE DISPLAY "B" END-IF.</p> </div> <div style="border: 1px solid black; padding: 5px;"> <p>Example 2: DISPLAY "A". PERFORM P1. DISPLAY "B".</p> </div>

*: V/L is a scope where the bug exists.

3.2 NetCOBOL Runtime Environment

Information described here is applied to the following products:

- NetCOBOL Enterprise Edition Developer and Runtime (64bit) for Linux
- NetCOBOL Enterprise Edition Runtime (64bit) for Linux

Table 3.2 Program fix list of NetCOBOL Runtime Environment

NO.	V/L (*)	P number	Content of change
1	V11.1.0 to V12.2.0A	PH22132	<p>Under the following Condition 1 or Condition 2, when a COBOL application is executed, when a SQL statement is executed with 0 specified for the data length of a variable-length string type host variable, the data of the host variable is not set as null character data (character string data with a character string length of 0). For this reason, execution of a SQL statement may cause non-empty string data to be set in table records or may not derive the intended table.</p> <p>Condition 1</p> <ol style="list-style-type: none"> 1. The operating system is a Linux system. 2. Create a COBOL program as a Unicode application by specifying one of the following compiler options: <ul style="list-style-type: none"> - compiler option ENCODE (UTF8,UTF32,LE) - compiler option ENCODE (UTF8,UTF32,BE) 3. The application is accessing the database through the ODBC interface. 4. The length part of the national data item host variable that handles variable-length string data is set to 0. 5. Executing the SQL statement with the host variable in 4 specified in one of the following SQL statements: <ul style="list-style-type: none"> - The insert value of insert value list in INSERT statement - The value specification of the set clause in UPDATE statement - The search condition in the WHERE clause - The USING clause in dynamic SQL statement - The argument list of the CALL statement <p>Condition 2</p> <ol style="list-style-type: none"> 1. The operating system is a Linux system.

NO.	V/L (*)	P number	Content of change
			<p>2. Create a COBOL program as a Shift-JIS application by specifying the compiler options ENCODE(SJIS,SJIS) (*).</p> <p>3. The application is accessing the database through the ODBC interface.</p> <p>4. The length part of the alphabetic item host variable that handles variable-length string data is set to 0.</p> <p>5. Executing the SQL statement with the host variable in 4 specified in one of the following SQL statements:</p> <ul style="list-style-type: none"> - The insert value of insert value list in INSERT statement - The value specification of the set clause in UPDATE statement - The search condition in the WHERE clause - The USING clause in dynamic SQL statement - The argument list of the CALL statement <p>*: If the compiler option RCS(SJIS) is specified, the compiler option ENCODE(SJIS,SJIS) is assumed.</p>
2	V11.1.0 to V12.2.0A	PH22175	<p>Under the following conditions, when a COBOL application is executed, the runtime system sets an invalid value for an ODBC function.</p> <p>The resulting behavior depends on the implementation of the ODBC driver.</p> <p>The problem does not occur for the Enterprise Postgres ODBC driver.</p> <p>Condition</p> <ol style="list-style-type: none"> 1. The operating system is a Linux system. 2. The application is accessing the database through the ODBC interface. 3. Create a COBOL program as a Shift-JIS application by specifying the compiler options ENCODE(SJIS,SJIS) (*). 4. Host variables of alphanumeric items are used. 5. A non-ASCII character is stored in the host variable of alphanumeric items. 6. Executing the SQL statement with the host variable in 5 specified in one of the following SQL statements: <ul style="list-style-type: none"> - The insert value in INSERT statement - The set clause in UPDATE statement - The search condition in the WHERE clause - The USING clause in dynamic SQL statement - The argument list of the CALL statement <p>*: If the compiler option RCS(SJIS) is specified, the compiler option ENCODE(SJIS,SJIS) is assumed.</p>
3	V11.1.0 to V12.2.0A	PH22227	<p>Under the following Condition 1 or Condition 2, when a COBOL application is executed, the runtime message JMP0086I-W is output, and execution of the SQL statement fails.</p> <p>SQLSTATE/ SQLCODE/ SQLMSG is set to the following information.</p> <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <pre>SQLSTATE=????? SQLCODE =-999999992 SQLMSG = Illegal action occurred</pre> </div> <p>Condition 1</p>

NO.	V/L (*)	P number	Content of change
			<p>1. The operating system is a Linux system.</p> <p>2. The application is accessing the database using an ODBC interface.</p> <p>3. Create a COBOL program as a Shift-JIS application by specifying the compiler options ENCODE(SJIS,SJIS) (*).</p> <p>4. The SQL statement is executed under either of the following conditions:</p> <p style="padding-left: 20px;">a. Execute a SELECT or FETCH statement to reference the data in one of the following ways:</p> <ul style="list-style-type: none"> - To reference data, use host variables of alphanumeric items with item length greater than 10897 bytes. (*3) - To reference data that is longer than 8172 characters, use host variables of national data items. (*3) <p style="padding-left: 20px;">b. Execute the SQL statement by specifying the host variable data of the national data item exceeding 8173 characters as one of the following</p> <ul style="list-style-type: none"> - The insert value in INSERT statement - The set clause in UPDATE statement - The search condition in the WHERE clause - The USING clause in dynamic SQL statement - The argument list of the CALL statement <p>Condition 2</p> <p>1. The operating system is a Linux system.</p> <p>2. The application is accessing the database through the ODBC interface.</p> <p>3. Create a COBOL program as a Unicode application by specifying the compiler options ENCODE(UTF8,UTF32,LE) or ENCODE(UTF8,UTF32,BE).</p> <p>4. To reference data by executing a SELECT or FETCH statement using a host variable of a national data item with item length greater than 4085.</p> <p>*1: If the compiler option RCS(SJIS) is specified, the compiler option ENCODE(SJIS,SJIS) is assumed.</p> <p>*2: The item length that fails depends on the content of the data being referenced. If the data to be referenced contains UTF-8 3-byte characters, an error occurs if the maximum item length exceeds 13076.</p> <p>*3: When the compiler option ENCODE(SJIS,SJIS) is specified, the item length and maximum number of characters of each host variable are as follows:</p> <ul style="list-style-type: none"> - fixed-length alphanumeric item: 32692 bytes - variable-length alphanumeric item: 32688 bytes - fixed-length national data item: 16346 characters - variable length national data item: 16344 characters <p>*4: When the compiler option ENCODE(UTF8,UTF32,LE) or ENCODE(UTF8,UTF32,BE) is specified, the item length and maximum number for characters of host variable for national data item are as follows:</p> <ul style="list-style-type: none"> - fixed-length national data item: 8173 characters - variable length national data item: 8172 characters

NO.	V/L (*)	P number	Content of change
4	V11.1.0 to V12.2.0A	PH22228	<p>Under the following condition, when a COBOL application is executed, an error code and error address may not be output to the runtime message JMP0086I-W, and an invalid character string (*1) may be output.</p> <p>Also, an invalid character string (*1) may be output to the standard output.</p> <p>*1: The output string depends on the memory status.</p> <p>Condition</p> <ol style="list-style-type: none"> 1. The operating system is a Linux system. 2. The application is accessing the database through the ODBC interface. 3. Execution of the embedded SQL statement outputs the runtime message JMP0086I-W. <p>*2: Occurs when a host variable or reference data contains characters that cannot be code-converted, or when data that exceeds the fixed limit of the host variable is referenced.</p>
5	V11.0.0 to V12.2.0A	PH22522	<p>Under the following condition, when a COBOL application is executed, the control character carriage return (CR) in records read from a line sequential file is not replaced by spaces.</p> <p>For variable-length files, the effective record length reported to the DEPENDING ON specified data item specified in the record clause is the length including the return of the control character.</p> <p>Example 1:</p> <p>When a three-character national data item is defined in a FILE SECTION and "あ" (full-size character) is read from a line sequential file whose encoding is "UTF-32,LE" and whose line feed code is carriage return and line feed.</p> <p>- Input records from a line sequential file</p> <pre> +-----+-----+-----+ あ Control code Control code carriage return line feed (LF) +-----+-----+-----+ 42 30 00 00 0D 00 00 00 0A 00 00 00 +-----+-----+-----+ </pre> <p>- Result of reading an input record</p> <pre> +-----+-----+-----+ あ Control code Full-size space carriage return +-----+-----+-----+ 42 30 00 00 0D 00 00 00 00 03 00 00 +-----+-----+-----+ </pre> <p>When a record shorter than the one defined in the FILE SECTION is read, the control code is removed and space is padded, but the carriage return code remains in the record instead of replacing full-size space.</p> <p>- Expected read result</p> <pre> +-----+-----+-----+ あ Full-size space Full-size space +-----+-----+-----+ 42 30 00 00 00 03 00 00 00 03 00 00 +-----+-----+-----+ </pre> <p>Condition</p> <ol style="list-style-type: none"> 1. A line sequential file is used.

NO.	V/L (*)	P number	Content of change
			<p>2. High speed processing (*1) is specified for the file in 1.</p> <p>3. The record (*2) defined in the FILE SECTION of 1 is declared with only national data items.</p> <p>4. The national data item in 3 is one of the following:</p> <ul style="list-style-type: none"> a. The ENCODING clause is not specified. and the following compiler options are valid: <ul style="list-style-type: none"> - ENCODE(UTF8,UTF32) - ENCODE(UTF8,UTF32,LE) - ENCODE(UTF8,UTF32,BE) b. The alphabet-name associated with one of the following encodings in the ALPHABET clause is specified in the ENCODING clause of the FILE SECTION of 1: <ul style="list-style-type: none"> - UTF32 - UTF32LE - UTF32LE <p>5. The file of 1 is assigned a text file that meets the following conditions.</p> <ul style="list-style-type: none"> - The encoding is UTF-32, and - A control character carriage return (CRLF) or carriage return (CR) is set as the line feed character. <p>6. The OPEN statement specifying the INPUT mode is being execute.</p> <p>7. The data of the record read with the READ statement is shorter than the record length defined in 3.</p> <p>*1: You can specify file high speed processing in the following ways:</p> <ul style="list-style-type: none"> - Specifies the file-identifier-name as the file-reference-identifier in the program When setting the environment variable information, specify ",BSAM" following the file name of the file to be assigned. <pre style="border: 1px solid black; padding: 2px;">file-identifier-name=[path-name]file-name,BSAM</pre> - Specifies the data name as the file-reference-identifier in the program When setting the data name in the program, specify ",BSAM" following the file name of the file to be assigned. <pre style="border: 1px solid black; padding: 2px;">MOVE "[path-name]file-name,BSAM" TO data-name</pre> - Specifies the file-identifier constant as the file-reference-identifier in the program When setting the file-reference-identifier in the program, specify ",BSAM" following the file name of the file to be assigned. <pre style="border: 1px solid black; padding: 2px;">ASSIGN TO "[path-name]file-name,BSAM" TO data-name</pre> - When specifying in batch mode Specify "BSAM" for the following environment variable information. <ul style="list-style-type: none"> - CBR_FILE_SEQUENTIAL_ACCESS <pre style="border: 1px solid black; padding: 2px;">\$ CBR_FILE_SEQUENTIAL_ACCESS=BSAM ; export CBR_FILE_SEQUENTIAL_ACCESS</pre>

NO.	V/L (*)	P number	Content of change
			*2: Record formats are both fixed-length and variable-length.
6	V11.0.0 to V12.2.0A	PH22524	<p>Under the following condition, when a COBOL application is executed, an invalid character is inserted into the data read from the file.</p> <p>Condition</p> <ol style="list-style-type: none"> 1. A line sequential file is used. 2. High speed processing (*1) is specified for the file in 1. 3. The record (*2) defined in the FILE SECTION of 1 is declared with only national data items. 4. The national data item in 3 is one of the following: <ol style="list-style-type: none"> a. The ENCODING clause is not specified. and the following compiler options are valid: <ul style="list-style-type: none"> - ENCODE(UTF8,UTF32) - ENCODE(UTF8,UTF32,LE) - ENCODE(UTF8,UTF32,BE) b. The alphabet-name associated with one of the following encodings in the ALPHABET clause is specified in the ENCODING clause of the FILE SECTION of 1: <ul style="list-style-type: none"> - UTF32 - UTF32LE - UTF32LE 5. The file of 1 is assigned a text file with the encoding is UTF-32. 6. The compiler option NSP (*3) is specified 7. The OPEN statement specifying the INPUT mode is being execute. 8. The data of the record read with the READ statement is shorter than the record length defined in 3. <p>*1: You can specify file high speed processing in the following ways:</p> <ul style="list-style-type: none"> - Specifies the file-identifier-name as the file-reference-identifier in the program When setting the environment variable information, specify ",BSAM" following the file name of the file to be assigned. <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 5px 0;">file-identifier-name=[path-name]file-name,BSAM</div> - Specifies the data name as the file-reference-identifier in the program When setting the data name in the program, specify ",BSAM" following the file name of the file to be assigned. <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 5px 0;">MOVE "[path-name]file-name,BSAM" TO data-name</div> - Specifies the file-identifier constant as the file-reference-identifier in the program When setting the file-reference-identifier in the program, specify ",BSAM" following the file name of the file to be assigned. <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 5px 0;">ASSIGN TO "[path-name]file-name,BSAM" TO data-name</div> - When specifying in batch mode Specify "BSAM" for the following environment variable information.

NO.	V/L (*)	P number	Content of change
			<p>- CBR_FILE_SEQUENTIAL_ACCESS</p> <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <pre>\$ CBR_FILE_SEQUENTIAL_ACCESS=BSAM ; export CBR_FILE_SEQUENTIAL_ACCESS</pre> </div> <p>*2: Record formats are both fixed-length and variable-length. *3: The compiler option NSP is the default specification.</p>
7	V11.1.0 to V12.2.0A	PH22664	<p>Under the following condition, when a COBOL application is executed, data truncation occurs while executing SQL statements (*1). The COBOL program may not be notified of the SQLSTATE/ SQLCODE/ SQLMSG value when truncation occurs.</p> <p>Condition</p> <ol style="list-style-type: none"> 1. The operating system is a Linux system. 2. The application is accessing the database through the ODBC interface. 3. The compiler option ENCODE(SJIS,SJIS) is specified (*2). 4. The SQL statement is executed under either of the following conditions: <ol style="list-style-type: none"> a. Use host variables of alphanumeric data item and execute SELECT and FETCH statements to reference data of the following conditions: <ul style="list-style-type: none"> - The data contains characters other than national (less than 3 bytes in UTF-8). and - The number of bytes of received data exceeds the item length of the host variable. (*3) b. Executes a SQL statement using a host variable of a national data item containing 4-byte characters (surrogate pairs). (*4) (*5) <p>*1: When executing SQL statements, if the data contains 4-byte characters (surrogate pairs), characters may break apart in addition to truncation. *2: If the compiler option RCS(SJIS) is specified, the compiler option ENCODE(SJIS,SJIS) is assumed. *3: The range of the number of bytes in the occurrence condition changes depending on the content of the data to be referenced. The maximum size of the range is when all the data to be referenced are 1-byte characters of UTF-8, and the range is from the item length of the host variable +1 to the item length of the host variable x 3. *4: Interstage Charset Manager is required when handling 4-byte characters (surrogate pairs) when the compiler option ENCODE(SJIS,SJIS) is specified. *5: If data truncation occurs when referencing 4-byte character (surrogate pair), the COBOL program is notified of the SQLSTATE/ SQLCODE/ SQLMSG value returned by the ODBC driver.</p> <p>Depending on the content of the data to be referenced, breaking up of data may occur. In this case, the runtime system outputs JMP0086I-W and sets SQLSTATE/ SQLCODE/ SQLMSG as follows.</p> <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <pre>SQLSTATE=????? SQLCODE =-999999992 SQLMSG = illegal action occurred</pre> </div>
8	V11.1.0 to V12.2.0A	PH22665	<p>Under the following condition, when a COBOL application is executed, data truncation may occur while executing SQL statements (*1). When truncation occurs, the COBOL application is notified of the SQLSTATE/ SQLCODE/ SQLMSG value set by the ODBC driver.</p> <p>Condition</p>

NO.	V/L (*)	P number	Content of change
			<p>1. The operating system is a Linux system.</p> <p>2. The application is accessing the database through the ODBC interface.</p> <p>3. Create a COBOL program as a Unicode application by specifying the compiler options ENCODE(UTF8,UTF32,LE) or ENCODE(UTF8,UTF32,BE).</p> <p>4. Executes a SQL statement using a host variable of a national data item containing 4-byte characters (surrogate pairs). (*2)</p> <p>*1: When executing SQL statements, if the data contains 4-byte characters (surrogate pairs), characters may break apart in addition to truncation. Whether this happens depends on the implementation of your ODBC driver.</p> <p>If you use the Enterprise Postgres ODBC driver, you may experience breakdowns when referencing data.</p> <p>*2: If data truncation occurs when referencing 4-byte character (surrogate pair), the COBOL program is notified of the SQLSTATE/ SQLCODE/ SQLMSG value returned by the ODBC driver.</p> <p>Depending on the content of the data to be referenced, breaking up of data may occur. In this case, the runtime system outputs JMP0086I-W and sets SQLSTATE/ SQLCODE/ SQLMSG as follows.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <pre>SQLSTATE=????? SQLCODE =-999999992 SQLMSG = Illegal action occurred</pre> </div>

*: V/L is a scope where the bug exists.

3.3 J Adapter Class Generator

Information described here is applied to the following products:

- NetCOBOL Enterprise Edition Developer and Runtime (64bit) for Linux
- NetCOBOL Enterprise Edition Runtime (64bit) for Linux

There is no information on the program correction.

3.4 PowerFORM

Information described here is applied to the following products:

- NetCOBOL Enterprise Edition Developer and Runtime (64bit) for Linux
- NetCOBOL Enterprise Edition Runtime (64bit) for Linux

There is no information on the program correction.

3.5 Fujitsu mainframe format floating-point arithmetic emulator

Information described here applies to the following products.

- NetCOBOL Enterprise Edition Developer and Runtime (64bit) for Linux
- NetCOBOL Enterprise Edition Runtime (64bit) for Linux

There is no information on the program correction.

3.6 PowerBSORT

Information described here is applied to the following products:

- NetCOBOL Enterprise Edition Developer and Runtime (64bit) for Linux
- NetCOBOL Enterprise Edition Runtime (64bit) for Linux

Table 3.3 Program fix list of PowerBSORT

NO.	V/L (*)	P number	Content of change
1	V11.0.0 to V12.2.0A	PH17490	<p>Under the following condition, PowerBSORT may terminate abnormally with a non-zero exit code.</p> <p>Examples of abends: Messages on Linux</p> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Segmentation violation (core dumped)</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Abort (core dumped)</div> <p>Condition</p> <ol style="list-style-type: none"> 1. The bsortex command is used. 2. One or both of the following features are in use: <ul style="list-style-type: none"> - output file record reconstruction option - specifying record separator in output file 3. The output record length by the function described in condition 2 satisfies either of the following conditions: <ul style="list-style-type: none"> - longer than the record length of the input record - this is longer than the record length specified by the input file record reconstruction option. <p>Supplements:</p> <p>Each function in the bsortex command is specified by the following options and operands.</p> <ul style="list-style-type: none"> - The record reconstruction option of output file: "-output option reconst operand" - The record length of input record: "-input option reclen operand" - The record reconstruction option of input file: "-input option reconst operand"

*: V/L is a scope where the bug exists.

Chapter 4 Notes to consider when a Japanese native application is converted to run globally

This chapter describes what is involved in taking a Japanese native application global.

4.1 Guideline

The program resources and run time code-set are made by Unicode.



See

.....
For details, refer to "Unicode" in "NetCOBOL User's Guide."
.....

4.2 Languages

Language used in the messages for compiler, runtime, tools etc., can be selected in accordance with the current locale setting.

Setting of the current locale is valid for the value of the first environment variable detected in the following order.

1. LC_ALL
2. LC_MESSAGES
3. LANG

Messages for the following Japanese locales are provided with this product.

- ja_JP.UTF-8

Messages are generated in English if the specified locale is not supported.

4.3 Feature difference with Japanese version

In NetCOBOL, there are a Japanese version and a Global version. This product is a Global version.

This section explains the feature differences between a Japanese version and a Global version.

4.3.1 Related products

The following NetCOBOL family products are not supported.

- FORM
- FORM Overlay Option
- MeFt/Web
- SIMPLIA

The following Fujitsu products are not supported.

- Interstage Charset Manager
- Interstage List Works
- Interstage Business Application Server
- Interstage JOB Workload Server
- Interstage Big Data Parallel Processing Server
- PrintWalker/LXE

- PrintWalker/LXE-EX
- INTARFRM

Note

For the following products, the name is different with the Japanese version.

Global version	Japanese version
PowerFORM RTS	MeFt
PowerBSORT	PowerSORT

4.3.2 Specifications

The following specifications are different with the Japanese version.

4.3.2.1 Currency symbol

In this compiler, \$ (x'24') is used as currency symbol.

When any other character is used, the following method is used.

- Specify with the compiler option CURRENCY.

See

Refer to "CURRENCY (currency symbol handling)" in "NetCOBOL User's Guide."

- Specify in the source program by using CURRENCY SIGN clause.

See

Refer to "CURRENCY SIGN Clause" in "NetCOBOL Language Reference."

Note

- Character composed of multiple bytes cannot be used as currency symbol. Regarding characters that can be used as currency symbol, refer to "CURRENCY SIGN Clause" in "NetCOBOL Language Reference."
- If data is passed between compilation units having different currency symbol, the result might differ from the intended/expected result. Please specify compiler option CURRENCY or CURRENCY SIGN clause and use same currency symbol character.

4.3.2.2 Handling of National item spaces

In this compiler, National item space (Trailing Blank and Figurative Constant SPACE) of Unicode encoding is handled as alphabetic spaces (U+0020).

Specify compiler option NSP, if national spaces are to be changed.

See

For details, refer to "NSP (handling of spaces related to national data item)" in "NetCOBOL User's Guide."

Note

If data is passed between compilation units with different National item spaces, results might not be as expected. Specify the compiler option NSP, and use the same national item space.

4.3.2.3 Printing

It is recommend that PowerFORM Runtime use PDF file output by using the form descriptor created with PowerFORM when developing both a Japanese version and a global version.

The difference between a Japanese version and a global version is shown as follows.

Please consult "[4.3.1 Related products](#)" regarding supported situations for the related products.

Data stream type

Data stream type UVPI is not supported in a global version however it is supported in a Japanese version.

See

Refer to "[4.3.1 Related products](#)".

Paper size

The default value of the size of the form is A4 in a Japanese version. LETTER is used in a global version.

When the size of the form is changed, it is specified on the print information file or I control record.

Font for print

The default value of the print font is Minchou/Gothic in a Japanese version. COURIER is used in a global version.

When the print font is changed, the font table is used.

Characters that can be written

It is a range of Unicode and SJIS in a Japanese version. ASCII is used in a global version.

Form descriptor

It corresponds to SMD and PMD in a Japanese version. Only PMD is used in a global version.

See

Refer to "[4.3.1 Related products](#)".

4.3.3 PowerFORM RTS

When the Form is output in a Global version, there are the following notes.

- Only ASCII character can be used.
- When the paper size is omitted, it is printed on LETTER size.
- Only the print to the PostScript printer and the PDF output are possible.