



IBM Rational Development Studio for i V7.1 continues to deliver tools and programming languages to create modern IBM i solutions

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Overview

IBM® Rational® Development Studio for i V7.1 delivers significant enhancements to the IBM i Integrated Language Environment® (ILE) compilers.

Key V7.1 enhancements

ILE RPG

- Sort and search data structure arrays
- Support for ALIAS names
- Built-in functions
- Prototypes are now optional
- Performance improvement for returning large values
- New options for XML-INTO
- Implicit parameter conversion between alphanumeric, UCS-2 and Graphic
- The listing debug view can be encrypted
- Support for the teraspace storage model
- Support for Open Access: RPG Edition

ILE COBOL

- Support for true integers and unsigned integers
- Improved performance for XML GENERATE
- OPTIMIZE(*NEVER) supports compiling very large programs
- Greater ease in specifying the VALUE clause for a national data item
- The listing debug view can be encrypted
- Support for the teraspace storage model
- New PROCESS statement options

ILE C

- Support for encryption of debug data

ILE C++

- Decimal floating-point support

- Support for C99 features
- Support for encryption of debug data

Application Development ToolSet (ADTS)

- New exit point to allow customers to monitor or disable changing source files using Source entry utility (SEU), Screen design aid (SDA), and Report Layout Utility (RLU)
- Features introduced to ILE RPG and ILE COBOL following the 6.1 release are not recognized by the syntax-checkers used by SEU

For ordering, contact your IBM representative, an IBM Business Partner, or IBM Americas Call Centers at 800-IBM-CALL (Reference: AE001).

Key prerequisites

For details, refer to the [Hardware requirements](#) and [Software requirements](#) sections.

Planned availability date

April 23, 2010

Description

ILE RPG V7.1 enhancements

- **Sort and search data structure arrays:** To sort or search a data structure array, one subfield is identified as the "key" for the array, using the syntax `ARRAY(*).KEYSUBFIELD`. The following examples sort the INFO array by the SALARY subfield and search for the name 'Jack' in the NAME subfield of the INFO array.

```
SORTA INFO(*).SALARY;
i = %LOOKUP('Jack' : INFO(*).NAME);
```

- **Support for ALIAS names**

- The ALIAS keyword can be specified on the File specification for an externally described file that will not have Input or Output specifications generated by the compiler. These are files specified with the QUALIFIED keyword, or files specified within subprocedures. When the LIKERECD keyword is used to define a data structure from one of the record formats of the file, the RPG subfield names will be taken from the alternate names of the fields rather than the short names.
- The ALIAS keyword can be specified on the Definition specification for an externally described data structure. The RPG subfield names will be taken from the alternate names of the fields rather than the short names.

```

A          R CUSTREC
A          CUSTNM      25A      ALIAS(CUSTOMER_NAME)
A          CUSTAD      25A      ALIAS(CUSTOMER_ADDRESS)
A          ID          10P 0

D custDs   e ds          ALIAS
D          QUALIFIED EXTNAME(custFile)

/free
custDs.customer_name = 'John Smith';
custDs.customer_address = '123 Mockingbird Lane';
custDs.id = 12345;
```

- **New and updated built-in functions**

- The %SCANRPL built-in function scans for all occurrences of a value within a string and replaces them with another value.

```
// Replace NAME with 'Tom'
string1 = 'See NAME. See NAME run. Run NAME run.';
string2 = %ScanRpl('NAME' : 'Tom' : string1);
// string2 = 'See Tom. See Tom run. Run Tom run.'
```

- New built-in function %PARMNUM can be used within a procedure to soft-code the number of a parameter.

```
D          pi
D name          100a  const varying
D id            10i  0  value
D errorInfo    likeds(errs_t)
D              options(*nopass)
/free
// Check if the "errorInfo" parameter was passed
if %parms >= %parmnum(errorInfo);
```

- Enhanced built-in function %LEN can now be used to obtain the maximum number of characters in a varying-length alphanumeric, UCS-2 or DBCS variable.

- **Optional prototypes:** If a program or procedure is not called by another RPG module, it is optional to specify the prototype. The prototype may be omitted for the following types of programs and procedures:

- A program that is only intended to be used as an exit program or as the command-processing program for a command
- A program that is only intended to be called from a different programming language
- A procedure that is not exported from the module
- A procedure that is exported from the module but only intended to be called from a different programming language

- **Performance improvement for returning large values:** A procedure defined with the RTNPARM keyword handles the return value as a hidden parameter. When a procedure is prototyped to return a very large value, especially a very large varying value, the performance for calling the procedure can be significantly improved by defining the procedure with the RTNPARM keyword.

```
D getFileData  pr          a  varying len(1000000)
D              rtnparm
D file          a  const varying len(500)
D data          s          a  varying len(1000)
/free
data = getFileData ('/home/mydir/myfile.txt');
```

- **New options for XML-INTO**

- The datasubf option allows you to name a subfield that will receive the text data for an XML element that also has attributes.
- The countprefix option reduces the need for you to specify the allowmissing=yes option. It specifies the prefix for the names of the additional subfields that receive the number of RPG array elements or non-array subfields set by the XML-INTO operation.

These options are also available through PTF SI34983 for 6.1.

- **Pass any type of string parameter:** Implicit conversion will be done for string parameters passed by value or by read-only reference. For example, a procedure can be prototyped to have a CONST UCS-2 parameter, and character expression can be passed as a parameter on a call to the procedure. This enables you to write a single procedure with the parameters and return value prototyped with the UCS-2 type. To call that procedure, you can pass any type of string parameter, and assign the return value to any type of string variable.

```
// The makeTitle procedure upper-cases the value
// and centers it within the provided length
alphaTitle = makeTitle(alphaValue : 50);
ucs2Title = makeTitle(ucs2Value : 50);
dbcsTitle = makeTitle(dbcsValue : 50);
```

- **Support for encryption of debug data:** A new debug encryption key compiler option, DBGENCKEY, is supported in the ILE RPG compiler. This option specifies

the key to be used to encrypt source code that is embedded in debug views of a module (for example, the Listing View debug view created by specifying the DBGVIEW(*LIST) compile option). An equivalent option is available on the start debug command, STRDBG, to specify the key for decryption of the encrypted debug views.

- **Support for the teraspace storage model**

- RPG modules and programs can be created to use the teraspace storage model or to inherit the storage model of their caller. With the teraspace storage model, the system limits regarding automatic storage are significantly higher than for the single-level storage model. There are limits for the amount of automatic storage for a single procedure and for the total automatic storage of all the procedures on the call stack.
- Use the storage model (STGMDL) parameter on the CRTRPGMOD or CRTBNDRPG command, or use the STGMDL keyword on the Control specification.
 - *TERASPACE: The program or module uses the teraspace storage model.
 - *SNGLVL: The program or module uses the single-level storage model.
 - *INHERIT: The program or module inherits the storage model of its caller.
- The default value of the ACTGRP parameter and Control specification keyword is changed from QILE to *STGMDL. ACTGRP(*STGMDL) specifies that the activation group depends on the storage model of the program. When the storage model is *TERASPACE, ACTGRP(*STGMDL) is the same as ACTGRP(QILETS). Otherwise, ACTGRP(*STGMDL) is the same as ACTGRP(QILE).
- Ability to allocate teraspace storage.

Use the ALLOC keyword on the Control specification to specify whether the RPG storage-management operations in the module will use teraspace storage or single-level storage. The maximum size of a teraspace storage allocation is significantly larger than the maximum size of a single-level storage allocation.

- **Support for Open Access: RPG Edition**

Open Access is a full-featured version of the limited support provided by RPG SPECIAL files. It provides a way for RPG programmers to use the simple and well-understood RPG I/O model to access devices that are not directly supported by RPG.

When the HANDLER keyword is specified on a File specification, the RPG compiler will generate code to use the specified handling procedure for I/O operations to the file rather than generating code to call the system's data management functions.

The HANDLER keyword can be used for any RPG device, DISK, PRINTER, or WORKSTN. The provider of the handling procedure can choose the RPG device-type that best fits the function that the handler provides. For example, a user-interface application could map to a WORKSTN file, an Excel document could map to a PRINTER file, and a Web service could map to a keyed DISK file.

To obtain the runtime enablement for these capabilities, customers should order IBM Rational Open Access: RPG Edition (5733-OAR).

ILE COBOL V7.1 enhancements

- **COMPUTATIONAL-5 (native binary) data type:** COMPUTATIONAL-5 or COMP-5 is a native binary data type now supported by the USAGE clause. COMP-5 data items are represented in storage as binary data, and can contain values up to the capacity of the native binary representation (2, 4, or 8 bytes). When numeric data is moved or stored into a COMP-5 item, truncation occurs at the binary field size rather than at the COBOL picture size limit. When a COMP-5 item is referenced, the full binary field size is used in the operation. This support will enhance portability to or from COBOL on other IBM platforms and operating systems.

- **Improved performance for XML GENERATE**

- Performance improvements have been made for XML GENERATE when the APPEND option is specified. Users who have a large number of data records to be appended into a data structure or into a stream file will benefit from these changes. The improvements include the addition of new PROCESS statement parameter XMLGEN with option values

- NOKEEPFILEOPEN / KEEPFILEOPEN

- Specify KEEPFILEOPEN to indicate that the XML stream file is to be left open and not closed when the XML GENERATE statement is complete, so that subsequent XML GENERATE FILE-STREAM APPEND statements can quickly append data to the stream file.

- NOASSUMEVALIDCHARS / ASSUMEVALIDCHARS

- Specify ASSUMEVALIDCHARS to have XML GENERATE bypass the checking for special characters (less-than, greater-than, ampersand, and the single and double-quote symbols), and for characters not supported by XML that would require being generated as hexadecimal. Otherwise normal checking will be done with the default NOASSUMEVALIDCHARS.

- Performance is improved for cases where the same COBOL data item is repeatedly output using XML GENERATE

- **Greater ease in specifying the VALUE clause for a national data item:** A non-numeric literal can be specified on the VALUE clause for a national data item.

- ```
77 NATIONAL-VAR PIC N(10) USAGE NATIONAL VALUE "HELLO".
```

- **Compile very large programs by disabling optimization:** When programs fail to compile due to reaching system limits, specifying OPTIMIZE(\*NEVER) or NEVEROPTIMIZE will cause the COBOL compiler to omit generating optimization code for the program, which may allow the program to compile.
- **Support for encryption of debug data:** A new debug encryption key compiler option, DBGENCKEY, is supported in the ILE COBOL compiler. This option specifies the key to be used to encrypt source code that is embedded in debug views of a module (for example, the Listing View debug view created by specifying the DBGVIEW(\*LIST) compile option). An equivalent option is available on the start debug command, STRDBG, to specify the key for decryption of the encrypted debug views.
- **Support for the teraspace storage model**
  - COBOL modules and programs can be created to use the teraspace storage model or to inherit the storage model of their caller. With the teraspace storage model, the system limits regarding automatic storage are significantly higher than for the single-level storage model. There are limits for the amount of automatic storage for a single procedure and for the total automatic storage of all the procedures on the call stack.
  - Use the storage model (STGMDL) parameter on the CRTCBMOD or CRTBNDCBL command, or use the STGMDL PROCESS option.
    - TERASPACE: The program or module uses the teraspace storage model.
    - SNGLVL: The program or module uses the single-level storage model.
    - INHERIT: The program or module inherits the storage model of its caller.
  - The default value of the ACTGRP command parameter is changed from QILE to \*STGMDL. ACTGRP(\*STGMDL) specifies that the activation group depends on the storage model of the program. When the storage model is \*TERASPACE, ACTGRP(\*STGMDL) is the same as ACTGRP(QILETS). Otherwise, ACTGRP(\*STGMDL) is the same as ACTGRP(QILE).
- **New PROCESS statement options**
  - ACTGRP is now available as a PROCESS statement parameter with option values
    - STGMDL
    - NEW
    - CALLER.
  - NEVEROPTIMIZE is now available as a PROCESS statement option

- STGMDL is now available as a PROCESS statement parameter with option values
  - INHERIT
  - SINGLVL
  - TERASPACE
- XMLGEN is now available as a PROCESS statement parameter with option values
  - NOKEEPFILEOPEN / KEEPFILEOPEN
  - NOASSUMEVALIDCHARS / ASSUMEVALIDCHARS

### ILE C V7.1 enhancements

**Support for encryption of debug data:** A new debug encryption key compiler option, DBGENCKEY, is supported in the ILE C compiler. This option specifies the key to be used to encrypt source code that is embedded in debug views of a module (for example, the Listing View debug view created by specifying the DBGVIEW(\*LIST) compile option). An equivalent option is available on the start debug command, STRDBG, to specify the key for decryption of the encrypted debug views.

### ILE C++ V7.1 enhancements

- **Decimal floating-point support**

- Allows floating-point computations to be performed using decimal arithmetic (base 10)
- Avoids potential rounding errors converting binary floating-point data to/from human readable formats
- Conforms to the decimal formats and arithmetic described in the IEEE 754-2008 Standard for Floating-Point Arithmetic
- Adds support to ILE C++ compiler, based on Draft Technical Report 24732 submitted to the ISO/IEC JTC1/SC22/WG14 Programming Language C committee
- New data types
  - \_Decimal32, 4 bytes, 7 digits precision, -95/+96 exponent
  - \_Decimal64, 8 bytes, 16 digits precision, -383/+384 exponent
  - \_Decimal128, 16 bytes, 34 digits precision, -6143/+6144 exponent
- Includes new decimal floating-point literals: 1.0df, 1.0dd, and 1.0dl
- Conversions to/from C++ built-in data types, such as integers and binary floating-point types
- Includes DECFLTRND option on C++ compiler commands (CRTCPPMOD, CRTBNDCPP) to control compile-time decimal floating-point rounding mode

- **Support for C99 features:** The ILE C++ compiler has been enhanced to support many of the C99 features defined in the ISO/IEC 9899:1999 C language standard. Some of the new C99 features now supported include:

- \_Pragma operator
- \_\_func\_\_ predefined identifier
- hexadecimal floating-point literals
- variable length arrays
- empty arguments for function-like macros
- variable number of arguments for function-like macros

- **Support for encryption of debug data:** A new debug encryption key compiler option, DBGENCKEY, is supported in the ILE C++ compiler. This option specifies the key to be used to encrypt source code that is embedded in debug views of a module (for example, the Listing View debug view created by specifying the DBGVIEW(\*LIST) compile option). An equivalent option is available on the start debug command, STRDBG, to specify the key for decryption of the encrypted debug views.

## ADTS V7.1 enhancements

- **New exit point to allow customers to monitor or disable changing source files using SEU, SDA, RLU**

Exit point QIBM\_QSU\_ALW\_EDIT is added for SEU, SDA and RLU. The exit program associated with the exit point will receive parameters indicating the library, file, and member of the source file. The exit program can then determine if the current job should be allowed to continue with the operation that will change the source file and set the "Allow" parameter to '2' to indicate that the operation should not be allowed to continue, and to any other value to indicate that the operation should be allowed to continue.

The exit point format is EXTP0100.

The parameters for the exit program are LIBRARY, FILE, MEMBER, ALLOW:

- LIBRARY CHAR(10)
  - FILE CHAR(10)
  - MEMBER CHAR(10)
  - ALLOW CHAR(1)
- **SEU syntax checking is frozen at the 6.1 level for RPG and COBOL:**  
Features introduced to ILE RPG and ILE COBOL following the 6.1 release are not recognized by the syntax-checkers used by SEU.

### **Accessibility by people with disabilities**

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A U.S. Section 508 Voluntary Product Accessibility Template (VPAT) containing details on accessibility compliance can be requested at

[http://www.ibm.com/able/product\\_accessibility/index.html](http://www.ibm.com/able/product_accessibility/index.html)

### **Section 508 of the U.S. Rehabilitation Act**

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IBM Rational Development Studio for i V7.1 is capable as of April 23, 2010, when used in accordance with IBM's associated documentation, of satisfying the applicable requirements of Section 508 of the Rehabilitation Act, provided that any assistive technology used with the product properly interoperates with it. A US Section 508 Voluntary Product Accessibility Template (VPAT) can be requested via the IBM Web site at

[http://www-03.ibm.com/able/product\\_accessibility/index.html](http://www-03.ibm.com/able/product_accessibility/index.html)

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## **Reference information**

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Software Announcement [208-013](#), dated January 29, 2008.

Software Announcement [210-114](#), dated April 13, 2010.

### **Business Partner information**

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If you are a Direct Reseller - System Reseller acquiring products from IBM, you may link directly to Business Partner information for this announcement. A PartnerWorld® ID and password are required (use IBM ID).

<https://www.ibm.com/partnerworld/mem/sla.jsp?num=210-105>

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## Program number

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| Program number | VRM | Program name                          |
|----------------|-----|---------------------------------------|
| 5770-WDS       | 7.1 | IBM Rational Development Studio for i |

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## Product identification number

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| Program PID number | Maintenance 1 year PID number | Maintenance 3 year PID number    | Maintenance 3 month PID number |
|--------------------|-------------------------------|----------------------------------|--------------------------------|
| 5770-WDS           | 5733-SPP<br>5733-SPM          | 5733-SPE<br>5733-SP3<br>5733-SPO | 5733-SPN                       |

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## Offering Information

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Product information is available via the Offering Information Web site

<http://www.ibm.com/common/ssi>

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## Publications

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No publications are shipped with this program.

The IBM Publications Center

<http://www.ibm.com/shop/publications/order>

The Publications Center is a worldwide central repository for IBM product publications and marketing material with a catalog of 70,000 items. Extensive search facilities are provided. Payment options for orders are via credit card (in the U.S.) or customer number for 20 countries. A large number of publications are available online in various file formats, and they can all be downloaded by all countries, free of charge.

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## Technical information

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### Specified operating environment

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#### *Hardware requirements*

The following IBM i 7.1 Power® processor-based servers and blades are supported:

- POWER7™: 8233-E8B, 9117-MMB, 9179-MHB, 8406-70Y, and 8406-71Y
- POWER6™ and POWER6+™: 9407-M15, 9408-M25, 9409-M50, 8203-E4A, 8204-E8A, 8234-EMA, 8261-E4S, 9406-MMA, 9117-MMA, 9119-FHA, 7998-60X, 7998-61X, 7778-23X
- POWER5™ and POWER5+™: 9405-520, 9407-515, 9406-520, 9406-525, 9406-550, 9406-570, and 9406-595

Memory and disk space:



| Option                          | Auxiliary storage                                                                                                                                        |
|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Base                            | 35 MB                                                                                                                                                    |
| Option 60 Workstation Tools     | 3 MB                                                                                                                                                     |
| ILE compilers                   |                                                                                                                                                          |
| ILE RPG                         | 14 MB                                                                                                                                                    |
| ILE RPG *PRV Compiler           | 25 MB                                                                                                                                                    |
| ILE COBOL                       | 27 MB                                                                                                                                                    |
| ILE COBOL *PRV Compiler         | 47 MB                                                                                                                                                    |
| ILE C                           | 96 MB                                                                                                                                                    |
| ILE C++                         | 64 MB                                                                                                                                                    |
| IXLC for C/C++                  | .5 MB                                                                                                                                                    |
|                                 | The C++ compiler requires a machine capable of running the Portable Application Solutions Environment or PASE (option 33 of the IBM i Operating System). |
| Heritage compilers              |                                                                                                                                                          |
| S/36 Compatible RPG II          | 7 MB                                                                                                                                                     |
| S/38 Compatible RPG III         | 4 MB                                                                                                                                                     |
| RPG/400®                        | 5 MB                                                                                                                                                     |
| S/36 Compatible COBOL           | 6 MB                                                                                                                                                     |
| S/38 Compatible COBOL           | 5 MB                                                                                                                                                     |
| OPM COBOL                       | 7 MB                                                                                                                                                     |
| Application Development ToolSet | 22 MB                                                                                                                                                    |

### **Software requirements**

- IBM Rational Development Studio for i V7.1 requires IBM i V7.1 (5770-SS1).
- The C and C++ compilers require the "System Openness Includes" (option 13 of 5770-SS1). Installing the "System Openness Includes" is optional for RPG and COBOL. The C++ compiler requires the Portable Application Solutions Environment or PASE (option 33 of 5770-SS1). To use the ixlc shell command, the Qshell interpreter (option 30 of 5770-SS1) must be installed.
- Some components will need additional PTFs. The PTF information is available at <http://www.ibm.com/software/awdtools/wds400/support/>

The program's specifications and specified operating environment information may be found in documentation accompanying the program, if available, such as a README file, or other information published by IBM, such as an announcement letter. Documentation and other program content may be supplied only in the English language.

### **Planning information**

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#### **Packaging**

IBM Rational Development Studio for i v7.1 is shipped on DVD and is also available for download using the Entitled Software Support Web Site

<http://www.ibm.com/servers/eserver/ess>

## Security, auditability, and control

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IBM Rational Development Studio for i v7.1 uses the security and auditability features of the IBM i. The customer is responsible for evaluation, selection, and implementation of security features, administrative procedures, and appropriate controls in application systems and communication facilities.

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## Software Services

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IBM Software Services has the breadth, depth, and reach to manage your services needs. You can leverage the deep technical skills of our lab-based, software services team and the business consulting, project management, and infrastructure expertise of our IBM Global Services team. Also, we extend our IBM Software Services reach through IBM Business Partners to provide an extensive portfolio of capabilities. Together, we provide the global reach, intellectual capital, industry insight, and technology leadership to support a wide range of critical business needs.

To learn more about IBM Software Services or to contact a Software Services sales specialist, visit

<http://www.ibm.com/software/sw-services/>

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## Ordering information

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### *Charge metric*

| Program name                          | PID number | Charge metric                      |
|---------------------------------------|------------|------------------------------------|
| IBM Rational Development Studio for i | 5770-WDS   | Processor based and Per named user |

### **Named user**

A named user is one and only one named individual within or outside your enterprise which is recorded in a registry (for example, table, directory, file) maintained by you. A PoE must be obtained for each individual user accessing the program in any manner. A program licensed under a registered user PoE may be installed on a single computer or server, and accessed by multiple users, provided that a PoE has been obtained for each individual user accessing the program either directly or indirectly (via a multiplexing program, device, or application server) through any means on behalf of the user.

For features ordering information, refer to Software Announcement [210-083](#), dated April 13, 2010.

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## Terms and conditions

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The information provided in this announcement letter is for reference and convenience purposes only. The terms and conditions that govern any transaction with IBM are contained in the applicable contract documents such as the IBM International Program License Agreement, IBM International Passport Advantage® Agreement, and the IBM Agreement for Acquisition of Software Maintenance.

### *Licensing*

IBM International Program License Agreement including the License Information document and Proof of Entitlement (PoE) govern your use of the program. PoEs are required for all authorized use.

### **Agreement for Acquisition of Software Maintenance**

The IBM Agreement for Acquisition of Software Maintenance (Z125-6011) agreement applies for subscription and support (also referred to as Software Maintenance) and does not require customer signatures.

These programs are licensed under the IBM Program License Agreement (IPLA) and the associated Agreement for Acquisition of Software Maintenance, which provide for support with ongoing access to releases and versions of the program. IBM includes one year of Software Subscription and Support (also referred to as Software Maintenance) with the initial license acquisition of each program acquired. The initial period of Software Subscription and Support (also referred to as Software Maintenance) can be extended by the purchase of a renewal option, if available. These programs have a one-time license charge for use of the program and an annual renewable charge for the enhanced support that includes telephone assistance (voice support for defects during normal business hours), as well as access to updates, releases, and versions of the program as long as support is in effect.

### **License Information form number**

GC52-1360-00

The program's License Information will be available for review on the IBM Software License Agreement Web site

<http://www.ibm.com/software/sla/sladb.nsf>

### **Limited warranty applies**

Yes

### **Limited warranty**

IBM warrants that when the program is used in the specified operating environment, it will conform to its specifications. The warranty applies only to the unmodified portion of the program. IBM does not warrant uninterrupted or error-free operation of the program or that IBM will correct all program defects. You are responsible for the results obtained from the use of the program.

IBM provides you with access to IBM databases containing information on known program defects, defect corrections, restrictions, and bypasses at no additional charge. For further information, consult the IBM Software Support Handbook found at

<http://www.ibm.com/support/handbook>

IBM will maintain this information for at least one year after the original licensee acquires the program (warranty period).

### **Program technical support**

Technical support of a program product will be available for a minimum of five years from the general availability date, as long as your Software Subscription and Support (also referred to as Software Maintenance) is in effect. This technical support allows you to obtain assistance (via telephone or electronic means) from IBM for product-specific, task-oriented questions regarding the installation and operation of the program product. Software Subscription and Support (Software Maintenance) also provides you with access to updates, releases, and versions of the program. You will be notified, via announcement letter, of discontinuance of support with 12 months' notice. If you require additional technical support from IBM, including an extension of support beyond the discontinuance date, contact your IBM representative or IBM Business Partner. This extension may be available for a fee.

**Money-back guarantee**

If for any reason you are dissatisfied with the program and you are the original licensee, you may obtain a refund of the amount you paid for it, if within 30 days of your invoice date you return the program and its PoE to the party from whom you obtained it. If you downloaded the program, you may contact the party from whom you acquired it for instructions on how to obtain the refund.

For clarification, note that for programs acquired under any of IBM's On/Off Capacity on Demand (On/Off CoD) software offerings, this term does not apply since these offerings apply to programs already acquired and in use by you.

**Authorization for use on home/portable computer**

You may not copy and use this program on another computer without paying additional license fees.

**Volume orders (IVO)**

Yes. Contact your IBM representative.

**IBM International Passport Advantage Agreement****Passport Advantage applies**

No

**Software Subscription and Support (Software Maintenance) applies**

No. For operating system software, the revised IBM Operational Support Services - SoftwareXcel offering will provide support for those operating systems and associated products that are not available with the Software Subscription and Support (Software Maintenance) offering.

This will ensure total support coverage for your enterprise needs, including IBM and selected non-IBM products. For complete lists of products supported under both the current and revised offering, visit

<http://www.ibm.com/services/sl/products>

**IBM Operational Support Services - SoftwareXcel**

No

**System i Software Maintenance applies**

Yes

**Variable charges apply**

No

**Educational allowance available**

Yes. A 15% education allowance applies to qualified education institution customers.

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**IBM Electronic Services**

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IBM has transformed its delivery of hardware and software support services to help you achieve higher system availability. Electronic Services is a Web-enabled solution that offers an exclusive, no-additional-charge enhancement to the service and support available for IBM servers. These services are designed to provide the opportunity for greater system availability with faster problem resolution

and preemptive monitoring. Electronic Services comprises two separate, but complementary, elements: Electronic Services news page and Electronic Services Agent.

The Electronic Services news page is a single Internet entry point that replaces the multiple entry points traditionally used to access IBM Internet services and support. The news page enables you to gain easier access to IBM resources for assistance in resolving technical problems.

The Electronic Service Agent™ is no-additional-charge software that resides on your server. It monitors events and transmits system inventory information to IBM on a periodic, client-defined timetable. The Electronic Service Agent automatically reports hardware problems to IBM. Early knowledge about potential problems enables IBM to deliver proactive service that may result in higher system availability and performance. In addition, information collected through the Service Agent is made available to IBM service support representatives when they help answer your questions or diagnose problems. Installation and use of IBM Electronic Service Agent for problem reporting enables IBM to provide better support and service for your IBM server.

To learn how Electronic Services can work for you, visit

<http://www.ibm.com/support/electronic>

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## Prices

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Information on charges is available at

<http://www.ibm.com/support>

Choose the option entitled Purchase/upgrade tools.

For prices, refer to Software Announcement [210-083](#), dated April 13, 2010.

### **Passport Advantage**

For Passport Advantage information and charges, contact your IBM representative or authorized IBM Business Partner for Software ValueNet®. Additional information is also available at

<http://www.ibm.com/software/passportadvantage>

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