

# AllFusion® Gen

## Release Summary

r75



Computer Associates®

First Edition

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# Chapter 1: New Features

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If you are migrating from an earlier release of COOL:Gen, Advantage Gen, or AllFusion Gen, review the Release Summaries from the intermediate releases to understand the changes that have occurred to the product since your earlier release. You can find these documents on <http://supportconnect.ca.com>.

The following major enhancements have been added to AllFusion® Gen r7.5 (formerly known as Advantage™ Gen). For a list of changes to the existing features, see the chapter “Changes to Existing Features.”

## Precision Math Libraries

Prior releases of AllFusion Gen used Rogue Wave’s decimal precision math libraries as the underlying technology for performing precision math. Starting with AllFusion Gen r7.5, the underlying technology has changed.

Applications have less CPU usage compared to prior releases. The amount of improvement depends on the application. Applications with long complex expressions or many database accesses using Oracle, Microsoft SQL Server, or ODBC have the most improvement. Even with the improvements, this library is orders of magnitude slower than using the native C-language double data type, which yields incorrect results in many occurrences.

All C-generated applications are affected by this change as the underlying runtimes have been modified.

You do not need to regenerate an application’s DDL or Referential Integrity Triggers.

The application’s load modules may require regeneration depending on whether the application has views with attributes implemented with Decimal Precision. To determine quickly whether the application has attributes implemented with Decimal Precision from the C source code, search for “rwfixed.” If the search returns lines similar to the following example, it indicates the application has views with attributes implemented with Decimal Precision.

```
rwfixed <attribute_name>_<number>;
```

For example:

```
rwfixed principal_006[500];
```

Ignore all lines similar to the following:

```
static rwfixed RWfixed#
```

These are temporary variables that can safely be ignored.

If the application does not have attributes implemented with Decimal Precision, you can re-link it to gain access to the new runtimes. If the application has not been compiled with the C compiler listed in the AllFusion Gen Technical Requirements, you may need to recompile the application as required by the C compiler vendor. For more information about intermixing object code from different versions of the C compiler, see the vendor's documentation.

C-generated applications that have attributes implemented with Decimal Precision have the following changes. In prior releases, a proprietary data structure was generated into the views of an application. Starting with AllFusion Gen r7.5, a non-proprietary variable size character array is used to store each decimal precision attribute. The size of the array depends upon the attribute's properties. For example, if the decimal precision attribute Salary is defined to be a Number of length 15, where 2 are decimals, the following appears in the generated C code:

```
DPrec salary_<number>[18];
```

DPrec is a typedef of char.

The new library detects error conditions such as *divide by zero* and *overflow*. Consequently, the names and calling signatures of the routines within the decimal precision runtimes have changed.

C-generated applications that have attributes implemented with Decimal Precision generated prior to AllFusion Gen r7.5 will fail to compile or execute. You must regenerate all Procedure Step Action Blocks, Common Action Blocks, and External Action Blocks with attributes implemented with Decimal Precision. You must regenerate all Dialog Managers, Window Managers, and Server Managers that manage Procedure Steps with decimal precision attributes.



You must modify C external action blocks with attributes implemented with Decimal Precision to use the new data structure. If you have external action blocks that use a private copy of Rogue Wave, you can continue to use it. Convert the character array to and from the proprietary Rogue Wave data type. For more information about converting to and from the Rogue Wave data type, see the vendor's documentation. For information about storing the resulting character string in the export view, see *Decimal Precision Attributes in the AllFusion Gen Workstation Construction Guide, AllFusion Gen Implementation Toolset Guide for Windows, or AllFusion Gen Implementation Toolset Guide for UNIX and Linux.*

You must regenerate the C Proxies generated with AllFusion Gen r7.5 that have attributes implemented with Decimal Precision and you must modify these proxies to use the new data structure. For more information about storing numeric data in the import view, see the *AllFusion Gen Distributed Processing – Proxies Guide.*

You must regenerate the COM Proxies generated with AllFusion Gen r7.5 that have attributes implemented with Decimal Precision. No other code changes are required.

Generated clients can interoperate with C-generated servers from different versions of AllFusion Gen. The generated clients must use either the AllFusion Gen Cooperative Runtime, the AllFusion Gen TCP/IP Cooperative Runtime or the AllFusion Gen WebSphere MQ Cooperative Runtime. These cooperative runtimes use the Common Format Buffer, which insulates the applications from the data representation of a decimal precision attribute.

A C or Java-generated client using the Tuxedo Cooperative Runtime can only interoperate with Tuxedo servers that use the same implementation of a decimal precision attribute. The Tuxedo Cooperative Runtime passes the decimal precision data structure in the cooperative flow. Therefore, an AllFusion Gen r7 client can only interoperate with an AllFusion Gen r7 Tuxedo server. An AllFusion Gen r7 client cannot interoperate with AllFusion Gen r7.5 Tuxedo servers.

For Java clients accessing the C-generated Servers running under Tuxedo, regenerate the Java Code with AllFusion Gen r7.5 and reload the JVF files for the target servers into the Jolt repository.

## Changes in Application Behavior

Applications may behave differently using the new decimal precision library.

Error conditions such as divide by zero and overflow result in an error that terminates the application.

An overflow occurs when the absolute value of the resulting number is too large to be represented by the defined size of the attribute. For example, an attribute defined as a number with a length of 8 of which 2 are decimal places will overflow if the absolute value of the resulting number, after being rounded or truncated, is greater than 999,999.99. Any value less than 0.01 is either rounded or truncated depending on the definition of the SET statement in the action diagram.

The largest number AllFusion Gen can represent is limited to 18 digits, where zero to 18 can be decimal places. However, intermediate values within expressions are limited to 36 digits. For example:

SET result ROUNDED TO value1 \* value 2 / value3

The expression (value1 \* value 2 / value3) has a limit of 36 digits. The attribute result is limited by its definition in the model, which can be up to 18 digits. An overflow can occur on the rounding operation.

The prior version of the decimal precision library returned an incorrect result when a negative integer number was passed into the decimal precision exponent functions. The new library returns the correct result.

The prior version of the decimal precision library returned an incorrect result when two numbers were multiplied if the result contained more than 28 digits. For example, multiplying the numbers 0.11111111111111 and 1.11111111111111 resulted in an incorrect 29-digit number. The new library returns the correct result.

## Documentation Change

In prior releases, the information for selecting decimal precision attributes was in the *AllFusion Gen Workstation Construction Guide*. This information has been moved to the *AllFusion Gen Analysis Guide* within the discussion of the Technical Design properties for an attribute.

Information about the coding of External Action Blocks with Decimal Precision attributes has been added to the *AllFusion Gen Workstation Construction Guide*, *AllFusion Gen Implementation Toolset Guide for Windows*, or *AllFusion Gen Implementation Toolset Guide for UNIX and Linux*.

## Using Exponents

The following information about exponents is not a change from prior releases of AllFusion Gen; however, if you use the Decimal Precision feature, this information may be of interest.

The generators create a call to the C library function `pow()` under certain conditions rather than a call to the equivalent decimal precision function. The `pow()` function takes parameters of type *double* and results in a value that is also a double.

The decimal precision exponent function is used only when an integer attribute is being used as the “to the power of” value. An integer attribute is a numeric attribute with a length of nine or less and no decimal places. For example, part of a payment calculation raises a value to the number-of-months. If the number-of-months is held in an integer attribute, the decimal precision routine is used. If the number-of-months is a numeric literal, held in any other type of attribute, or is part of an expression, the `pow()` function is used and the conversion to and from doubles are performed.

## Linux

The AllFusion Gen Implementation Toolset, Transaction Enabler, and User Funnel have been ported to Linux running on Intel x86 (or compatible) 32-bit hardware.

Online block mode and distributed process server applications can be generated to target Linux using the C language. The generated applications use embedded SQL to access Oracle or IBM DB2 UDB databases. The AllFusion Gen-generated clients can access the distributed process servers by using the AllFusion Gen communications runtimes or the AllFusion Gen TCP/IP communications runtimes.

Generation can take place on the Windows Workstation or the CSE. The remote files are moved to the Linux system for construction using the common Windows/UNIX/Linux build tool.

These features have been tested on SuSE Linux Enterprise Server (SLES) 9 and Red Hat Enterprise Linux AS/ES (RHEL) 4.0 running on Intel x86 32-bit hardware. However, you can use any Linux distribution that meets the requirements as stated in the AllFusion Gen Technical Requirements document.

The Linux products and the cross-generation to Linux capabilities are licensed separately.

The following products are currently available on HP-UX or other UNIX platforms but are not available for Linux:

- All encyclopedia products (server, APIs, etc.)
- Tuxedo as a TP Monitor or a middleware
- C Proxy Client Programming Interface
- TCP/IP or WebSphere MQ middleware used by the C Proxy client.

These products may be offered in the future as demand develops.

## Accessibility Feature for Java Web Generation Applications

Many countries have regulations that require electronic and information technology be accessible to people with disabilities. AllFusion Gen r7.5 lets you use Web Generation applications through the keyboard, without the need for a mouse. Web Generation applications generated with AllFusion Gen r7.5 can be read by specialized accessibility software. All controls generated by AllFusion Gen's Java Web Generation feature comply with accessibility requirements including being keyboard-enabled. This solution only targets Java Web Generation applications.

## Dynamic Cascading Style Sheets in Java Web Generation

In Java Web Generation, the controls generated in an HTML file contain inline style attributes derived from the following properties:

- Business System default video properties
- Window video properties
- Control video properties

This new feature supports the generation of video properties as cascading style sheets instead of inline style attributes. This feature lets you modify a business system cascade style sheet and influence the appearance of all windows and controls in a business system. In addition, you can provide an overriding CSS file to supersede the style statements in a generated BusinessSystemName.css.

## Listboxes in Web Generation

The number of rows displayed in a listbox at runtime now matches the number of rows at design time. If you have an existing model and encounter a situation where you have a listbox whose number of rows differs between design and runtime, you must open and close the window containing the listbox exhibiting the discrepancy. Then, you must regenerate that window. This process lets the Toolset save the correct number of rows in the model for later use at generation and runtime.

## CD Install for z/OS IT, Host Encyclopedia, and Host API

The AllFusion Gen r7.5 z/OS IT, Host Encyclopedia, and Host API products are delivered in a WinZip file on a Windows compatible CD-ROM. You must expand the files on the CD-ROM to a workstation and transfer the files to the target z/OS system. AllFusion Gen z/OS products are no longer shipped on tape.

Download distribution of z/OS products are deployed in a similar WinZip format, where you must expand the files onto a workstation and transfer the files to the target z/OS system.

For more information about installing the z/OS IT, see the *AllFusion Gen Implementation Toolset Installation Guide for z/OS*. For more information about installing the Host Encyclopedia and Host API, see the *AllFusion Gen Installation Guide for Host Encyclopedia and Host Construction*.

## z/OS Runtime Enhancements

In AllFusion Gen r7, the C components of the z/OS Gen runtime were converted to IBM C. This conversion lets AllFusion Gen support dynamic linking of runtime and the use of DLLs.

As with AllFusion Gen r7, the z/OS AllFusion Gen r7.5 runtime modules must reside in PDSE libraries.

The AllFusion Gen r7.5 z/OS runtime is a multi-language execution environment made up of C, COBOL, and Assembler code. These runtimes have been updated to full IBM LE conformance. They have been updated to use the standard LE call interface, which reduces the complexity of the runtime code. The runtimes have been made fully re-entrant and threadsafe, which enhances the reliability and performance of the runtime and generated applications they support.

AllFusion Gen r7.5 exploits LE storage management within the assembler routines, eliminating the need for frequent calling of GETMAIN and FREEMAIN, which reduces CPU usage for runtime modules within certain generated applications, such as batch jobs.

AllFusion Gen's C and COBOL runtimes use similar functionality. Migrating AllFusion Gen's Assembler code to LE functionality decreases the number of OS storage calls resulting in a decrease use of CPU when a generated application invokes the various Assembler runtime functions. The benefit of this change depends on your LE heap and stack settings and how each generated application uses these runtimes (block mode versus batch versus distributed processing server).

Most Assembler and COBOL runtimes are implemented as dlls. Since these runtimes are dynamically loaded, a single copy of the runtime is shared by multiple processes. The overall load module size for a Gen application decreases significantly. AllFusion Gen r7.5 offers improved serviceability from prior releases by letting you update the runtime without requiring that the maintenance items be statically linked into every generated application. Maintenance applied to a dll is available to all generated applications that use the dll.

Updates made to the z/OS runtimes that culminate in AllFusion Gen r7.5 provide the basis for future AllFusion Gen z/OS feature enhancements.

The TSOAE environment used by the z/OS IT and the Application Test Facility is implemented as a 31-bit, LE compliant application. The use of 24-bit storage is limited to those TSO and I/O functions that require being addressed below the 16-MB line. This version of TSOAE provides virtual storage constraint relief for testing and/or implementing large Gen applications within TSO and batch.

## z/OS Application Migration

There are different application migration requirements depending on the AllFusion release that the application is migrating from.

AllFusion Gen applications are built using either static or dynamic linkage to control how Procedure Steps, Action Blocks and/or Screens are invoked by their invoking application component. Specifying "Yes" to the Dynamic Linkage option of a Procedure Step, Action Block or Screen, results in that component being dynamically called by its invoking program component. Specifying "No", results in that application component being statically invoked.

**Note:** The default Dynamic Linkage attribute for a model's Procedure Steps, Action Blocks and Screens can be set for the Business System.

## Migrating from r7

Migrating from AllFusion Gen r7 to r7.5 requires that all existing code be reinstalled to re-link the application.

When using Host Construction to re-link an application without recompiling it, ensure that either the *Link-edit load module* option or the *Link-edit dynamically linked modules* option is selected. This selection should be set to the same type of linkage that was used to build the original r7 application.

When using the Implementation Toolset for z/OS, you must use r7.5 Scripts invoked by an r7.5 Target that has been defined to point to the same locations (data sets) that were used to build the original application. To re-link (but not recompile) an application, select only the Register, Compose, Execute and Install options of the Detailed IP Action Menu for the existing IP. Do not select the Split option.

## Migrating from r6.5 and Earlier Releases

Migrating from releases earlier than AllFusion Gen r7 to r7.5 requires some components to be regenerated and all components to be recompiled and re-linked regardless of the application type or the type of linkage used between application components. The option "Force compile of all components" can be used to recompile and re-link all application components except for EABs or User exits, which must be done separately.

AllFusion Gen r7.5 runtimes and generated code must reside in PDSE libraries. When migrating from previous releases of AllFusion Gen using Host Construction, ensure that the Business System data sets specified for NCAL, Executable, and RI Trigger Compiled load modules are allocated as PDSEs before recompiling existing applications. Likewise, when migrating from previous releases of AllFusion Gen using the Implementation Toolset, ensure that the Business System data sets specified for the NCAL, Exe, Impl, RI Load Lib locations are allocated as PDSEs before processing the r7.5 script.

The following table describes the actions required:

<b>Application Type</b>	<b>Component Requiring Regeneration</b>	<b>Component Requiring Reinstall (Recompile and Re-link)</b>
TSO block mode, standard map	None	All Components
TSO block mode, enhanced map	Map	All Components
Batch	None	All Components
IMS block mode, standard map	None	All Components
IMS block mode, enhanced map	Map	All Components
CICS block mode, standard map	None	All Components
CICS block mode, enhanced map	Map	All Components
IMS server	Server Manager	All Components
CICS server	Server Manager	All Components
Trace	Any component to be traced	All Components

## EAB Migration

When an External Action Block has its associated Dynamically Link option set to "Yes," migrating to AllFusion Gen r7.5 requires the EAB to be recompiled and reinstalled as a DLL. If the EAB dynamically calls other user programs, those user programs must also be built as DLLs. For more information about EABs, see the *AllFusion Gen Host Encyclopedia Construction Guide* or the *AllFusion Gen Implementation Toolset Guide for z/OS*.



## z/OS Runtime User Exits

Review the AllFusion Gen r7.5 product documentation for updates to the JCL used to build the z/OS Runtime User Exits. You can find information on z/OS user exits in the following AllFusion Gen documents:

- *AllFusion Gen Installation Guide for Host Encyclopedia and Host Construction*
- *AllFusion Gen Implementation Toolset Installation Guide for z/OS*
- *AllFusion Gen Host Encyclopedia Construction Guide*
- *AllFusion Gen Implementation Toolset Guide for z/OS*
- *AllFusion Gen Distributed Processing - Overview*

## z/OS CICS TCP/IP Direct Connect Sockets Server

The AllFusion Gen CICS TCP/IP Direct Connect product provides two implementations that use CICS TCP/IP Sockets.

The original implementation remains unchanged except for changes in the use of DLLs. In AllFusion Gen r7.5, the user exit TIRSDTN is a DLL and is no longer statically linked to TICONMGR or server applications. This implementation supports the use of long running connections between client applications and CICS using a connection manager program known as TICONMGR.

In AllFusion Gen r7.5, the CICS TCP/IP Direct Connect product provides an alternate implementation for applications that do not require a long running connection. Web applications that initiate cooperative flow requests typically do not require long-lived connections. This new Socket Server implementation provides a new listener application, TISRVLIS. This new listener passes access to the TCP/IP socket directly to the Gen Server Manager causing the Server Manager to be connected directly to the requesting client application for processing a single cooperative flow request. When the execution of the Gen Server Manager completes, the connection to the socket is closed.

## Component Manager

The AllFusion Gen Component Manager facilitates Component Based Development (CBD) in the AllFusion Gen product family. It supports the CBD methodology with three basic functions:

- Browsing in one or more encyclopedias, viewing models, and the component and interface information in those models.
- Managing the transfer of component specification information from a component implementation model to a model that uses some or all of the services of the component through a drag and drop graphical user interface
- Conversion of models prepared according to the CBD 96 standard into models consistent with the CS/3.0 standard.

The Component Manager supports models in 9.0.A2 and 9.1.A5 schema on the Client Server and Host Encyclopedias and 9.1.A5 on the Local Encyclopedia.

The Component Manager supports access to models stored in the following repositories:

- Windows Toolset internal repository
- Windows SQL Server CSE
- Windows Oracle CSE
- HP-UX Oracle CSE
- AIX Oracle CSE
- z/OS DB2 Host Encyclopedia

The Component Manager is delivered in the MSI installation format, so you can install it interactively or by using Unicenter Software Delivery. The AllFusion Gen r7.5 version is available through web download only on the CA SupportConnect web site.

In this release, the Component Manager installation and user documentation is delivered in a single book rather than distributed in several books as it was in AllFusion Gen r6.5. The CBD standards document remains as a separate book.

## ASP.NET Enhancements

AllFusion Gen r7.5 enhances ASP.NET support. Changes range from performance to new features mainly to match Web Generation in AllFusion Gen r7.

### Customizable Close and Help Buttons

The customizable CLOSE and HELP buttons feature in the Toolset lets you override the default user interface of these buttons at the Business System level through its Web Properties. These property settings were supported for Web Generation in r7 and are now supported for ASP.NET Web Client applications in AllFusion Gen r7.5. In AllFusion Gen r7, the HELP button with a value of '?' and CLOSE button with a value of 'X' were always generated in the windowName.xml file for C# ASP.NET applications. In AllFusion Gen r7.5, you can continue to generate them, customize them, or suppress their generation.

### Support SetBitmapName

AllFusion Gen r7 supports displaying a bitmap in an ASP.NET target environment by using Add->Picture. In AllFusion Gen r7, GUI and Java Web Generation environments were certified to have the capability to dynamically change a bitmap using SetBitmapName with dot notation for a Bitmap (Picture) Window Object. In AllFusion Gen r7.5, you can dynamically change a bitmap at runtime in ASP.NET Web Clients.

In addition, SetBitmapName updates the BitmapName property for a bitmap and can be accessed by Action Diagram Statements.

### CBD Techniques in ASP.NET

Component Based Development lets both business process components and human interface components be designed, assembled, and sold as discrete components. You can assemble consumed components into an application without modifying any component code.

In AllFusion Gen r7, you could generate, build, assemble, and deploy your applications and consumed components as ASP.NET Web Client applications. You only had to use the same Application Name across all components expected to communicate. AllFusion Gen r7.5 certifies this approach as a supported mechanism for using CBD in an ASP.NET Web Client environment.

## Dynamic Images and Multi-State Bitmaps

The GUI runtime supports multi-state bitmaps natively. When Java Web Generation clients were implemented, no native support existed for multi-state bitmaps. An approach using multiple sub-bitmaps of the original bitmap and JavaScript was developed to mimic the GUI behavior in both Web Generation in AllFusion Gen r7 and ASP.NET Web Clients in AllFusion Gen r7.5. This approach provides a different image in a different file for each state. The alternative images use the image name in the model as a base and append text to it for the four different supported states: enabled, disabled, pushed, and focused. If myimage is the name saved in the model, the series of images used are myimage.jpg for the enabled state, myimage\_disabled .jpg for the disabled state, myimage\_ pushed .jpg for the pushed state, and myimage\_focused .jpg for the focused state. These images must be placed in the html\images\ directory.

## Varying and Fixed Size Tables

Support for Fixed and Varying size tables has been extended to ASP.NET. Fixed Size Tables are created on a page using the size specified in Window Design. No scroll bars are attached to a Fixed Size Table control. A Varying Size Table grows or shrinks vertically as the number of contained rows changes. Varying Size Tables also do not have scroll bars. Controls directly below a Varying Size Table are moved to accommodate the size of the table.

## Hypertext Links

In AllFusion Gen r7.5, three types of hypertext links are supported in HTML Mode:

- Hypertext Link->Book Mark
- Hypertext Link->Open New Browser Window
- The Pushbutton properties dialog box has the check box 'Display as a Hypertext Link'

These features are supported for ASP.NET Web Clients.

## Extended Selection for Listboxes

AllFusion Gen r7 Web Generation supports three ways to select items in a list box: single, multiple, and extended selection. The initial release of ASP.NET Web Client supported only two: single and multiple selections. AllFusion Gen r7.5 supports Extended Selection with ASP.NET.

## Listboxes in ASP.NET Web Clients

The number of rows displayed in a listbox at runtime now matches the number of rows at design time. If you have an existing model and encounter a situation where you have a listbox whose number of rows differs between design and runtime, you must open and close the window containing the listbox exhibiting the discrepancy. Then you must regenerate that window. This process lets the toolset save the correct number of rows in the model for later use at generation and runtime.

## Build Tool Enhancements

The following enhancements have been made to the Build Tool.

### Profile Manager UI

The Profile Manager User Interface is now more user-friendly. The major areas affected include the following:

- The Profile Manager selection-dialog was removed. You can select active profiles directly from the Profile Manager utility.
- Deleting a profile was moved from the main Build Tool panel to the Profile Manager Utility.
- Additional capabilities such as Rename (to rename an existing profile) and New (to create a new profile based on an existing one) have been added.
- In-line editing in the profile table to update values has been enabled, replacing the dialog that you previously used for editing.

### Adding and Removing Modules in Viewing Modes

The main Build Tool panel includes two new buttons to let you add and remove modules in both the Tree View and the Full Screen Viewing modes.

### Removing the Search Viewing Mode

The Search View option has been removed. The Tree and Full Screen viewing modes lets you use this functionality.

## Pop-up Menus

To facilitate access to different operations, the right mouse brings up new pop-up menus in the Message area and Tree area in the Tree viewing mode.

## Session Timeout

When you assemble a Web Generation application, you can now specify a Session Timeout through the User Interface of the Build Tool's Assemble utility.

# Chapter 2: Changes to Existing Features

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The following modifications or enhancements have been made for AllFusion Gen r7.5.

## Web Service Wizard

AllFusion Gen r7.5 includes a new release of the Web Service Wizard. Because the Wizard uses the runtime installed with the toolset, this new wizard works only with the AllFusion Gen r7.5 release.

## DB2 Enhancements

While we review the features provided by new database releases, we do not implement these unless the product requires it.

### Longer Names for IBM DB2 for z/OS

The maximum lengths of the following have been increased for IBM DB2 for z/OS:

- Table names can be up to 32 bytes.
- Column names can be up to 30 bytes.
- Index names can be up to 32 bytes.
- Constraint names can be up to 32 bytes.

These name lengths are supported by IBM DB2 for z/OS Version 8. If you use IBM DB2 for z/OS Version 7, you must be very careful when performing a transformation, retransformation, or specialization. These processes are not sensitive to the version of DB2 and can create long names. If necessary, perform one of the previously mentioned operations and use the Data Structure List or Data Store List to create names suitable for DB2 for z/OS Version 7.

## Host Encyclopedia and CSE

This section explains the updates and changes made to the Host Encyclopedia and CSE.

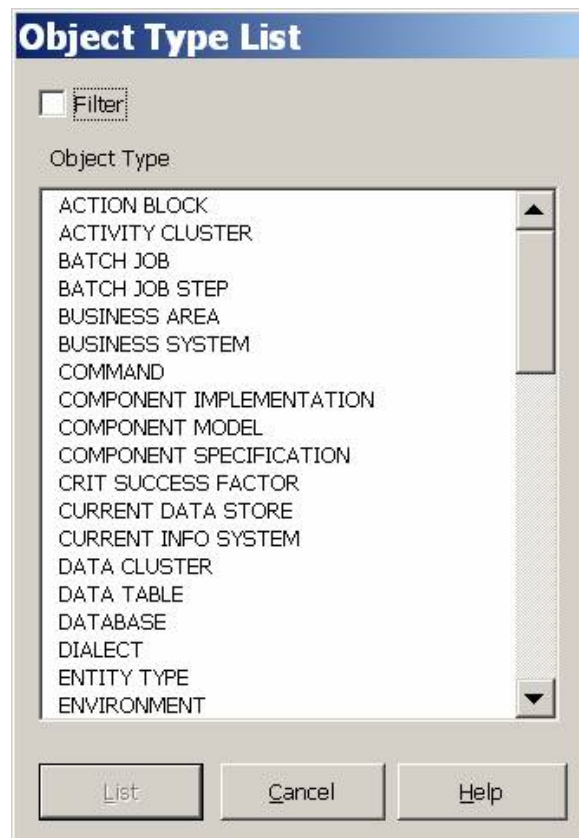
### Host Construction Batch Return Codes

In prior releases, Host Construction's batch code generation and installation job returned RC=0 when a system error such as B37/D37 (library out of space) occurred. The job output showed the system error and the message. However the return code RC=0 implied that there were no problems. This was misleading.

In AllFusion Gen r7.5, the error handling was changed. The batch job now returns RC=12 when a system error occurs.

### Object Type Selection Lists

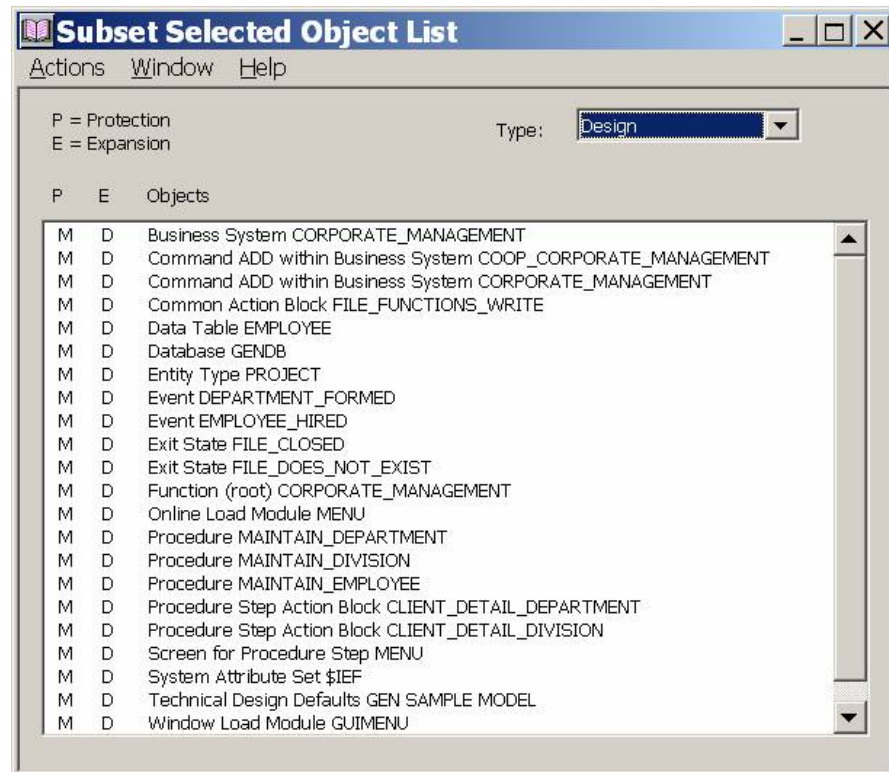
In AllFusion Gen r7.5, the object type selection lists for both the Client Server Encyclopedia and Host Encyclopedia are now sorted in alphabetical order.





## Sorted Subset Definition List

The Subset Selected Object List dialog is sorted by Object Type and then by the Name of the object.



## Model Locking with the Encyclopedia API

An application using a particular version of the API can only lock models in encyclopedias in the same or later release. An application using the API for the AllFusion Gen r7 release cannot lock models in encyclopedias in earlier releases. This process is similar to the CSE AllFusion Gen r7 clients not being usable with earlier CSE Servers. This restriction is removed from the AllFusion Gen r7.5 version of the API. Applications using the AllFusion Gen 7.5 encyclopedia API can lock models and allocate object IDs in any prior or later versions of the CSE.

## Generation Environment Parameters

The CSE Construction Client supports Linux as an operating system for generation environment parameters.

## VALAUTH Message

When opening the Migrate or Adopt Model Selection window, the following message appears in the Message Dispatcher log:

VALAUTH: function not allowed for model, must convert first.

The VALAUTH message has been suppressed for the three Schemas supported by the encyclopedia, and the model name has been added to the message. The messages are displayed for Models with schemas not supported by the encyclopedia.

## Deleting Models in CSE

The CSE does not permit delete model for schemas outside of the currently supported set, making it impossible to delete models in an old schema after upgrading the encyclopedia software. For example, AllFusion Gen r7 CSE cannot delete models left over from COOL:Gen 4.1a or COOL:Gen 5.x. When delete is attempted, a "VALAUTH: Function not allowed ..." message is written to the MD log.

## VALDUSER

The message "VALDUSER: Invalid password entered" appears in the MD log every time a client starts when CSE\_USER is defined. The message is unnecessary. Other logon messages do not report the user ID involved.

## Toolset

The following section explains the changes made to Toolset.

### XML report output

In AllFusion Gen r7, XML report data file was introduced in the toolset, but this change was limited to the Reports Window. The following remaining reports are converted to XML format in this release:

- Consistency Check Report
- Dense Object Report
- Encyclopedia Upload and Download Report
- Generation Report
- Information Strategy Planning Report (Organizational Hierarchy)

## Technical Design Names

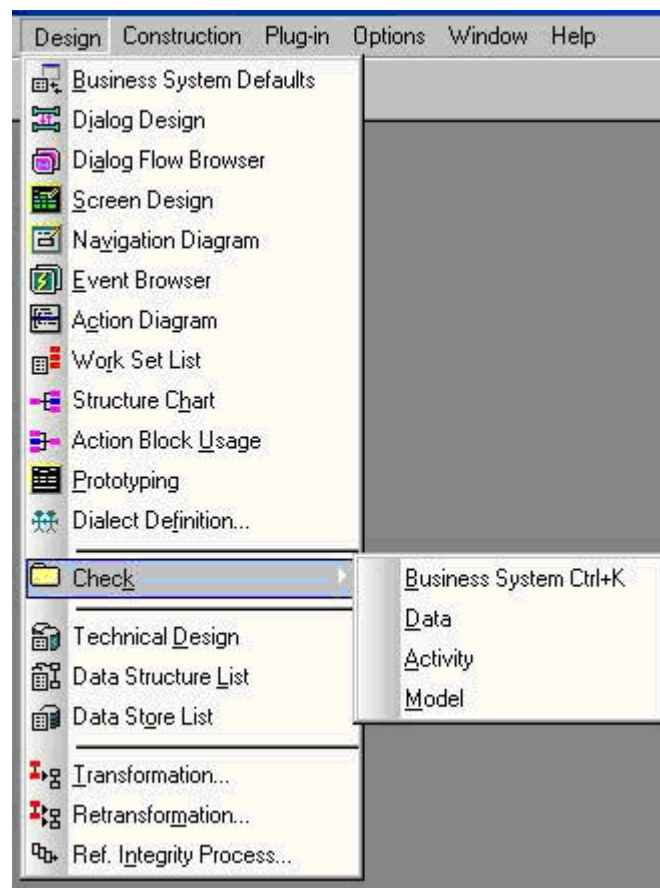
The name of the following technical designs have changed:


- DB2 MVS has changed to DB2 z/OS
- DB2 UNIX/WINDOWS has changed to DB2 UDB

In the environment and generation dialogs, DB2 UDB is displayed when generating for Windows, UNIX, or Linux. DB2 z/OS is displayed when generating for MVS.

## Toolset Consistency Check Menu Changes

In the Design menu, Check now displays a submenu with additional options.



Business System keeps the behavior from prior versions of AllFusion Gen. Use this option to select a consistency check that starts at the current business system. This option keeps the existing accelerator key of Ctrl+K and the  toolbar icon.

Data, Activity, and Model perform the same consistency check as found under Planning and Analysis.

## Model Naming

Physical model names stored on disk are restricted to the 8.3 format, for example, mysample.ief. If you rename your model outside of AllFusion Gen to exceed this restriction and attempt to open the model, you will see a dialog reminding you of the restriction. To open the model you must rename it to conform to the 8.3 specification.

## Dialog Box Updates

The Toolset dialogs have been updated to provide uniformity in layout and placement of push buttons. This update makes the dialogs more consistent with Microsoft user interface guidelines.

## DB2 Options

DB2 v7 does not support the DSETPASS field. The AllFusion Gen 7.5 Toolset dialogs no longer have the option of setting this value.

## Rapid Test

Rapid Test Tool does not support help. It now consistently displays a message box indicating so.

## Unpackaged Action Blocks Dialog

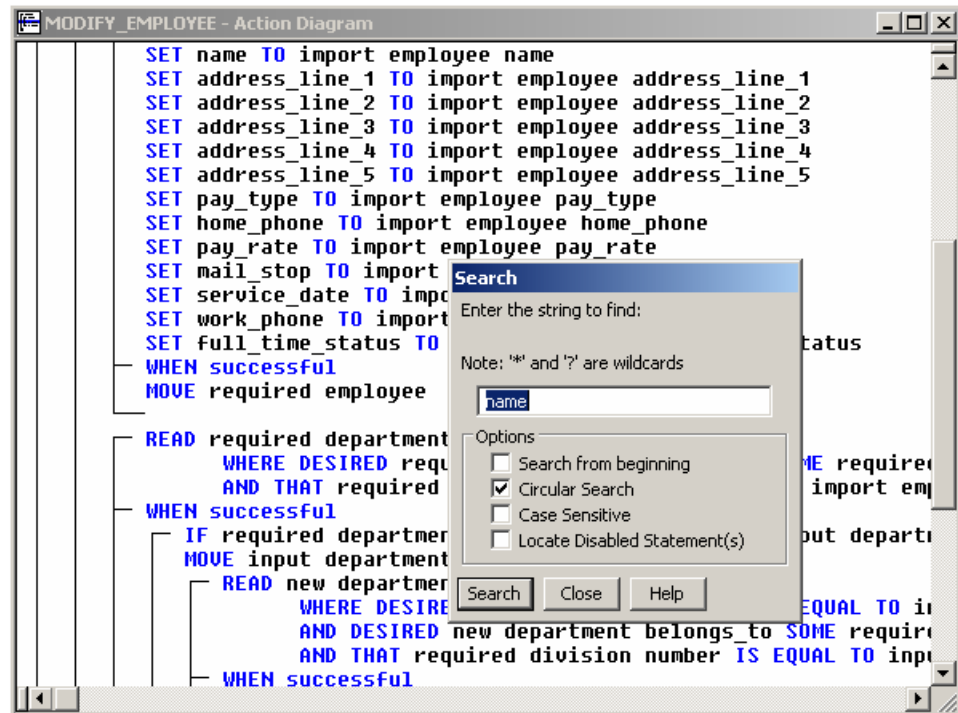
The contents of this dialog are now sorted by name to facilitate ease of use.

## Obsolete Board Types

The Encyclopedia communication board types of 914 Ethernet and 914 Ethernet dialup have been removed and are no longer supported.

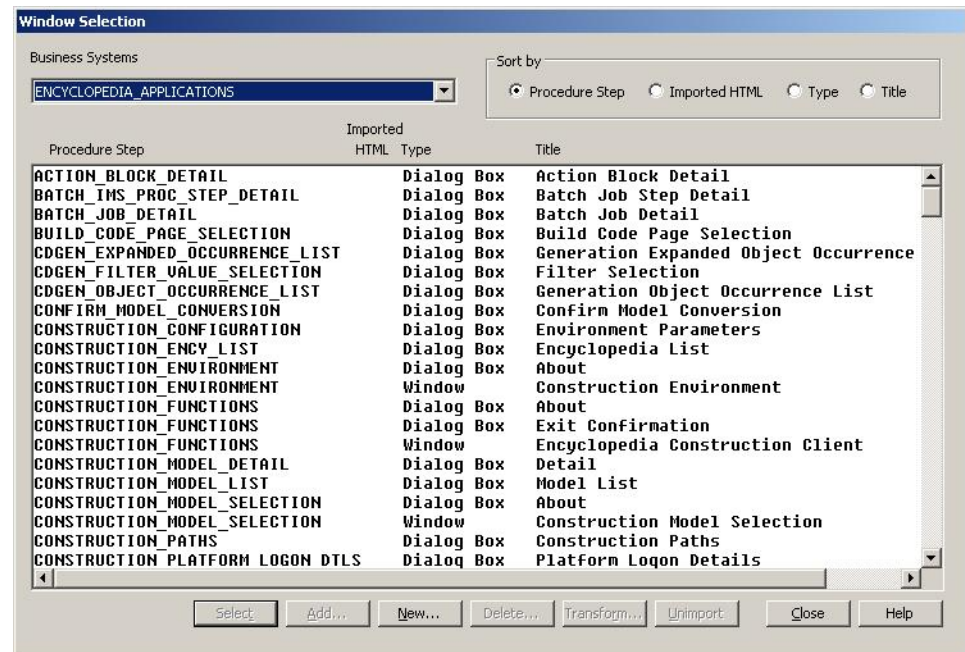
## Scroll Within Search

After you search for a particular string within an action diagram, you can scroll through the action diagram without closing the Search dialog, saving time during subsequent searches.



## Sorted Window Selection List

The Window Selection List in the Navigation Diagram lets you sort the list by Procedure Step name, whether the window is Imported HTML, the Type of window, or the Title of the window. Default sort is by procedure step.



## Sample Code

The entire sample code shipped with the Toolset install was rearranged to clean up installation. The samples moved to different locations to make things more consistent.

Old Location	New Location
%IEF%\getdb22s.c	%IEF%\samples\SQLCA\c\getdb22s.c
%IEF%\getmssql.c	%IEF%\samples\SQLCA\c\getmssql.c
%IEF%\getodbc.c	%IEF%\samples\SQLCA\c\getodbc.c
%IEF%\getoracl.c	%IEF%\samples\SQLCA\c\getoracl.c
%IEF%\SAMPLE\cproxy.c	%IEF%\samples\cproxy\cproxy.c
%IEF%\SAMPLE\cproxy.mak	%IEF%\samples\cproxy\cproxy.mak
%IEF%\SAMPLE\cproxy_tux.mak	%IEF%\samples\cproxy\cproxy_tux.mak
%IEF%\sample.ief\IEF0000.dat	%IEF%\samples\models\sample.ief\IEF0000.dat

<b>Old Location</b>	<b>New Location</b>
%IEF%\sample.ief\IEF0700.dat	%IEF%\samples\models\sample.ief\IEF0700.dat
%IEF%\sample.ief\IEF1200.dat	%IEF%\samples\models\sample.ief\IEF1200.dat
%IEF%\sample.ief\IEF2511.dat	%IEF%\samples\models\sample.ief\IEF2511.dat
%IEF%\SAMPLE\DECREDIT.C	%IEF%\samples\CommBridge\DECREDIT.C
%IEF%\SAMPLE\CIDEXIT.C	%IEF%\samples\CommBridge\CIDEXIT.C
%IEF%\SAMPLE\MAKEDECR.BAT	%IEF%\samples\CommBridge\MAKEDECR.BAT
%IEF%\SAMPLE\MAKECID.BAT	%IEF%\samples\CommBridge\MAKECID.BAT
%IEF%\SAMPLE\IEFDIR.C	%IEF%\samples\ClientManager\IEFDIR.C
%IEF%\SAMPLE\IEFDIR.TRN	%IEF%\samples\ClientManager\IEFDIR.TRN
%IEF%\SAMPLE\IEFDIRN.DEF	%IEF%\samples\ClientManager\IEFDIRN.DEF
%IEF%\SAMPLE\IEFDIRN.DLL	%IEF%\samples\ClientManager\IEFDIRN.DLL
%IEF%\SAMPLE\IEFDIRN.MAK	%IEF%\samples\ClientManager\IEFDIRN.MAK
%IEF%\apidem2w.exe	%IEF%\samples\APIDemo\apidem2w.exe
%IEF%\apidem2w.res	%IEF%\samples\APIDemo\apidem2w.res
%IEF%\apidem2w.txt	%IEF%\samples\APIDemo\apidem2w.txt
%IEF%\apidemo.c	%IEF%\samples\APIDemo\apidemo.c
%IEF%\apidemow.exe	%IEF%\samples\APIDemo\apidemow.exe
%IEF%\apidemow.res	%IEF%\samples\APIDemo\apidemow.res
%IEF%\apidemow.txt	%IEF%\samples\APIDemo\apidemow.txt
%IEF%\upddem2w.exe	%IEF%\samples\APIDemo\upddem2w.exe
%IEF%\upddem2w.res	%IEF%\samples\APIDemo\upddem2w.res
%IEF%\upddem2w.txt	%IEF%\samples\APIDemo\upddem2w.txt
%IEF%\upddemo.c	%IEF%\samples\APIDemo\upddemo.c
%IEF%\upddemow.exe	%IEF%\samples\APIDemo\upddemow.exe
%IEF%\upddemow.res	%IEF%\samples\APIDemo\upddemow.res
%IEF%\upddemow.txt	%IEF%\samples\APIDemo\upddemow.txt
%IEF%\makegetdbms.nt	%IEF%\samples\SQLCA\c\makegetdbms.nt

The following files were added for JDBC and ADO.NET:

- %IEF%\samples\SQLCA\java\getjdbcs.java
- %IEF%\samples\SQLCA\java\getjdbcs\_oa.java
- %IEF%\samples\SQLCA\c#\gadonets.cs
- %IEF%\samples\SQLCA\c#\gadonets\_oa.cs

## Java-generated Applications

The Java package name in generated applications has been updated for AllFusion Gen r7.5, enabling applications generated with AllFusion Gen r7.5 to run concurrently with applications generated with prior versions.

Further, all external action blocks must be reimplemented.

## Web Generation

AllFusion Gen 7.5 provides an additional cursor style of Hand upon enabling disabled controls, letting browsers that do not support a cursor style of Pointer to use Hand instead.

For assembling of J2EE applications, you must select the CASACDE libraries along with WINDOW and/or SERVER load modules to include it in the resulting EAR file.

## .NET-generated Applications

The .NET assembly version number has been updated for AllFusion Gen r7.5. Updating the assembly version enables applications generated with prior versions of AllFusion Gen to run concurrently with AllFusion Gen r7.5. In order to use the AllFusion Gen r7.5 runtimes, you must regenerate any .NET/C#-generated application.



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## Miscellaneous

The following sections describe the miscellaneous features of AllFusion Gen r7.5.

### View Size Calculations

The algorithm used in prior versions of AllFusion Gen to calculate the size of a C or COBOL import or export view was incorrect. For C code generation, the size of numeric non-decimal precision attributes was generally overestimated; the size of numeric decimal precision attributes was generally underestimated. For COBOL code generation, the size of varying length strings was underestimated.

The AllFusion Gen Dialog Manager and Server Manager generators calculate the size of each Procedure Step's import and export view. When generating for C or COBOL, the generator stops with an error message if the view size exceeds 31,744 bytes.

C or COBOL applications that once generated successfully can fail generation due to the corrected algorithm. If this happens, reduce the cardinality of the repeating group views.

The Consistency Check rules have been updated to use the new algorithm and issue a severe warning message if a procedure step's import or export view exceeds 31,744 bytes.

### TRSERVER

AllFusion Gen r7.5 Java and C# applications must be traced using the AllFusion Gen r7.5 version of TRSERVER.exe. Conversely, the AllFusion Gen r7.5 TRSERVER.exe cannot trace an AllFusion Gen r7 (or earlier) Java application.

### GuiEnvironmentVariables.ini

In AllFusion Gen r7.0, the GuiEnvironmentVariables.ini file lets you set environment variables that affect the runtime. The GROUPCONTROLS variable as shipped is set to 1, which causes the controls within a group to be grouped by default.

This behavior is not consistent with earlier releases or with the runtime behavior if the file is absent. To correct this, this file in AllFusion Gen r7.5 has this variable commented out.

## .NET TCIPDynamicCoopFlowExit.cs

During a .NET cooperative flow, C# exceptions may report client to server communication failures. The exception message returned because of a server closing the connection socket did not adequately describe the failure. The exception message for this type of failure has been changed from:

"Failed to read length bytes properly (bytes read="0")"

To a more descriptive message:

"Connection unexpectedly closed by server"

The delivered TCIPDynamicCoopFlowExit method, ProcessException() now tests for the new exception message string, resulting in an application retrying flow attempts that had previously failed. The comparison based on the original exception string has been removed.

Take caution when you integrate the new exit behavior with any current user exit implementation.

You can find the user exit source at:

%IEF%\net\exits\src\coopflow\TCIPDynamicCoopFlowExit.cs

## Retrieving DB2 SQLCA Data on z/OS (TIRTIAR)

A way to retrieve DB2 SQLCA data when a database exception occurs is documented in Appendix F of the *AllFusion Gen r7.5 Host Encyclopedia Construction Guide*. The method described is to use an EAB to invoke IBM's SQLCODE message formatting routine, DSNTIAR. A sample of such an EAB is provided in the AllFusion Gen SAMPLIB member GETXDBSQ.

In releases prior to AllFusion Gen r7.5, the sample supplied for EAB GETXDBSQ invoked the User Exit TIRTIAR of AllFusion Gen. This exit in turn invoked DSNTIAR.

The sample supplied for EAB GETXDBSQ in AllFusion Gen r7.5 has been updated and modified to call DSNTIAR directly.

Customers who use this EAB must use the AllFusion Gen r7.5 updated EAB or they will get a link-edit error when installing any application that uses the GETXDBSQ EAB.

## Client Manager ID User Exit

The source file containing the `ci_cm_id` (Client Manager ID) user exit has been renamed from `ciccmid.c` to `cicmclx.c`. The `ciccmid.c` source file will no longer be delivered with AllFusion Gen. The `cicmclx.c` source file will contain the previously existing `ci_cm_id` user exit entry point. The implementation of the `ci_cm_id` user exit entry point is unchanged.

## Client Manager Communication Error Retry User Exit

In addition to containing the `ci_cm_id` user exit, the `cicmclx.c` source file will contain a new user exit entry point. This new user exit entry point, `CI_CM_DPC_Flow_Complete_Comm_Error`, provides users an opportunity to specify a retry for those cooperative flows that fail due to a communication error. Communication errors are returned to GUI clients using an XERR Common Format Buffer. The communication errors seen most often by GUI applications include 609, 619, and 629 failures.

To be consistent with exiting cooperative flow behavior, the default user exit does not cause a failed cooperative flow to be retried. A customer that wants to retry failed cooperative flows must modify the code in `cicmclx.c` and rebuild the `cmicx75n.dll` using the `ccmexit.nt` make that is provided with the AllFusion Gen r7.5. The `cicmclx.c` source file includes sample code that demonstrates how the user exit can result in a specified number of retry attempts for a cooperative flow failing with a particular set of communication error codes.

For information about the new `CI_CM_DPC_Flow_Complete_Comm_Error` client side user exit, see the *Distributed Processing – Client Manager* and *Distributed Processing – Overview* guides.

## GUI Runtime WRSECTOKEN User Exit

The comments in `wrexitn.c` source file documenting the `WRSECTOKEN` user exit entry point have changed to describe the ability to set the Client User ID and/or Client Password special attributes by modifying the data areas pointed to by the `clientuserid` and `clientpassword` input arguments, respectively.

## C/COM Proxy Runtime WRSECTOKEN User Exit

The comments in `proxycit.c` source file documenting the `WRSECTOKEN` user exit entry point have changed to describe the ability to set the `Clientuserid` and/or `Clientpassword` proxy attributes by modifying the data areas pointed to by the `clientuserid` and `clientpassword` input arguments respectively.

## Reserved Words

The ODBC reserved word list was changed for the AllFusion Gen r7.5 release to match the ODBC reserved word list for Visual Studio .NET 2003.

The following words were added:

- INT
- READ
- REAL
- WRITE
- ZONE

The following words were removed:

- COBOL
- COUNTER
- DSN
- MUMPS
- PLI
- SEQUENCE

## Permitted Values for z/OS IT Scripts

When performing a z/OS IT upgrade in place (using an existing z/OS IT TEMPLATE table created/maintained with a z/OS IT version prior to r7.5), be aware of the following change:

The permitted values for objects DBMS, TP\_Monitor, Gen\_Language, Screen\_Format, and Operating\_System were modified for AllFusion Gen r7.5. These objects are used when creating LOAD SCRIPTS.

The following set of permitted values for these objects were the only valid options for z/OS for several releases. However, it was possible to select invalid options when creating these scripts. As a result, some rows may exist in the z/OS IT TEMPLATE table that contain data which will no longer be considered to be valid permitted values in the AllFusion Gen r7.5 release.

You must use the following options (permitted values) when you create Load Scripts for the AllFusion Gen r7.5 z/OS IT:

DBMS	- DB2
TP_Monitor	- IEFAE, CICS, IMS
Gen_Language	- COBOL
OS (Operating System)	- MVS
Screen_Format	- BYPASS, HSTFAC, MAPPED

These options are stored on the z/OS IT TEMPLATE table. Any existing rows in the z/OS IT TEMPLATE Table with data values not listed above, will cause a permitted value error when attempting to READ the row. To resolve this problem, use SQL to delete the offending row from the z/OS IT TEMPLATE table.

**Note:** If you suspect you have SCRIPTS with data considered to be invalid in r7.5, use the existing z/OS IT to delete the SCRIPTS containing the invalid permitted values prior to doing the Upgrade In-Place for AllFusion Gen r7.5.



# Chapter 3: Features No Longer Supported

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This chapter provides a list of features not supported by AllFusion Gen r7.5.

## Password Dialog

The Password menu item under Options in the Toolset lets the user assign an access code, which is subsequently required to enter the AllFusion Gen Toolset. This option has been removed from AllFusion Gen r7.5 Toolset.

## COBOL on UNIX

AllFusion Gen r7.5 and future releases will no longer support COBOL on HP-UX and AIX. Our support for COBOL on z/OS remains unchanged.

## Informix and Sybase

AllFusion Gen r7.5 and future releases will no longer support the Informix and Sybase databases. Consequently, the Informix CSE is no longer supported in AllFusion Gen r7.5 and future releases.

## Third-Party Features No Longer Supported

Models created in earlier releases of AllFusion Gen may contain references to databases, languages, and other options which are no longer supported. If this happens, <NO SELECTION> displays in the environment and generation dialogs.





# Chapter 4: Documentation Changes

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Documentation changes for AllFusion Gen r7.5 include the following:

- The format for the Toolset help files changed from HTML to CHM.
- The Component Manager Help has been reinstated for this release.
- The Component Manager Guide has been reinstated for this release.

## Changes in Guide and Help Titles

The following guide and help titles have changed for AllFusion Gen r7.5:

<b>AllFusion Gen r7</b>	<b>AllFusion Gen r7.5 Name</b>
Host Construction Guide	Host Encyclopedia Construction Guide
Client Server Subsetting Guide	Client Server Encyclopedia Subsetting Guide
Client Server Construction Guide	Client Server Encyclopedia Construction Guide
Implementation Toolset Guide for UNIX	Implementation Toolset Guide for UNIX and Linux
Oracle Help	DB Logon Help

