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IBM Informix V14.10 documentation

Welcome to the documentation for IBM® Informix® 14.10 and related client tools and products. The current fix pack level of Informix is 14.10.xC6.

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The IBM® Informix® library contains publications that describe every aspect of IBM Informix 14.10 and related products, including the Client SDK, version 4.10. The library includes a glossary and an error messages document.

The latest publications are available online in IBM Knowledge Center.

Tip: Publications for mature IBM Informix products might be available for download from the IBM Publications Center at http://www.ibm.com/e-business/linkweb/publications/servlet/pbi.wss.

Tables of publications

Quick reference cards

Publication title	Location
Quick reference card: Configuration parameters in the onconfig.std file	available in PDF only
Quick reference card: Enterprise Replication	available in PDF only
Quick reference card: onstat utility commands	available in PDF only
Quick reference card: SQL administration API arguments	available in PDF only
SQL quick reference card: SET ENVIRONMENT	available in PDF only

Informix database server and bundled products

Publication title	Location
Administrator's Guide	Administering > System administration > Administrator's Guide
Administrator's Reference	Administering > System administration > Administrator's Reference
Backup and Restore Guide	Administering > Backup and restore > Backup and Restore Guide
Change Data Capture API Programmer's Guide	Client API and programming tools > Change Data Capture API Programmer's Guide
Client Products Installation Guide	Installing > Client products > Informix Client SDK > Installing Informix Client Products
Database Design and Implementation Guide	Designing databases > Designing and Implementing a Database

Publication title	Location
Database Extensions User's Guide	Extending Informix > Informix extensions and DataBlade modules > Database Extensions User's Guide
DataBlade API Function Reference	Extending Informix > Creating extensions > DataBlade API Function Reference
DataBlade API Programmer's Guide	Extending Informix > Creating extensions > DataBlade API Programmer's Guide
DataBlade Developers Kit Tutorial	Extending Informix > Creating extensions > DataBlade Developers Kit > DBDK InfoShelf > DataBlade Developers Kit Tutorial
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DB-Access User's Guide	Administering > System administration > DB-Access User's Guide
Embeddability Guide	Embedding Informix > Embedding IBM Informix
Embedded SQLJ User's Guide	Client API and programming tools > Embedded SQLJ User's Guide
Enterprise Replication Guide	Administering > Replication > Enterprise Replication
Error Messages	Troubleshooting and support > Error messages
ESQL/C Programmer's Manual	Client API and programming tools > ESQL/C Guide
Excalibur Text Search DataBlade Module User's Guide	Extending Informix > Informix extensions and DataBlade modules > Excalibur Text Search DataBlade Module User's Guide
GLS API Programmer's Guide	Client API and programming tools > Informix GLS API
GLS User's Guide	Client API and programming tools > GLS User's Guide
Glossary	Glossary
Guide to SQL: Reference	SQL programming > Guide to SQL: Reference
Guide to SQL: Syntax	SQL programming > Guide to SQL: Syntax
Guide to SQL: Tutorial	SQL programming > Guide to SQL: Tutorial
High-Performance Loader User's Guide	Administering > System administration > High-Performance Loader User's Guide
Informix JDBC Driver Programmer's Guide	Client API and programming tools > Informix JDBC Driver Guide

Publication title	Location
Informix .NET Provider Reference Guide	Client API and programming tools > Informix .NET Provider Guide
Installation Guide	Installing > Informix server > Installing Informix
IBM J/Foundation Developer's Guide	Extending Informix > Creating extensions > J/Foundation Developer's Guide
JSON Compatibility Guide	JSON compatibility > IBM Informix JSON compatibility
Migration Guide	Migrating and upgrading > Migrating Informix database systems
Object Interface for C++ Programmer's Guide	Client API and programming tools > Informix Object Interface for C++ Guide
ODBC Driver Programmer's Manual	Client API and programming tools > Informix ODBC Driver Guide
OLE DB Provider Programmer's Guide	Client API and programming tools > Informix OLE DB Provider Guide
Performance Guide	Administering > System administration > Performance Guide
R-Tree Index User's Guide	Extending Informix > Creating extensions > R-Tree Index User's Guide
Security Guide	Security > Security in IBM Informix
SNMP Subagent Guide	Administering > System administration > SNMP Subagent Guide
TimeSeries Data User's Guide	Extending Informix > Informix extensions and DataBlade modules > TimeSeries Data User's Guide
User-Defined Routines and Data Types Developer's Guide	Extending Informix > Creating extensions > User-Defined Routines and Data Types Developer's Guide
Virtual-Index Interface Programmer's Guide	Extending Informix > Creating extensions > Virtual-Index Interface Guide
Virtual-Table Interface Programmer's Guide	Extending Informix > Creating extensions > Virtual-Table Interface Guide
Web DataBlade Module Administrator's Guide	available in PDF only
Web DataBlade Module Application Developer's Guide	available in PDF only
XML User's Guide	Extending Informix >Informix extensions and DataBlade modules > Performing XML Publishing

Informix solutions

Publication title	Location
Data Warehouse Guide	Data warehousing > Dimensional databases

Publication title	Location
Informix SQL Warehousing Tool	Data warehousing > Informix SQL Warehousing Tool
Warehouse Accelerator Administration Guide	Data warehousing > Informix Warehouse Accelerator

Informix virtual images

Publication title	Location
Informix Enterprise Hypervisor Edition	Informix virtual images > IBM Informix Enterprise Hypervisor Edition

Translated documentation

Some versions of the documentation are available in more than one language. The table below shows which publications have been translated into which languages.

To determine if translated documentation is current, compare the publication date at the bottom of the topic with the publication date of the English version of the topic by changing your browser language to English.

Language key: BR: Brazilian Portuguese, CN: Chinese-Simplified, CS: Czech, DE: German, ES: Spanish, FR: French, HU: Hungarian, IT: Italian, JA: Japanese, PL: Polish, RU: Russian, SK: Slovak, TW: Chinese-Traditional

Publication title	BR	CN	CS	DE	ES	FR	HU	IT	JA	PL	RU	SK	TW
Administrator's Guide		CN	CS	DE			HU		JA	PL	RU	SK	
Administrator's Reference			CS				HU		JA	PL	RU	SK	
Backup and Restore Guide		CN	CS	DE	ES				JA				
Change Data Capture API Programmer's Guide									JA				
Client Products Installation Guide	BR	CN		DE	ES	FR		IT	JA				
Data Warehouse Guide				DE					JA				
Database Design and Implementation Guide		CN		DE	ES	FR		IT	JA				
Database Extensions User's Guide		CN	CS	DE	ES				JA				TW
DataBlade API Function Reference									JA				
DataBlade API Programmer’s Guide									JA				
DataBlade Developers Kit Tutorial									JA				

Publication title	BR	CN	CS	DE	ES	FR	HU	IT	JA	PL	RU	SK	TW
DataBlade Developers Kit User's Guide									JA				
DataBlade Module Development Overview									JA				
DataBlade Module Installation and Registration Guide		CN		DE	ES				JA				
DB-Access User's Guide	BR	CN		DE	ES	FR			JA				TW
Embeddability Guide			CS						JA				
Embedded SQLJ User's Guide									JA				
Enterprise Replication Guide				DE	ES				JA				
Error Messages									JA				
ESQL/C Programmer's Manual									JA				
Excalibur Text Search DataBlade Module User's Guide		CN		DE	ES	FR			JA				TW
Glossary		CN		DE	ES				JA				TW
GLS API Programmer's Guide						FR			JA				
GLS User's Guide		CN	CS	DE	ES				JA				
Guide to SQL: Reference		CN							JA				
Guide to SQL: Syntax									JA				
Guide to SQL: Tutorial				DE					JA				
High-Performance Loader User's Guide				DE					JA				
Informix® JDBC Driver Programmer's Guide					ES				JA				
Informix .NET Provider Reference Guide					ES				JA				
Installation Guide for UNIX, Linux, and Mac OS X	BR	CN	CS	DE	ES				JA				TW
Installation Guide for Windows	BR	CN	CS		ES				JA				TW

Publication title	BR	CN	CS	DE	ES	FR	HU	IT	JA	PL	RU	SK	TW
J/Foundation Developer's Guide									JA				
Migration Guide			CS	DE					JA				
ODBC Driver Programmer's Manual									JA				
OLE DB Provider Programmer's Guide						FR			JA				
Performance Guide		CN	CS	DE					JA				
R-Tree Index User's Guide									JA				
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SNMP Subagent Guide									JA				
Spatial Data User's Guide					ES				JA				
TimeSeries Data User's Guide	BR	CN	CS		ES	FR			JA				TW
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Warehouse Accelerator Administration Guide	BR		CS		ES				JA				
XML User's Guide				DE	ES	FR			JA				TW

Example code conventions

Examples of SQL code occur throughout this publication. Except as noted, the code is not specific to any single IBM® Informix® application development tool.

If only SQL statements are listed in the example, they are not delimited by semicolons. For instance, you might see the code in the following example:

```
CONNECT TO stores_demo
...

DELETE FROM customer
   WHERE customer_num = 121
...
```

```
COMMIT WORK
DISCONNECT CURRENT
```

To use this SQL code for a specific product, you must apply the syntax rules for that product. For example, if you are using an SQL API, you must use EXEC SQL at the start of each statement and a semicolon (or other appropriate delimiter) at the end of the statement. If you are using DB–Access, you must delimit multiple statements with semicolons.
Tip: Ellipsis points in a code example indicate that more code would be added in a full application, but it is not necessary to show it to describe the concept that is being discussed.
For detailed directions on using SQL statements for a particular application development tool or SQL API, see the documentation for your product.

How to read the syntax diagrams

Syntax diagrams use special components to describe the syntax for SQL statements and commands.

Read the syntax diagrams from left to right and top to bottom, following the path of the line.

Right chevrons and a hyphen >>- indicate the beginning of a syntax diagram.

Hyphens and a right chevron -–> indicate that the syntax is continued on the next line.

A right chevron and hyphens >–– indicate that the syntax is continued from the previous line.

Hyphens followed by a right chevron and a left chevron –––>< indicate the end of a syntax diagram.

Syntax fragments start with a vertical bar and hyphens |–– and end with hyphens and a vertical bar ––|.

Required items appear on the horizontal line (the main path).

```
>>-required_item-----------------------------------------------><
```

Optional items appear below the main path.

```
>>-required_item--+---------------+--------------------------><
                  '-optional_item-'
```

If you can choose from two or more items, they appear in a stack.

If you *must* choose one of the items, one item of the stack appears on the main path.

```
>>-required_item--+-required_choice1-+-------------------------><
                  '-required_choice2-'
```

If choosing one of the items is optional, the entire stack appears below the main path.

```
>>-required_item--+-----------------+-------------------------><
                  +-optional_choice1-+
                  '-optional_choice2-'
```

If one of the items is the default, it will appear above the main path, and the remaining choices will be shown below.

```
                  .-default_choice--.
>>-required_item--+-----------------+-------------------------><
                  +-optional_choice-+
                  '-optional_choice-'
```

An arrow returning to the left, above the main line, indicates an item that can be repeated. In this case, repeated items must be separated by one or more blanks.

```
                  .-----------------.
                  V                 |
>>-required_item----repeatable_item-+-------------------------><
```

If the repeat arrow contains a comma, you must separate repeated items with a comma.

```
                  .-,---------------.
                  V                 |
>>-required_item----repeatable_item-+-------------------------><
```

A repeat arrow above a stack indicates that you can make more than one choice from the stacked items or repeat a single choice.

SQL keywords appear in uppercase (for example, `FROM`). They must be spelled exactly as shown. Variables appear in lowercase (for example, `column-name`). They represent user-supplied names or values in the syntax.

If punctuation marks, parentheses, arithmetic operators, or other such symbols are shown, you must enter them as part of the syntax.

Sometimes a single variable represents a syntax segment. For example, in the following diagram, the variable `parameter-block` represents the syntax segment that is labeled **parameter-block**:

```
>>-required_item--| parameter-block |-------------------------><

parameter-block

|--+-parameter1-----------------+-----------------------------|
   '-parameter2--+-parameter3-+-'
                 '-parameter4-'
```

Dotted decimal syntax diagrams

The syntax diagrams in our publications are available in dotted decimal format, which is an accessible format that is available only if you are using a screen reader.

In dotted decimal format, each syntax element is written on a separate line. If two or more syntax elements are always present together (or always absent together), the elements can appear on the same line, because

they can be considered as a single compound syntax element.

Each line starts with a dotted decimal number; for example, 3 or 3.1 or 3.1.1. To hear these numbers correctly, make sure that your screen reader is set to read punctuation. All syntax elements that have the same dotted decimal number (for example, all syntax elements that have the number 3.1) are mutually exclusive alternatives. If you hear the lines 3.1 USERID and 3.1 SYSTEMID, your syntax can include either USERID or SYSTEMID, but not both.

The dotted decimal numbering level denotes the level of nesting. For example, if a syntax element with dotted decimal number 3 is followed by a series of syntax elements with dotted decimal number 3.1, all the syntax elements numbered 3.1 are subordinate to the syntax element numbered 3.

Certain words and symbols are used next to the dotted decimal numbers to add information about the syntax elements. Occasionally, these words and symbols might occur at the beginning of the element itself. For ease of identification, if the word or symbol is a part of the syntax element, the word or symbol is preceded by the backslash (\) character. The * symbol can be used next to a dotted decimal number to indicate that the syntax element repeats. For example, syntax element *FILE with dotted decimal number 3 is read as 3 * FILE. Format 3* FILE indicates that syntax element FILE repeats. Format 3* * FILE indicates that syntax element * FILE repeats.

Characters such as commas, which are used to separate a string of syntax elements, are shown in the syntax just before the items they separate. These characters can appear on the same line as each item, or on a separate line with the same dotted decimal number as the relevant items. The line can also show another symbol that provides information about the syntax elements. For example, the lines 5.1*, 5.1 LASTRUN, and 5.1 DELETE mean that if you use more than one of the LASTRUN and DELETE syntax elements, the elements must be separated by a comma. If no separator is given, assume that you use a blank to separate each syntax element.

If a syntax element is preceded by the % symbol, that element is defined elsewhere. The string that follows the % symbol is the name of a syntax fragment rather than a literal. For example, the line 2.1 %OP1 refers to a separate syntax fragment OP1.

The following words and symbols are used next to the dotted decimal numbers:

?

Specifies an optional syntax element. A dotted decimal number followed by the ? symbol indicates that all the syntax elements with a corresponding dotted decimal number, and any subordinate syntax elements, are optional. If there is only one syntax element with a dotted decimal number, the ? symbol is displayed on the same line as the syntax element (for example, 5? NOTIFY). If there is more than one syntax element with a dotted decimal number, the ? symbol is displayed on a line by itself, followed by the syntax elements that are optional. For example, if you hear the lines 5 ?, 5 NOTIFY, and 5 UPDATE, you know that syntax elements NOTIFY and UPDATE are optional; that is, you can choose one or none of them. The ? symbol is equivalent to a bypass line in a railroad diagram.

!

Specifies a default syntax element. A dotted decimal number followed by the ! symbol and a syntax element indicates that the syntax element is the default option for all syntax elements that share the same dotted decimal number. Only one of the syntax elements that share the same dotted decimal number can specify a ! symbol. For example, if you hear the lines 2? FILE, 2.1! (KEEP), and 2.1 (DELETE), you know that (KEEP) is the default option for the FILE keyword. In this example, if you include the FILE keyword but do not specify an option, default option KEEP is applied. A default option also applies to the next higher dotted decimal number. In this example, if the FILE keyword is omitted, default FILE(KEEP) is used. However, if you hear the lines 2? FILE, 2.1, 2.1.1! (KEEP), and 2.1.1 (DELETE), the default option KEEP only applies to the next higher dotted decimal number, 2.1 (which does not have an associated keyword), and does not apply to 2? FILE. Nothing is used if the keyword FILE is omitted.

*

Specifies a syntax element that can be repeated zero or more times. A dotted decimal number followed by the * symbol indicates that this syntax element can be used zero or more times; that is, it is optional and can be repeated. For example, if you hear the line `5.1* data-area`, you know that you can include more than one data area or you can include none. If you hear the lines `3*, 3 HOST`, and `3 STATE`, you know that you can include `HOST`, `STATE`, both together, or nothing.
Notes:

1. If a dotted decimal number has an asterisk (*) next to it and there is only one item with that dotted decimal number, you can repeat that same item more than once.
2. If a dotted decimal number has an asterisk next to it and several items have that dotted decimal number, you can use more than one item from the list, but you cannot use the items more than once each. In the previous example, you can write `HOST STATE`, but you cannot write `HOST HOST`.
3. The * symbol is equivalent to a loop-back line in a railroad syntax diagram.

+

Specifies a syntax element that must be included one or more times. A dotted decimal number followed by the + symbol indicates that this syntax element must be included one or more times. For example, if you hear the line `6.1+ data-area`, you must include at least one data area. If you hear the lines `2+`, `2 HOST`, and `2 STATE`, you know that you must include `HOST`, `STATE`, or both. As for the * symbol, you can repeat a particular item if it is the only item with that dotted decimal number. The + symbol, like the * symbol, is equivalent to a loop-back line in a railroad syntax diagram.