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## PRODUCT OVERVIEW: COBOL KeePÍR for WANG WANG VS COBOL TO NATIVE AS/400 COBOL

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**GENERAL DESCRIPTION** -- PÍR Group Inc. provides a utility that *automatically* converts Wang VS COBOL to native AS/400 COBOL. The conversion output is always native to the AS/400 allowing the user to take full advantage of all the features of the AS/400, including its relational database. More than 25,000 programs have now been successfully converted. This extensive experience has enabled us to bring the conversion rate for the typical Wang program very near 100% on the first pass.

This cross-compiler was designed to provide a simple utility to work with. A single AS/400 command converts a program and all the copy books used by the program. *An entire library of programs can be converted and compiled by a single command.* Status messages are generated during conversion to keep the user advised of progress.

The conversion utility includes many features to insure ease of program maintainability. For example, any COBOL names generated by the utility are extensions of the existing COBOL name. All converted code maintains the original alignment of the original Wang source code. This feature, and others outlined in the following detailed utility specifications evidence the high priority PÍR assigned to producing easily maintainable code. This aspect of the utility design dramatically reduces your applications programmers' learning curve on the AS/400.

### **GENERAL FEATURES**

- \* Standard AS/400 command interface is used to drive the conversion utility.
- \* An entire program library can be converted and compiled with a single command.
- \* Rewritten code appears in the same alignment as the original source code.
- \* All field and file names become extensions of the original Wang field and file names.
- \* All copy books are converted and retain the same identity.
- \* All comments contained in the Wang code appear in the converted AS/400 program.
- \* The tool generates a detailed error report.
- \* The tool produces a cross-reference of files, subroutines and copy books.
- \* Wang user subs are rewritten as subroutines on the AS/400 converted version.

## **SCREEN SUPPORT FEATURES**

- \* Extracts screens from the Wang program and creates native AS/400 DDS source code.
- \* All Wang field attributes are converted to native AS/400 DDS source code.
- \* All Wang FAC logic is converted to AS/400 indicator logic.
- \* Wang COBOL names are coded into DDS field area for documentation purposes.
- \* Wang FAC names are coded into the DDS indicator area for documentation purposes.
- \* Utility redefines the AS/400 indicator area. Wang COBOL names are kept intact.
- \* Wang screen editing features are duplicated via AS/400 edit codes.
- \* Up to two levels of OCCURS within the Wang screen definition is supported.
- \* AS/400 Code is generated to duplicate the function of:
  1. IF FAC ALTERED
  2. IF FAC EQUALS
  3. SET FAC ON/OFF
  4. MOVE FAC
- \* The tool generates code that eliminates the AS/400 limit of 99 indicators per screen.
- \* All features of the Wang DISPLAY AND READ are supported, including:
  1. PF KEYS are ...
  2. NO-MOD (imperative)
  3. ON PF KEY (imperative)
  4. Enabling or disabling the ENTER KEY
  5. Opening of CRT file
- \* Wang PF key feedback, cursor feedback and cursor positioning is supported.
- \* Figurative constants used as data elements is supported.

### **FILE SUPPORT FEATURES**

- \* Wang SELECT statements and file descriptions are rewritten to AS/400 externally described files (data base), transaction files (screens), or printer files.
- \* Wang alternate key files are converted to AS/400 logical files. SELECT statements, file descriptions, open and close statements are generated to support any alternate keys used in the program.
- \* If there are multiple record formats within one physical file, the utility automatically creates the required logical file in the AS/400 version.
- \* On OPEN OUTPUT, if the file does not exist, a code is generated to dynamically create it.
- \* If the file name, library, or volume is defined within the program, code is generated to redirect I/O to this file.
- \* Generates code to handle READ with TIME-OUT clause.
- \* Handles up to 16 record names under an FD.

### **MISCELLANEOUS FEATURES**

- \* Procedures are automatically converted to AS/400 CL (Converter available as a licensed product).
- \* Databases are automatically converted to AS/400 format.
- \* Generates code to handle STOP verb, followed by a message.
- \* The conversion utility allows AS/400 source code to be embedded within the Wang COBOL program as comments to be uncommented during conversion.
- \* Code is generated to support RETURN-CODE.
- \* Wang binary usage converted to AS/400 binary usage.
- \* Wang MOVE WITH CONVERSION statement is converted to equivalent AS/400 code.

**MOST FREQUENTLY USED OPTIONS OF THESE WANG USER SUBS ARE SUPPORTED:**

BELL	Sounds the workstation alarm for the specified number of I/O seconds.
CANCEL	Duplicates the functions of the standard Wang ABEND routine.
DATE	Performs the following dates : 1) converts the current system date and time to a formatted string, 2) converts dates between Gregorian and Julian formats, 3) performs calculations with dates, and 4) determines the day of the week that corresponds to a 20th century date.
DAY	Computes the day of the week that corresponds to a specified 20th century date.
EXTRACT	Provides information about the system and the program user.
FIND	Obtains one or more file, library, or volume names from complete or partial file, library, and volume names supplied by your program. Also indicates whether a specified file resides in a specified library and volume.
GETPARAM	Enables you to generate parameter requests in a higher-level language program.
LINK	Allows your program to link to a program or Procedure and to specify a cancel exit for the link. Your program can also specify any arguments that are needed to execute the linked program or Procedure.
LOGOFF	Terminates your program and logs you off the system.
MESSAGE	Allows communication between workstations (tasks).
PAUSE	Causes a program to pause for a specified amount of time.
PUTPARAM	Performs the following primary functions: 1) creates a parameter list (parameter reference block) to satisfy a subsequently generated parameter request, 2) retrieves a previously created parameter reference block, and 3) deletes existing parameter reference blocks.
READFDR	Provides information about a specified file, including control blocks or file characteristics.
READVTOC	Provides basic information from the volume, Table of Contents, using the "F" function. Other functions under development.
RENAME	Renames files, lists.
SCRATCH	Provides the ability to scratch a file or library, with the options of bypassing expiration date checking and limiting access rights for a program with special privileges.
SET	Sets any of the allowable defaults that are available through the Command Processor SET Usage Constants function and the Procedure language SET command.
SCREEN	Sends screen image to a printer.
SORT	Sorts a character array on specified field, in either ascending or descending order. Output from SORT can be either the sorted array or a locator-type array. (The elements in a locator-type array indicate the positions of the sorted elements in the character array.)

### **WANG USER SUBS (Continued)**

**SORTCALL**      Sorts, using variable PARMS

**STRING**        Provides the following manipulation functions:

1. Moves a string to another variable and pads it with a specified character.
2. Moves a portion of a string to another variable.
3. Centers a string.
4. Justifies a string left or right.
5. Reverses the order of characters in a string.
6. Translates the string according to a standard or user-specified translation table.



**SUBMIT**        Submits a background job to be run or held for later processing.

**AREAS REQUIRING MANUAL INTERVENTION.** The Wang will permit certain programming practices which are not handled by AS/400 COBOL. Where such items are encountered, manual amendments must be made to the Wang code before conversion (preferred method), or to the AS/400 code after conversion. Changes can be made by the client, or they can be made by PIE Group Inc, based on a fixed bid.

- \* Multiple COBOL statements on the same line need to be reformatted to one statement per line.
- \* Creation of Procedures ~~on the fly~~ *within* COBOL programs requires re-writing to allow this style of processing to occur externally .
- \* Subscripting out of range, *unless*, after conversion, the AS/400 compile option of \*NORANGE is used.
- \* Multiple record formats within any one physical file must be separated into unique physical files for full AS/400 functionality.
- \* Spaces in numeric-defined fields are not permitted, zeros must be moved to numeric fields.
- \* Fields beginning in Row 1, Column 1, are converted to fields beginning in Row 1, Column 2. Compiled listing must be examined to correct any resulting overlaps.
- \* If used, PF Keys 25 through 32 must be re-mapped and included in the range PF1 through PF 24.
- \* File status reads must be defined as 2 byte alpha on Wang
- \* Embedded FACS (in-stream FACS) in data fields are not permitted. Requires rewriting for individual field definition.
- \* WSXIO (full screen I/O) is not supported, requiring manual pre-conversion re-write to DISPLAY-WS.
- \* Note that there is an AS/400 restriction of 256 input-capable fields in any screen.

Figurative constants on print lines.

**LANGUAGES, DATABASE MANAGERS, MISCELLANEOUS FEATURES NOT SUPPORTED.**

The following languages and Database Managers and Miscellaneous features have no equivalents on the AS/400 and cannot be included in fixed bid contracts covering *automated* conversion from the Wang VS platform to the AS/400 platform. Additional costs can be quoted after examination of the applications containing the items named below, except where the notation  No PIR solution offered  indicates that the item named is not compatible with the AS/400 environment

<b>Assembler Basic</b>	Can be manually re-written to AS/400 CL or COBOL Can be re-written to AS/400 COBOL
<b>Control Files</b>	Associated with proprietary Wang report-writing utilities. Require manual translation into 3rd party report writers, or into AS/400 COBOL.
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<b>Oracle</b>	Re-writing of code segments is required, employing SQL
<b>Speed II</b>	No PIR solution offered
<b>Pace</b>	No PIR solution offered
<b>Wang WP</b>	No PIR solution offered