

IBM CrossWorlds
WebSphere® Business Integration for
Retail Distribution



ItemCollector Collaboration

Version 4.1.1

Note!

Before using this information and the product it supports, be sure to read the general information under “Notices and Trademarks” on page 11.

First Edition (October 2002)

This edition applies to Version 4, Release 1, Modification 1, of *IBM® CrossWorlds®* (5724-C12) and to all subsequent releases and modifications until otherwise indicated in new editions.

IBM welcomes your comments. You can send them to the following address:

IBM Canada Ltd. Laboratory
Information Development
8200 Warden Avenue
Markham, Ontario, Canada L6G 1C7

Include the title and order number of this book, and the page number or topic related to your comment.

When you send information to IBM, you grant IBM a nonexclusive right to use or distribute the information in any way it believes appropriate without incurring any obligation to you.

© Copyright International Business Machines Corporation 2002. All rights reserved.

US Government Users Restricted Rights – Use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM Corp.

Contents

ItemCollector collaboration	1
Required documents.	1
Collaboration setup	1
Port information	1
Setting up the collaboration	2
Synchronization process	3
Overall process logic.	3
Configuration properties	6
Collaboration-specific properties.	6

Viewing collaboration messages	10
See also.	10

Notices and Trademarks 11

Notices	11
Programming interface information	12
Trademarks and service marks	13

ItemCollector collaboration

The ItemCollector collaboration builds a complete Retail_Item business object from partial Retail_Item business objects. For instance, the collaboration can merge partial Retail_Item business objects containing updated information with a complete copy of the business object retrieved from a local item store. The collaboration copies the updated attribute values from the partial objects into the retrieved one through the use of configuration properties.

Required documents

The ItemCollector collaboration has features, ports, and configuration properties that are unique to it. To create and configure an ItemCollector collaboration object, use the following documents:

- This document for the ItemCollector collaboration-specific information.
- Collaboration Development Guide for general information about creating and configuring collaboration objects.

Collaboration setup

This section includes the following information:

- “Port information”
- “Setting up the collaboration” on page 2

Port information

The following figure illustrates the ItemCollector collaboration’s ports, as they are displayed in IBM® CrossWorlds® System Manager (CSM):

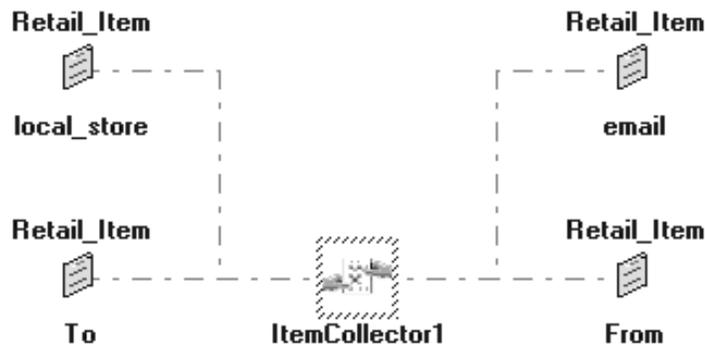


Figure 1. ItemCollector collaboration's ports

Note: Some values in the Bound to column might include spaces to allow them to fit in the table cells. The actual values do not include spaces.

Table 1. Port name: From

Business object	Bound to	Function	Verbs used
Retail_Item	A collaboration or connector that supplies a partial Retail_Item business object.	Receives the triggering business object. At the end of a synchronous call, this port also returns the triggering business object to the source application with its status attribute indicating the state of the business object processing.	Create

Table 2. Port name: To

Business object	Bound to	Function	Verbs used
Retail_Item	A collaboration (such as Process_Reviewed_Item) or connector that processes the complete Retail_Item business object.	Sends the complete Retail_Item business object to the next step in processing.	Create

Table 3. Port name: email

Business object	Bound to	Function	Verbs used
Retail_Item	A collaboration or connector that provides notification processing for approved or rejected items or items in error. This notification step is optional.	Sends the business object containing a message indicating that the object has a status of Approved or Rejected, or that an error was detected, to notification processing.	Create

Table 4. Port name: local_store

Business object	Bound to	Function	Verbs used
Retail_Item	A persistent storage mechanism, such as an implementation instance of the IBM CrossWorlds Collaboration for Data Storage.	Retrieves the previously stored business object from a local item store.	Retrieve

Setting up the collaboration

To set up ItemCollector as a stand-alone collaboration object, complete the following steps:

1. Create the ItemCollector collaboration object.
2. Bind the ports as described in "Port information" on page 1.

3. Set the “Configuration properties” on page 6 for ItemCollector.

Synchronization process

This section illustrates the overall business process logic for the ItemCollector collaboration.

Overall process logic

The following flow shows the process logic for this collaboration’s Create verb:

1. The ItemCollector collaboration receives a partial Retail_Item business object through its From port. This Retail_Item business object contains the latest values for some attributes, but might be incomplete.
2. The collaboration receives a complete Retail_Item on its local_store port.
3. For each attribute identified by a collaboration configuration property of the form X_COPY_ATTRIBUTE (where X is an integer, such as in 1_COPY_ATTRIBUTE), the collaboration first verifies that the attribute exists in the Retail_Item business object. If it does, the collaboration copies the updated attribute value from the Retail_Item business object received on the From port to the Retail_Item retrieved from the local item store. If the attribute does not exist in the Retail_Item business object, the collaboration generates an informational message in the log and continues processing. See “Merging data obtained from the From port into a complete item” on page 4 for detailed information about this process.
4. The ItemCollector collaboration checks if the Retail_Item attribute specified in the property MISSING_DATA_CHILD_ATTRIBUTE (by default, the internals.customer_data_missing_attributes child business object) contains any instances of Retail_Missing_Attributes child business objects. For each Retail_Missing_Attributes instance in the missing attribute array, the collaboration verifies that the attribute exists in the Retail_Item business object and that its value is valid for its attribute type. If the attribute is valid, the collaboration copies the attribute value from the Retail_Missing_Attributes instance in the Retail_Item business object received on the From port to the Retail_Item retrieved from the local item store. If the attribute is not valid, the collaboration generates an informational message in the log and continues processing. See “Merging data obtained from the From port into a complete item” on page 4 for detailed information about this process and “MISSING_DATA_CHILD_ATTRIBUTE” on page 9 for more information on the MISSING_DATA_CHILD_ATTRIBUTE property.
5. The collaboration passes the complete, merged Retail_Item business object to its To port.

If error conditions are encountered during any stage of processing, the ItemCollector collaboration sets the Retail_Item business object’s attribute value named in the collaboration configuration property ITEM_STATUS_ATTRIBUTE to Error, logs the error, and returns the object to the calling collaboration through its From port. The ItemCollector collaboration can also log the Retail_Item business object in the configured IBM CrossWorlds InterChange Server (ICS) log destination based on the value of the configuration property LOG_ERROR_ITEM. See “LOG_ERROR_ITEM” on page 9 for more information on this property.

Through use of configuration properties, this collaboration can be configured to initiate notifications of any error conditions that are detected during processing.

Business objects containing messages that indicate errors were detected can be passed through the email port. See “Notifying of error conditions” on page 5 for more information.

Merging data obtained from the From port into a complete item

The Retail_Item business object that the ItemCollector collaboration receives on its From port might not be complete. The updated data contained in this incomplete item must be merged into the original, complete Retail_Item business object that exists in a local item store. The ItemCollector collaboration retrieves the copy of the Retail_Item from the local item store on its local_store port. The collaboration merges the data from both business objects into one, as described in the sections “Merging data by using the X_COPY ATTRIBUTE configuration properties” and “Merging missing and required data by using the MISSING_DATA_CHILD_ATTRIBUTE configuration property”.

Merging data by using the X_COPY ATTRIBUTE configuration properties: The ItemCollector collaboration can be configured with properties that indicate which attributes to copy from the triggering business object into the merged object. These collaboration configuration properties are of the form X_COPY_ATTRIBUTE (where X is an integer, such as in 1_COPY_ATTRIBUTE). Four properties with default values come standard with the collaboration (see “1_COPY_ATTRIBUTE” on page 6, “2_COPY_ATTRIBUTE” on page 6, “3_COPY_ATTRIBUTE” on page 7, and “4_COPY_ATTRIBUTE” on page 7 for more information). Any number of configuration properties of the form X_COPY_ATTRIBUTE can be created to copy any number of attributes.

When using an unmodified Retail_Item business object, at a minimum, set 1_COPY_ATTRIBUTE equal to the value `internals.item_status`, so that the status of the item is copied. Remove any properties of the form X_COPY_ATTRIBUTE that are not used. A blank for the property value, or an invalid attribute name, cause a warning message to be logged by the collaboration.

For each of the attributes identified in these collaboration properties, the collaboration first verifies that the attribute exists in the Retail_Item business object and, if it does, copies the updated attribute value from the Retail_Item business object received on the From port to the Retail_Item retrieved from the local item store. If the attribute does not exist in the Retail_Item business object, the collaboration generates an informational message in the log and continues processing.

Merging missing and required data by using the MISSING_DATA_CHILD_ATTRIBUTE configuration property: Within the triggering Retail_Item Business object, the ItemCollector collaboration checks if the attribute specified in the property MISSING_DATA_CHILD_ATTRIBUTE (by default, the `internals.customer_data_missing_attributes` child business object) contains a list of missing attributes. By default, this list is made up of instances of Retail_Missing_Attributes child business objects.

Note: It is assumed that previous processing, such as that performed by the ItemValidation collaboration, previously identified which attribute names were required and missing from the item and that previous processing (such as a custom collaboration) collected the values for those missing attributes and set the values in the Retail_Missing_Attributes child business object of the Retail_Item business object.

Each `Retail_Missing_Attributes` business object contains two attributes. The first attribute contains the name of a `Retail_Item` attribute that was determined during previous processing to be required and missing its data. The second attribute contains the value of the `Retail_Item` attribute that was obtained through a missing data collection process prior to `ItemCollector` being invoked.

The `Item Collector` collaboration needs to reference each of the two elements of the `Retail_Missing_Attributes` child business object. This is accomplished by using two configuration properties, `MISSING_DATA_NAME_ATTRIBUTE` and `MISSING_DATA_VALUE_ATTRIBUTE`.

- `MISSING_DATA_NAME_ATTRIBUTE` holds the attribute name as defined in the `Retail_Missing_Attributes` child business object. By default, this value is `attribute_name`. If the user changes this default value, the change must be reflected in the value of the `MISSING_DATA_NAME_ATTRIBUTE` as well.
- `MISSING_DATA_VALUE_ATTRIBUTE` holds the attribute value as defined in the `Retail_Missing_Attributes` child business object. By default, this value is `attributeValue`. If the user changes this default value, the change must be reflected in the value of the `MISSING_DATA_NAME_ATTRIBUTE` as well.

See “`MISSING_DATA_NAME_ATTRIBUTE`” on page 9 and “`MISSING_DATA_VALUE_ATTRIBUTE`” on page 9 for more information on these properties.

For each `Retail_Missing_Attributes` instance in the missing attribute array, the collaboration first verifies that the attribute is a valid `Retail_Item` attribute. If so, the attribute’s value is copied from the `Retail_Missing_Attributes` instance to its correct position in the merged `Retail_Item` business object. If the attribute is not valid for the `Retail_Item`, the collaboration generates an informational message in the log and continues processing.

Notifying of error conditions

The `ItemCollector` collaboration can be configured to enable notification if errors are detected during `ItemCollector` collaboration processing, when an item is being retrieved from the item store, or when the merged item is being sent to the collaboration’s `To` port.

The following collaboration properties enable notification if errors are detected:

- `SEND_MAIL_ON_ERROR` (see “`SEND_MAIL_ON_ERROR`” on page 10 for more information)
- `ERROR_EMAIL_ROLE` (see “`ERROR_EMAIL_ROLE`” on page 8 for more information)
- `ERROR_RETRIEVE_EMAIL_MSG` (see “`ERROR_RETRIEVE_EMAIL_MSG`” on page 8 for more information)
- `ERROR_SEND_EMAIL_MSG` (see “`ERROR_SEND_EMAIL_MSG`” on page 8 for more information)
- `ERROR_EMAIL_SUBJECT` (see “`ERROR_EMAIL_SUBJECT`” on page 8 for more information)

The `SEND_MAIL_ON_ERROR` and `ERROR_EMAIL_ROLE` must be configured by the user. If an error is detected and the `SEND_MAIL_ON_ERROR` and `ERROR_EMAIL_ROLE` collaboration properties exist, the collaboration stores the values of the `ERROR_EMAIL_ROLE`, `ERROR_RETRIEVE_EMAIL_MSG` or `ERROR_SEND_EMAIL_MSG`, and `ERROR_EMAIL_SUBJECT` in attributes of the `Retail_Item` business object. The `Retail_Item` attributes into which these values are stored are identified by the `EMAIL_ROLE_ATTRIBUTE`,

EMAIL_MSG_ATTRIBUTE, and EMAIL_SUBJECT_ATTRIBUTE configuration properties, respectively. Then the collaboration sends the object to its email port.

If the ERROR_RETRIEVE_EMAIL_MSG, ERROR_SEND_EMAIL_MSG, or ERROR_EMAIL_SUBJECT properties exist but are BLANK, default values are placed in the Retail_Item attributes before the business object is sent to the email port.

Configuration properties

This collaboration has the following configuration-specific properties:

- "1_COPY_ATTRIBUTE"
- "2_COPY_ATTRIBUTE"
- "3_COPY_ATTRIBUTE" on page 7
- "4_COPY_ATTRIBUTE" on page 7
- "EMAIL_MSG_ATTRIBUTE" on page 7
- "EMAIL_ROLE_ATTRIBUTE" on page 7
- "EMAIL_SUBJECT_ATTRIBUTE" on page 8
- "ERROR_EMAIL_ROLE" on page 8
- "ERROR_EMAIL_SUBJECT" on page 8
- "ERROR_SEND_EMAIL_MSG" on page 8
- "ERROR_RETRIEVE_EMAIL_MSG" on page 8
- "ITEM_IDENTIFICATION_ATTRIBUTE" on page 8
- "ITEM_STATUS_ATTRIBUTE" on page 9
- "LOG_ERROR_ITEM" on page 9
- "MISSING_DATA_CHILD_ATTRIBUTE" on page 9
- "MISSING_DATA_NAME_ATTRIBUTE" on page 9
- "MISSING_DATA_VALUE_ATTRIBUTE" on page 9
- "SEND_MAIL_ON_ERROR" on page 10

Collaboration-specific properties

1_COPY_ATTRIBUTE

This property specifies an attribute that is to be copied from the business object received on the From port to the business object retrieved from the local item store. Use the default setting unless you are not using the Retail_Item business object, you have modified the Retail_Item business object, or you want to change which attributes are copied from the business object received on the From port to the business object retrieved from the local item store.

Table 5. 1_COPY_ATTRIBUTE configuration property

Possible values	Usage
internals.item_status	The default Retail_Item attribute name.

2_COPY_ATTRIBUTE

This property specifies an attribute that is to be copied from the business object received on the From port to the business object retrieved from the local item store. Use the default setting unless you are not using the Retail_Item business object, you have modified the Retail_Item business object, or you want to change which attributes are copied from the business object received on the From port to the

business object retrieved from the local item store. Delete this property if it is not required.

Table 6. 2_COPY_ATTRIBUTE configuration property

Possible values	Usage
internals.date_processed	The default Retail_Item attribute name.

3_COPY_ATTRIBUTE

This property specifies an attribute that is to be copied from the business object received on the From port to the business object retrieved from the local item store. Use the default setting unless you are not using the Retail_Item business object, you have modified the Retail_Item business object, or you want to change which attributes are copied from the business object received on the From port to the business object retrieved from the local item store. Delete this property if it is not required.

Table 7. 3_COPY_ATTRIBUTE configuration property

Possible values	Usage
internals.time_processed	The default Retail_Item attribute name.

4_COPY_ATTRIBUTE

This property specifies an attribute that is to be copied from the business object received on the From port to the business object retrieved from the local item store. Use the default setting unless you are not using the Retail_Item business object, you have modified the Retail_Item business object, or you want to change which attributes are copied from the business object received on the From port to the business object retrieved from the local item store. Delete this property if it is not required.

Table 8. 4_COPY_ATTRIBUTE configuration property

Possible values	Usage
internals.responder_name	The default Retail_Item attribute name.

EMAIL_MSG_ATTRIBUTE

This property specifies the attribute of the Retail_Item business object into which the text of a notification message is stored prior to the Retail_Item business object's being sent to the collaboration's email port.

Table 9. EMAIL_MSG_ATTRIBUTE configuration property

Possible values	Usage
internals.message_text	The default Retail_Item attribute name.

EMAIL_ROLE_ATTRIBUTE

This property specifies the attribute of the Retail_Item business object into which the email address of the email recipient of a message is stored, prior to the Retail_Item business object's being sent to the collaboration's email port.

Table 10. EMAIL_ROLE_ATTRIBUTE configuration property

Possible values	Usage
internals.message_recipient_role	The default Retail_Item attribute name.

EMAIL_SUBJECT_ATTRIBUTE

This property specifies the attribute of the Retail_Item business object into which the text of a message subject is stored, prior to the Retail_Item business object's being sent to the collaboration's email port.

Table 11. EMAIL_SUBJECT_ATTRIBUTE configuration property

Possible values	Usage
internals.message_subject	The default Retail_Item attribute name.

ERROR_EMAIL_ROLE

This property specifies the value that is placed in the EMAIL_ROLE_ATTRIBUTE of the Retail_Item business object when an error is detected during processing. This property can contain the actual email address to which to send the error email message. There is no default value for this property.

ERROR_EMAIL_SUBJECT

This property specifies the value that is placed in the EMAIL_SUBJECT_ATTRIBUTE of the Retail_Item business object when an error is detected during processing. This property can contain the actual subject text.

Table 12. ERROR_EMAIL_SUBJECT configuration property

Possible values	Usage
Internal error occurred	The default error subject text.

ERROR_RETRIEVE_EMAIL_MSG

This property specifies the value that is placed in the EMAIL_MSG_ATTRIBUTE of the Retail_Item business object when an error is detected when retrieving an item from the local item store. This property can contain the actual message text.

Table 13. ERROR_RETRIEVE_EMAIL_MSG configuration property

Possible values	Usage
The message text for the notification that an error was detected when retrieving an item from the local item store.	This property holds information that is passed to the email port. The use of this information is dependent on that which is connected to that port.

ERROR_SEND_EMAIL_MSG

This property specifies the value that is placed in the EMAIL_MSG_ATTRIBUTE of the Retail_Item business object when an error is detected when sending the merged business object to the To port. This property can contain the actual message text.

Table 14. ERROR_SEND_EMAIL_MSG configuration property

Possible values	Usage
The message text for the notification that an error was detected while sending the merged item to the To port.	This property holds information that is passed to the email port. The use of this information is dependent on that which is connected to that port.

ITEM_IDENTIFICATION_ATTRIBUTE

This property specifies the attribute of the Retail_Item business object that contains a unique identification value for the business object. This value is used to identify the item in logged messages.

Note: The value in the Possible values column includes a space to allow it to fit into the table cell. The actual value does not include a space.

Table 15. ITEM_IDENTIFICATION_ATTRIBUTE configuration property

Possible values	Usage
item.itemInformation.globalTradeItemNumber.gtin	The default Retail_Item attribute name.

ITEM_STATUS_ATTRIBUTE

This property specifies the attribute of the Retail_Item business object that contains the status of the business object being processed.

Table 16. ITEM_STATUS_ATTRIBUTE configuration property

Possible values	Usage
internals.item_status	The default Retail_Item attribute name.

LOG_ERROR_ITEM

This property specifies whether the collaboration logs the business object being processed when an error is detected during processing. Note that the detected error is logged if tracing is enabled for the collaboration.

Table 17. LOG_ERROR_ITEM configuration property

Possible values	Usage
False (default)	The collaboration does not log the business object in addition to the error log.
True	The collaboration logs the business object in addition to the error log.

MISSING_DATA_CHILD_ATTRIBUTE

This property contains an attribute of a business object containing the missing data child business object. Use the default setting unless the business object being used is not a Retail_Item business object or is a Retail_Item that has been modified.

Table 18. MISSING_DATA_CHILD_ATTRIBUTE configuration property

Possible values	Usage
internals.customer_data_missing_attributes	The default Retail_Item attribute name.

MISSING_DATA_NAME_ATTRIBUTE

This property contains the attribute name in the missing data child business object that contains the name of the missing attribute. Use the default setting unless the business object being used is not a Retail_Item business object or is a Retail_Item that has been modified.

Table 19. MISSING_DATA_NAME_ATTRIBUTE configuration property

Possible values	Usage
attribute_name	The default Retail_Item attribute name.

MISSING_DATA_VALUE_ATTRIBUTE

This property contains the attribute name in the missing data child business object that contains the value of the missing attribute. Use the default setting unless the business object being used is not a Retail_Item business object or is a Retail_Item

that has been modified.

Table 20. *MISSING_DATA_VALUE_ATTRIBUTE* configuration property

Possible values	Usage
attributeValue	The default Retail_Item attribute name.

SEND_MAIL_ON_ERROR

This property specifies whether the collaboration sends processing to the email port for notification if an error is detected during the processing of the Retail_Item business object.

Table 21. *SEND_MAIL_ON_ERROR* configuration property

Possible values	Usage
False (default)	The collaboration does not send the Retail_Item business object to its email port if an error is detected during the processing of the item.
True	The collaboration sends the Retail_Item business object containing an error message to its email port if an error is detected during the processing of the item.

Viewing collaboration messages

To view an explanation of this collaboration's messages, invoke Message Browser and open the collaboration's message file.

To invoke Message Browser and open the collaboration message file, complete the following actions:

1. In the Start menu, click **Programs > CrossWorlds > Server and Tools > Message Browser**.
2. On the **File** menu, click **Open**.
3. Use the **Look In** field to change the current folder to:

IBM_CrossWorlds_root_dir\collaborations\messages\ItemCollector.txt

See also

- DataStore Collaboration
- ItemValidation Collaboration
- Process_Reviewed_Item Collaboration
- Retail_Item Business Object

Notices and Trademarks

US Government Users Restricted Rights - Use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM Corp.

Notices

IBM may not offer the products, services, or features discussed in this document in all countries. Consult your local IBM representative for information on the products and services currently available in your area. Any reference to an IBM product, program, or service is not intended to state or imply that only that IBM product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any IBM intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any non-IBM product, program, or service.

IBM may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not give you any license to these patents. You can send license inquiries, in writing, to:

IBM Director of Licensing
IBM Corporation
North Castle Drive
Armonk, NY 10504-1785
U.S.A.

The following paragraph does not apply to the United Kingdom or any other country where such provisions are inconsistent with local law:

INTERNATIONAL BUSINESS MACHINES CORPORATION PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some states do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement may not apply to you.

This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. IBM may make improvements and/or changes in the product(s) and/or program(s) described in this publication at any time without notice.

Any references in this information to non-IBM Web sites are provided for convenience only and do not in any manner serve as an endorsement of those Web sites. The materials at those Web sites are not part of the materials for this IBM product and use of those Web sites is at your own risk.

IBM may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation to you.

Licensees of this program who wish to have information about it for the purpose of enabling: (i) the exchange of information between independently created

programs and other programs (including this one) and (ii) the mutual use of the information which has been exchanged, should contact:

IBM CrossWorlds Lab Director
IBM RTP Laboratory
3039 Cornwallis Road
P.O. BOX 12195
Raleigh, NC 27709-2195
U.S.A

Such information may be available, subject to appropriate terms and conditions, including in some cases, payment of a fee.

The licensed program described in this document and all licensed material available for it are provided by IBM under terms of the IBM Customer Agreement, IBM International Program License Agreement, or any equivalent agreement between us.

Any performance data contained herein was determined in a controlled environment. Therefore, the results obtained in other operating environments may vary significantly. Some measurements may have been made on development-level systems and there is no guarantee that these measurements will be the same on generally available systems. Furthermore, some measurement may have been estimated through extrapolation. Actual results may vary. Users of this document should verify the applicable data for their specific environment.

Information concerning non-IBM products was obtained from the suppliers of those products, their published announcements or other publicly available sources. IBM has not necessarily tested those products and cannot confirm the accuracy of performance, compatibility or any other claims related to non-IBM products. Questions on the capabilities of non-IBM products should be addressed to the suppliers of those products.

This information may contain examples of data and reports used in daily business operations. To illustrate them as completely as possible, the examples may include the names of individuals, companies, brands, and products. All of these names are fictitious and any similarity to the names and addresses used by an actual business enterprise is entirely coincidental.

All statements regarding IBM's future direction or intent are subject to change or withdrawal without notice, and represent goals and objectives only.

COPYRIGHT LICENSE This information may contain sample application programs in source language, which illustrates programming techniques on various operating platforms. You may copy, modify, and distribute these sample programs in any form without payment to IBM, for the purposes of developing, using, marketing or distributing application programs conforming to the application programming interface for the operating platform for which the sample programs are written. These examples have not been thoroughly tested under all conditions. IBM, therefore, cannot guarantee or imply reliability, serviceability, or function of these programs.

Programming interface information

Programming interface information, if provided, is intended to help you create application software using this program.

General-use programming interfaces allow you to write application software that obtain the services of this program's tools.

However, this information may also contain diagnosis, modification, and tuning information. Diagnosis, modification and tuning information is provided to help you debug your application software.

Warning: Do not use this diagnosis, modification, and tuning information as a programming interface because it is subject to change.

Trademarks and service marks

The following terms are trademarks or registered trademarks of International Business Machines Corporation in the United States or other countries, or both:

IBM
the IBM logo
AIX
CrossWorlds
the CrossWorlds logo
DB2
DB2 Universal Database
MQIntegrator
MQSeries
Tivoli
WebSphere

Lotus, Domino, Lotus Notes, and Notes Mail are trademarks of the Lotus Development Corporation in the United States, other countries, or both.

Microsoft, Windows, Windows NT, and the Windows logo are trademarks of Microsoft Corporation in the United States, other countries, or both.

MMX, Pentium, and ProShare are trademarks or registered trademarks of Intel Corporation in the United States, other countries, or both.

Solaris, Java and all Java-based trademarks are trademarks of Sun Microsystems, Inc. in the United States, other countries, or both.

Other company, product or service names may be trademarks or service marks of others.

IBM CrossWorlds Servers V4.1.1
IBM CrossWorlds Full Toolset V4.1.1
IBM CrossWorlds Connectors V4.1.1
IBM CrossWorlds Collaborations V4.1.1

