

Migrating from HP MPE/iX Compatibility Mode to Native Mode Products

This document identifies general migration issues and also provides some product-specific migration information. In addition, this document identifies available online technical documentation which will assist in the migration process. All documents may be obtained via the provided URLs or by contacting your HP e3000 partner or HP sales representative.

General Migration Issues and Resources

An in-depth discussion of the entire migration process is available from the *Migration Process Guide* (30367-90007).

<http://www.docs.hp.com/cgi-bin/doc3k/B30367iX019.12108/1>

During migration there are various issues to consider.

- Real Number data type CM compilers use an 'HP3000 Real' format while the NM compilers use an 'IEEE Real' format. Some of the NM compilers have directives to use the CM format. Or, various HP supplied routines can be called, such as the intrinsic HPFP_CONVERT in the *MPE/iX Intrinsic Reference Manual* (32650-90028)
<http://www.docs.hp.com/cgi-bin/doc3k/B3265090821.13550/1>

or HPINEXT/HPEXTIN in the *Compiler Library/XL Reference Manual* (32650-90029)

<http://www.docs.hp.com/cgi-bin/doc3k/B3265090029.10455/1>

For data type specifics see the *Data Types Conversion Programmer's Guide* (32650-90015)

<http://www.docs.hp.com/cgi-bin/doc3k/B3265090015.10436/1>

Also, *Turbo-IMAGE/XL* (30391-90001)

MPE 5.0

- <http://www.docs.hp.com/cgi-bin/doc3k/B3039190009.12332/1>

MPE 5.5

- <http://www.docs.hp.com/cgi-bin/doc3k/B3039190010.17091/1>

has Real Number data types R (HP3000 Reals) and E (IEEE Reals).

If you choose to convert your data from HP3000 Reals to IEEE Reals, you will need to consider differences in range, accuracy, rounding, underflow, and overflow.

- Packing and alignment can be different in NM versus CM programs. Please see the Reference Manual and Programmer's Guide for each language for details. Some library routines/intrinsics require specific alignment in NM versus CM. Misaligned data can cause Data Memory Protection Trap (DMPT)—similar to a CM Bounds Violation and other types of program aborts.
- CM programs use files of type USL, RL, SL, and PROG and are managed by the Segmenter *MPE Segmenter Reference Manual* (30000-90011).
<http://www.docs.hp.com/cgi-bin/doc3k/B3000090011.10176/1>

NM programs use NMOBJ, NMRL, NMXL, and NMPRG and are managed by the LinkEditor.

- *HP LinkEditor/XL Reference Manual* (32650-90030)
<http://www.docs.hp.com/cgi-bin/doc3k/B3265090309.11499/1>

- *Technical Addendum for HP Link Editor/iX* (32650-90845)
<http://www.docs.hp.com/cgi-bin/doc3k/B3265090845.15604/1>

- *Communicator 3000 MPE/iX Release 5.5* (30216-90224)
<http://www.docs.hp.com/mpeix/communicator/ix55/main.html>
technical article "HP Link Editor/iX Enhancements Detail"

- CM intrinsic files (like SPLINTR) are managed by the SPL/V compiler and NM intrinsic files (like SYSINTR) by the Pascal/iX compiler. OPTION VARIABLE in SPL/V has been replaced by OPTION EXTENSIBLE in Pascal/iX.
- Some programs may need to make use of Mixed-Mode (CM programs calling routines in an NMXL and/or NM programs calling CM routines in an SL) via Switch-Stub. The Switch Assist Tool (SWAT) is documented in the manual *Switch Programming User's Guide* (32650-90014)
<http://www.docs.hp.com/cgi-bin/doc3k/B3265090014.70/1>
- The NM compilers can handle mixed-case procedure names and will typically convert your uppercase name to a lowercase name by default. There are compiler directives in some languages to control this.
- The NM compilers can invoke various levels of optimization depending on the language via compiler directives.
- Replacement of Priv Mode programs/routines with routines in the

Architected Interface Facility (AIF) product(s) may be possible.

- *Architected Interface Facility: Operating System Reference Manual* (36374-90013).
http://www.docs.hp.com/dynaweb/smpe/b1019/0755/@Generic_BookView

Migration from HP Business BASIC/V (32115A)

The recommended replacement for HP Business BASIC/V is Business BASIC/iX (32715A).

Information about migration issues and migration tools can be found in the *HP Business BASIC/XL Migration Guide* (32715-90003). This manual is available at the following URL:

<http://docs.hp.com/cgi-bin/doc3k/B3271590003.10195/1>

Chapters 1 (Getting Started) through 7 (Accessing Compatibility Mode Data Files) discuss Business BASIC/V migration to Business BASIC/iX.

Migration from BASIC/V Interpreter and Compiler (32111A)

The recommended replacement for BASIC/V is Business BASIC/iX (32715A).

Information about migration issues and migration tools can be found in the *HP Business BASIC/XL Migration Guide* (32715-90003). This manual is available at the following URL:

<http://docs.hp.com/cgi-bin/doc3k/B3271590003.10195/1>

Chapters 8 (Getting Started) through 14 (Optimizing Migrated BASIC/V Applications)

discuss BASIC/V migration to Business BASIC/iX.

Migration from RPG/V (32104A)

The recommended replacement for RPG/V is RPG/iX (30318A).

Information about migration issues can be found in the *HP RPG/XL Programmer's Guide* (30318-90001)

<http://www.docs.hp.com/cgi-bin/doc3k/B3031890001.10422/1>

Appendix A (Migrating to HP RPG), section "RPG MPE V Features That Are Not Supported by RPG XL" lists the features in RPG/V that are not available in RPG/iX. This section is available at the following URL:

<http://docs.hp.com/cgi-bin/doc3k/B3031890001.10422/45>

Migration from SPL/V (32100A)

The recommended migration for SPL is to the third-party compiler SPLash! from Allegro. SPLash! offers a very complete implementation of the CM code constructs in NM. Top-of-stack, Q-relative, register references, and intrinsic calls are supported within SPLash!. In addition, optional features allow for selected implementation of NM optimizations for performance of procedure calls, double word loads, and other 16/32-bit differences.

Another alternative is to translate SPL source to the C language. The HP manual *SPL to HP C/XL Migration Guide* (30231-90001) <http://www.docs.hp.com/cgi-bin/doc3k/B3023190001.10188/1> provides an extended presentation of the necessary conversions and associated difficulties. The SPL to C migration process is intended for experienced SPL programmers who are also acquainted with the C language.

Migration from Pascal/V (32106A)

The HP Pascal/iX language provides an excellent migration path from Pascal/V. Several compiler options are provided to assist in the migration process. The manual *HP Pascal/XL Migration Guide* (31502-90004) <http://www.docs.hp.com/cgi-bin/doc3k/B3150290004.67/1> discusses the differences between Pascal/V and Pascal/iX and gives migration examples.

Migration from Fortran 77/V (32116A)

The HP Fortran 77/iX language provides a superset of the Fortran 77/V language. Code migration is generally straightforward and the few areas of difficulty are those associated with the changes from 16 to 32-bit wordsize and alignment. Several compiler options are available to minimize various migration issues. The manual *HP Fortran 77/XL Migration Guide* (31501-90004) <http://www.docs.hp.com/cgi-bin/doc3k/B31501900023.12116/1> describes the migration differences and their resolution.

Migration from Fortran 66/V (32102B)

The migration from Fortran 66/V to Fortran 77/iX involves a double conversion. First, the source code must be converted from the Fortran 66 syntax to the often-different Fortran 77 language syntax. Second, the conversion from CM to NM must also be completed. The manual *HP Fortran 77/XL Migration Guide* (31501-90004) <http://www.docs.hp.com/cgi-bin/doc3k/B31501900023.12116/1> describes the numerous differences in the 66 and 77 languages as well as the CM to NM differences.

While a Migration Aid program is provided, it must be used with great care and understanding of its functionality. The migration is by no means automatic and can be difficult. Depending upon the level of sophistication of the Fortran 66 code, migration may well be as significant as a complete rewrite of the source code.

Migration from Transact/V (32247A)

The Transact/iX Language is generally a superset of Transact/V so the migration is straightforward. The *HP Transact Reference Manual* (32247-60003)

<http://www.docs.hp.com/cgi-bin/doc3k/B3224790026.13424/1>

Appendix B provides guidelines for experienced Transact programmers for migrating Transact/V to Transact/iX.

A migration checklist is provided which should assist in the overall process. Debug features are very different for the two languages, as are the compiler options.

Migration from HP COBOL II/iX (31500A)

The HP COBOL II/iX product provides a straightforward migration path from COBOL II/V. Both products implement the 1985 ANSI COBOL standard with HP extensions; additionally, COBOL II/iX provides the 1989 ANSI Intrinsic Function module. The COBOL II/iX compiler provides several compiler options to aid in migration from CM, and a session-level variable, COBRUNTIME, can be used to closely simulate the behavior of COBOL II/V in the way run-time error conditions are handled. The *HP COBOL II/XL Migration Guide* (31500-90004)

<http://www.docs.hp.com/cgi-bin/doc3k/B3150090004.10451/1>

discusses the differences between the two products, source program conversion, data file conversion, and error messages, gives examples of specific changes required, and provides a migration checklist.

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