

# **TIBCO Enterprise Message Service™**

## **C and COBOL Reference**

*Software Release 6.3  
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# Preface

TIBCO is proud to announce the latest release of TIBCO Enterprise Message Service™. This release is the latest in a long history of TIBCO products that leverage the power of the Information Bus® to enable truly event-driven IT environments. To find out more about how TIBCO Enterprise Message Service and other TIBCO products are powered by TIB® technology, please visit us at [www.tibco.com](http://www.tibco.com).

TIBCO Enterprise Message Service software lets application programs send and receive messages according to the Java Message Service (JMS) protocol. It also integrates with TIBCO Rendezvous and TIBCO SmartSockets messaging products.

## Topics

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- [Changes from the Previous Release of this Guide, page xviii](#)
- [Related Documentation, page xix](#)
- [Typographical Conventions, page xxi](#)
- [Connecting with TIBCO Resources, page xxiv](#)

## Changes from the Previous Release of this Guide

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This section itemizes the major changes from the previous release of this guide.

There are no changes from the previous release of this guide.

## Related Documentation

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This section lists documentation resources you may find useful.

### TIBCO Enterprise Message Service Documentation

The following documents form the TIBCO Enterprise Message Service documentation set:

- *TIBCO Enterprise Message Service User's Guide* Read this manual to gain an overall understanding of the product, its features, and configuration.
- *TIBCO Enterprise Message Service Installation* Read the relevant sections of this manual before installing this product.
- *TIBCO Enterprise Message Service C & COBOL API Reference* The C API reference is available in HTML and PDF formats.
- *TIBCO Enterprise Message Service Java API Reference* The Java API reference can be accessed only through the HTML documentation interface.
- *TIBCO Enterprise Message Service .NET API Reference* The .NET API reference can be accessed only through the HTML documentation interface.
- *TIBCO Enterprise Message Service Release Notes* Read the release notes for a list of new and changed features. This document also contains lists of known issues and closed issues for this release. This document is available only in PDF format.

### Other TIBCO Product Documentation

You may find it useful to read the documentation for the following TIBCO products:

- TIBCO Rendezvous®
- TIBCO SmartSockets®
- TIBCO Hawk®
- TIBCO EMS® Client for z/OS (CICS)
- TIBCO EMS® Client for z/OS (MVS)
- TIBCO EMS® Client for IBM i

## Third Party Documentation

- Java™ Message Service specification, available through <http://java.sun.com/products/jms/index.html>.
- *Java™ Message Service* by Richard Monson-Haefel and David A. Chappell, O'Reilly and Associates, Sebastopol, California, 2001.
- Java™ Authentication and Authorization Service (JAAS) *LoginModule Developer's Guide* and *Reference Guide*, available through <http://java.sun.com/products/jaas/>.

## Typographical Conventions

The following typographical conventions are used in this manual.

Table 1 General Typographical Conventions

Convention	Use
<i>TIBCO_HOME</i>	<p>Many TIBCO products must be installed within the same home directory. This directory is referenced in documentation as <i>TIBCO_HOME</i>. The value of <i>TIBCO_HOME</i> depends on the operating system. For example, on Windows systems, the default value is C:\tibco.</p> <p>Other TIBCO products are installed into an installation environment. Incompatible products and multiple instances of the same product are installed into different installation environments. The directory into which such products are installed is referenced in documentation as <i>ENV_HOME</i>. The value of <i>ENV_HOME</i> depends on the operating system. For example, on Windows systems the default value is C:\tibco.</p> <p>TIBCO Enterprise Message Service installs into a directory within <i>TIBCO_HOME</i>. This directory is referenced in documentation as <i>EMS_HOME</i>. The value of <i>EMS_HOME</i> depends on the operating system. For example on Windows systems, the default value is C:\tibco\ems\6.3.</p>
<i>ENV_HOME</i>	
<i>EMS_HOME</i>	
code font	<p>Code font identifies commands, code examples, filenames, pathnames, and output displayed in a command window. For example:</p> <p>Use MyCommand to start the TIBCO foo process.</p>
<b>bold code font</b>	<p>Bold code font is used in the following ways:</p> <ul style="list-style-type: none"> <li>• In procedures, to indicate what a user types. For example: Type the username <b>admin</b>.</li> <li>• In large code samples, to indicate the parts of the sample that are of particular interest.</li> <li>• In command syntax, to indicate the default value. For example, if no parameter is specified, MyCommand is enabled: MyCommand [<b>enable</b>   disable]</li> </ul>

Table 1 General Typographical Conventions

Convention	Use
<i>italic font</i>	<p>Italic font is used in the following ways:</p> <ul style="list-style-type: none"><li>• To indicate a document title. For example: See <i>TIBCO BusinessWorks Concepts</i> for more details.</li><li>• To introduce new terms For example: A portal page may contain several <i>portlets</i>. Portlets are mini-applications that run in a portal.</li><li>• To indicate a variable in a command or code syntax that you must replace. For example: <code>MyCommand <i>pathname</i></code></li></ul>
Key combinations	<p>Key name separated by a plus sign indicate keys pressed simultaneously. For example: Ctrl+C.</p> <p>Key names separated by a comma and space indicate keys pressed one after the other. For example: Esc, Ctrl+Q.</p>

Table 2 *Syntax Typographical Conventions*

Convention	Use
[ ]	<p>An optional item in a command or code syntax.</p> <p>For example:</p> <pre>MyCommand [optional_parameter] required_parameter</pre>
	<p>A logical 'OR' that separates multiple items of which only one may be chosen.</p> <p>For example, you can select only one of the following parameters:</p> <pre>MyCommand para1   param2   param3</pre>
{ }	<p>A logical group of items. Other syntax notations may appear within each logical group.</p> <p>For example, the following command requires two parameters, which can be either param1 and param2 or param3 and param4:</p> <pre>MyCommand {param1 param2}   {param3 param4}</pre> <p>In the next example, the command requires two parameters. The first parameter can be either param1 or param2 and the second can be either param3 or param4:</p> <pre>MyCommand {param1   param2} {param3   param4}</pre> <p>In the next example, the command can accept either two or three parameters. The first parameter must be param1. You can optionally include param2 as the second parameter. And the last parameter is either param3 or param4.</p> <pre>MyCommand param1 [param2] {param3   param4}</pre>

## Connecting with TIBCO Resources

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### How to Join TIBCOCommunity

TIBCOCommunity is an online destination for TIBCO customers, partners, and resident experts. It is a place to share and access the collective experience of the TIBCO community. TIBCOCommunity offers forums, blogs, and access to a variety of resources. To register, go to <http://www.tibcommunity.com>.

### How to Access TIBCO Documentation

You can access TIBCO documentation here:

<http://docs.tibco.com>

### How to Contact TIBCO Support

For comments or problems with this manual or the software it addresses, contact TIBCO Support as follows:

- For an overview of TIBCO Support, and information about getting started with TIBCO Support, visit this site:

<http://www.tibco.com/services/support>

- If you already have a valid maintenance or support contract, visit this site:

<https://support.tibco.com>

Entry to this site requires a user name and password. If you do not have a user name, you can request one.



## Chapter 1      **Introduction**

This chapter presents concepts specific to the TIBCO Enterprise Message Service™ C API and COBOL API. For more general information and concepts pertaining to TIBCO Enterprise Message Service (EMS) software, see the book *TIBCO Enterprise Message Service User's Guide*.

### Topics

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- [Overview, page 2](#)
- [Excluded Features and Restrictions, page 3](#)
- [Naming Conventions and Length Limitations, page 3](#)
- [Strings and Character Encodings, page 4](#)

## Overview

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TIBCO Enterprise Message Service Java API implements (and extends) the JMS 1.1 specification. TIBCO Enterprise Message Service C API closely mimics the Java API.

EMS COBOL API brings the power of EMS to z/OS systems. Its entry points parallel those of the C API, with identical function names and similar parameters.

## Excluded Features and Restrictions

This section summarizes features that are not available in either the C library, or the COBOL library.

Table 3 Feature Support

Feature	C	COBOL
XA protocols for external transaction managers	Yes	—
ConnectionConsumer, ServerSession, ServerSessionPool	—	—

## Naming Conventions and Length Limitations

The rules that govern naming conventions and length limitations in TIBCO Enterprise Message Service are described in the *TIBCO Enterprise Message Service User's Guide*. For detailed information, see the Naming Conventions section in that book.

## Strings and Character Encodings

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C programs represent strings within messages as byte arrays. Before sending an outbound message, EMS programs translate strings to their byte representation using an encoding, which the program specifies. Conversely, when EMS programs receive inbound messages, they reconstruct strings from byte arrays using the same encoding.

When a program specifies an encoding, it applies to all strings in message bodies (names and values), and properties (names and values). It does *not* apply to header names nor values. The function `tibemsBytesMsg_WriteUTF` always uses UTF-8 as its encoding.

For a list of standard encoding names, see [www.iana.org](http://www.iana.org).

Outbound Messages	<p>C programs can determine the encoding of strings in outbound messages in two ways:</p> <ul style="list-style-type: none"> <li>• Use the default global encoding—namely, UTF-8.</li> <li>• Set the encoding for an individual message using <code>tibemsMsg_SetEncoding</code> on page 62.</li> </ul>
Inbound Messages	An inbound message from another EMS client contains its encoding type, so the receiving client can properly decode strings inside the message.
Character Limits for Connection URLs	Connection URLs are limited to a length of 1000 characters. Note that this limit pertains to the C client library, as well as the administration tool and the <code>factories.conf</code> configuration file.

## IBM z/OS and i5—COBOL and C

In EBCDIC environments, the EMS client library automatically converts message strings. To client programs, all strings appear in the host code page. On the network, all strings appear in the network host page. For details, see `tibems_SetCodePages()` on page 537.

## Configuring C and COBOL Clients for Fault-Tolerant Connections

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When connecting a fault-tolerant client to EMS, you must specify two or more EMS servers, as described in [Configuring Clients for Fault-Tolerant Connections](#) in the *TIBCO Enterprise Message Service User's Guide*.

C clients list the primary and backup server URLs in the `brokerURL` argument to a connection constructor, separated by a comma.

### Example

In this example, the first server is `tcp://server0:7222`, and the second server is `tcp://server1:7344` (if first server is not available).

```
tibemsConnection_Create(  
    &connection,  
    "tcp://server0:7222,  
    tcp://server1:7344",  
    NULL, "admin", NULL );
```



## Chapter 2      **Messages**

Message objects carry application data between client program processes. This chapter presents the structure of messages, JMS message selector syntax to specify a subset of messages based on their property values, the message types and their functions.

### Topics

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- [Parts of a Message, page 8](#)
- [Body Types, page 9](#)
- [Headers, page 10](#)
- [Properties, page 14](#)
- [Message Selectors, page 17](#)
- [tibemsMsg, page 21](#)
- [tibemsBytesMsg, page 73](#)
- [tibemsMapMsg, page 89](#)
- [tibemsObjectMsg, page 104](#)
- [tibemsStreamMsg, page 108](#)
- [tibemsTextMsg, page 123](#)

## Parts of a Message

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Messages consist of three parts:

- **Body** The body of a message bears the information content of an application. Several types of message body organize that information in different ways; see [Body Types on page 9](#).
- **Header** Headers associate a fixed set of header field names with values. Clients and providers use headers to identify and route messages.
- **Properties** Properties associate an extensible set of property names with values. The EMS server uses properties to attach ancillary information to messages. Client applications can also use properties—for example, to customize message filtering.



## Body Types

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EMS follows JMS in defining five types of message body:

- [tibemsMapMsg](#) The message body is a mapping from field names to values. Field names are strings. EMS supports an extended set of values types (extending JMS). Programs can access fields either by name, or sequentially (though the order of that sequence is indeterminate).
- [tibemsObjectMsg](#) The message body is one serializable object.
- [tibemsStreamMsg](#) The message body is a stream of values. Programs write the values sequentially into the stream, and read values sequentially from the stream.
- [tibemsTextMsg](#) The message body is one character string (of any length). This text string can represent any text, including an XML document.
- [tibemsBytesMsg](#) The message body is a stream of uninterpreted bytes. Programs can use this body type to emulate body types that do not map naturally to one of the other body types.

**See Also**    [tibemsMsgType on page 138](#)  
[tibemsMsg\\_GetBodyType on page 35](#)

# Headers

Headers associate a fixed set of header field names with values. Clients and providers use headers to identify and route messages.

Programs can access header values using the function calls in [Table 4](#).

However, programs can effectively set only three message header properties—Reply To, Correlation ID and Type. For all other header properties, the provider ignores or overwrites values set by client programs.

Table 4 JMS Message Headers

Description
<b>Correlation ID</b>  Correlation ID refers to a related message. For example, when a consumer responds to a request message by sending a reply, it can set the correlation ID of the reply to indicate the request message.  The JMS specification allows three categories of values for the correlation ID property: <ul style="list-style-type: none"><li><b>Message ID</b> A message ID is a unique string that the provider assigns to a message. Programs can use these IDs to correlate messages. For example, a program can link a response to a request by setting the correlation ID of a response message to the message ID of the corresponding request message.  Message ID strings begin with the prefix ID: (which is reserved for this purpose).</li><li><b>String</b> Programs can also correlate messages using arbitrary strings, with semantics determined by the application.  These strings must <i>not</i> begin with the prefix ID: (which is reserved for message IDs).</li><li><b>Byte Array</b> This implementation does not support byte array values for the correlation ID property. The JMS specification does not require support.</li></ul> <a href="#">tibemsMsg_GetCorrelationID on page 37</a> <a href="#">tibemsMsg_SetCorrelationID on page 58</a>

Table 4 JMS Message Headers

Description
<p><b>Delivery Mode</b></p> <p>Delivery Mode instructs the server concerning persistent storage for the message. For detailed information on delivery modes, see the <i>TIBCO Enterprise Message Service User's Guide</i>.</p> <p>Sending calls set the delivery mode for each message, based on either a property of the producer, or on a parameter to the sending call. To set the producer property, see <a href="#">tibemsMsgProducer_SetDeliveryMode on page 187</a>.</p> <p><a href="#">tibemsMsg_GetDeliveryMode on page 39</a></p> <p><a href="#">tibemsMsg_SetDeliveryMode on page 60</a></p> <p>For values, see <a href="#">tibemsDeliveryMode on page 128</a>.</p>
<p><b>Destination</b></p> <p>Sending calls set the destination (queue or topic) of the message in this header and will overwrite any existing value. The value is based on either a property of the producer, or on a parameter to the send call.</p> <p>Listeners that consume messages from wildcard destinations can use this property to determine the actual destination of a message.</p> <p><a href="#">tibemsMsg_GetDestination on page 40</a></p> <p><a href="#">tibemsMsg_SetDestination on page 61</a></p>
<p><b>Expiration</b></p> <p>Sending calls set the expiration time (in milliseconds) of the message in this field:</p> <ul style="list-style-type: none"> <li>• If the time-to-live is non-zero, the expiration is the sum of that time-to-live and the sending client's current time (GMT).</li> <li>• If the time-to-live is zero, then expiration is also zero—indicating that the message never expires.</li> </ul> <p>The server discards a message when its expiration time has passed. However, the JMS specification does not guarantee that clients do not receive expired messages.</p> <p><a href="#">tibemsMsg_GetExpiration on page 42</a></p> <p><a href="#">tibemsMsg_SetExpiration on page 63</a></p>

Table 4 JMS Message Headers

Description
<p><b>Message ID</b></p> <p>Sending calls assign a unique ID to each message, and record it in this header.</p> <p>All message ID values start with the 3-character prefix ID: (which is reserved for this purpose).</p> <p>Applications that do not require message IDs can reduce overhead costs by disabling IDs; see <a href="#">tibemsMsgProducer_SetDisableMessageID on page 188</a>. When the producer disables IDs, the value of this header is null.</p> <p><a href="#">tibemsMsg_GetMessageID on page 43</a></p> <p><a href="#">tibemsMsg_SetMessageID on page 64</a></p>
<p><b>Priority</b></p> <p>Sending calls set the priority of a message in this header, based on either a property of the producer (<a href="#">tibemsMsgProducer_SetPriority on page 192</a>), or on a parameter to the send call.</p> <p>The JMS specification defines ten levels of priority value, from zero (lowest priority) to 9 (highest priority). The specification suggests that clients consider 0–4 as gradations of normal priority, and priorities 5–9 as gradations of expedited priority.</p> <p>Priority affects the order in which the server delivers messages to consumers (higher values first). The JMS specification does not require all providers to implement priority ordering of messages. (EMS supports priorities, but other JMS providers might not.)</p> <p><a href="#">tibemsMsg_GetPriority on page 44</a></p> <p><a href="#">tibemsMsg_SetPriority on page 65</a></p>
<p><b>Redelivered</b></p> <p>The server sets this header to indicate whether a message might duplicate a previously delivered message:</p> <ul style="list-style-type: none"><li>• <code>false</code>—The server has <i>not</i> previously attempted to deliver this message to the consumer.</li><li>• <code>true</code>—It is likely (but not guaranteed) that the server has previously attempted to deliver this message to the consumer, but the consumer did not return timely acknowledgement.</li></ul> <p><a href="#">tibemsMsg_GetRedelivered on page 49</a></p> <p><a href="#">tibemsMsg_SetRedelivered on page 69</a></p> <p>See also, <a href="#">tibemsAcknowledgeMode on page 312</a></p>

Table 4 JMS Message Headers

Description
<p><b>Reply To</b></p> <p>Sending clients can set this header to request that recipients reply to the message:</p> <ul style="list-style-type: none"> <li>When the value is a destination object, recipients can send replies to that destination. Such a message is called a <i>request</i>.</li> <li>When the value is null, the sender does not expect a reply.</li> </ul> <p>When sending a reply, clients can refer to the corresponding request by setting the Correlation ID.</p> <p><a href="#">tibemsMsg_GetReplyTo on page 50</a></p> <p><a href="#">tibemsMsg_SetReplyTo on page 70</a></p>
<p><b>Timestamp</b></p> <p>Sending calls record a UTC timestamp in this header, indicating the approximate time that the server accepted the message.</p> <p>The value is in milliseconds since January 1, 1970 (as in Java).</p> <p>Applications that do not require timestamps can reduce overhead costs by disabling timestamps; see <a href="#">tibemsMsgProducer_SetDisableMessageTimestamp on page 189</a>. When the producer disables timestamps, the value of this header is zero.</p> <p><a href="#">tibemsMsg_GetTimestamp on page 51</a></p> <p><a href="#">tibemsMsg_SetTimestamp on page 71</a></p>
<p><b>Type</b></p> <p>Some JMS providers use a message repository to store message type definitions. Client programs can store a value in this field to reference a definition in the repository. EMS support this header, but does not use it.</p> <p>The JMS specification does not define a standard message definition repository, nor does it define a naming policy for message type definitions.</p> <p>Some providers require message type definitions for each application message. To ensure compatibility with such providers, client programs can set this header, even if the client application does not use it.</p> <p>To ensure portability, clients can set this header with symbolic values (rather than literals), and configure them to match the provider's repository.</p> <p><a href="#">tibemsMsg_GetType on page 52</a></p> <p><a href="#">tibemsMsg_SetType on page 72</a></p>

# Properties

Properties associate an extensible set of property field names with values. The EMS server uses properties to attach ancillary information to messages.

Client applications can also use properties—for example, to customize message filtering; see [Message Selectors on page 17](#).

## Setting Message Properties

Property names must conform to the syntax for message selector identifiers; see [Identifiers on page 17](#).

Property values cannot be null or an empty string.

Sending programs can set property values before sending a message.

Receiving programs cannot ordinarily set property values on inbound messages. However, `tibemsMsg_ClearProperties` removes all existing the properties from a message, and lets the program set property values.

## EMS Properties

The JMS specification reserves the property name prefix `JMS_vendor_name_` for provider-specific properties (for EMS, this prefix is `JMS_TIBCO_`). Properties that begin with this prefix refer to features of EMS; client programs may use these properties to access those features, but not for communicating application-specific information among client programs.

Table 5 Message Property Names

Property	Description
JMS_TIBCO_CM_PUBLISHER	Correspondent name of an RVCМ sender for messages imported from TIBCO Rendezvous.
JMS_TIBCO_CM_SEQUENCE	Sequence number of an RVCМ message imported from TIBCO Rendezvous.
JMS_TIBCO_COMPRESS	Senders may set this property to request that EMS compress the message before sending it to the server. The .NET client API does not support this feature at this time.

Table 5 Message Property Names

Property	Description
JMS_TIBCO_DISABLE_SENDER	Senders may set this property to prevent the EMS server from including the sender name in the message when the server sends it to consumers; see <a href="#">JMS_TIBCO_SENDER</a> .
JMS_TIBCO_IMPORTED	When the EMS server imports a message from an external message service (such as TIBCO Rendezvous or TIBCO SmartSockets), it sets this property to true.
JMS_TIBCO_MSG_EXT	<p>Producers can set this property to true to indicate that a message uses EMS extensions to the JMS specification for messages.</p> <p>The server sets this property to true when importing a message from an external message service, since the message might use those extensions.</p>
JMS_TIBCO_MSG_TRACE	<p>When a producer sets this property, the EMS server generates trace output when the message arrives from the producer, and whenever a consumer receives it.</p> <ul style="list-style-type: none"> <li>• When the property value is null, the trace output contains the message ID and sequence number.</li> <li>• When the property value is body, the trace output includes the message body as well.</li> </ul>
JMS_TIBCO_PRESERVE_UNDELIVERED	When this property is true, the server preserves a record of undeliverable messages by delivering them to the undelivered message queue, <code>\$sys.undelivered</code> .
JMS_TIBCO_SENDER	The EMS server fills this property with the <i>user name</i> (string) of the client that sent the message. This feature applies only when the <code>sender_name</code> property of the message's destination is non-null. The sender can disable this feature (overriding the destination property <code>sender_name</code> ) by setting a non-null value for the message property <a href="#">JMS_TIBCO_DISABLE_SENDER</a> .
JMS_TIBCO_SS_SENDER	When the EMS server imports a message from TIBCO SmartSockets, it sets this property to the SmartSockets sender header field (in SmartSockets syntax).

<b>COBOL Constants</b>	01	TIBEMS-PROPERTIES.	
	05	JMS-TIBCO-CM-PUBLISHER	PIC X(23) VALUE
		Z'JMS_TIBCO_CM_PUBLISHER'.	
	05	JMS-TIBCO-CM-SEQUENCE	PIC X(22) VALUE
		Z'JMS_TIBCO_CM_SEQUENCE'.	
	05	JMS-TIBCO-COMPRESS	PIC X(19) VALUE
		Z'JMS_TIBCO_COMPRESS'.	
	05	JMS-TIBCO-DISABLE-SENDER	PIC X(25) VALUE
		Z'JMS_TIBCO_DISABLE_SENDER'.	
	05	JMS-TIBCO-IMPORTED	PIC X(19) VALUE
		Z'JMS_TIBCO_IMPORTED'.	
	05	JMS-TIBCO-MSG-EXT	PIC X(19) VALUE
		Z'JMS_TIBCO_MSG_EXT'.	
	05	JMS-TIBCO-MSG-TRACE	PIC X(20) VALUE
		Z'JMS_TIBCO_MSG_TRACE'.	
	05	JMS-TIBCO-PRESERVE-UNDELIVERED	PIC X(31) VALUE
	Z'JMS_TIBCO_PRESERVE_UNDELIVERED'.		
05	JMS-TIBCO-SENDER	PIC X(17) VALUE	
	Z'JMS_TIBCO_SENDER'.		
05	JMS-TIBCO-SS-SENDER	PIC X(20) VALUE	
	Z'JMS_TIBCO_SS_SENDER'.		

## JMS Properties

The JMS specification reserves the property name prefix JMSX for properties defined by JMS. Client programs may use these properties to access those features, but not for communicating application-specific information among client programs.

For information about these properties, see the JMS specification.



## Message Selectors

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A message selector is string that lets a client program specify a set of messages, based on the values of message headers and properties. A selector *matches* a message if, after substituting header and property values from the message into the selector string, the string evaluates to `true`. Consumers can request that the server deliver only those messages that match a selector.

The syntax of selectors is based on a subset of SQL92 conditional expression syntax.

### Identifiers

Identifiers can refer to the values of message headers and properties, but not to the message body. Identifiers are case-sensitive.

Basic Syntax	An identifier is a sequence of letters and digits, of any length, that begins with a letter. As in Java, the set of letters includes <code>_</code> (underscore) and <code>\$</code> (dollar).
Illegal	Certain names are exceptions, which cannot be used as identifiers. In particular, <code>NULL</code> , <code>TRUE</code> , <code>FALSE</code> , <code>NOT</code> , <code>AND</code> , <code>OR</code> , <code>BETWEEN</code> , <code>LIKE</code> , <code>IN</code> , <code>IS</code> , and <code>ESCAPE</code> are defined to have special meaning in message selector syntax.
Value	Identifiers refer either to message header names or property names. The type of an identifier in a message selector corresponds to the type of the header or property value. If an identifier refers to a header or property that does not exist in a message, its value is <code>NULL</code> .

### Literals

String Literal	A string literal is enclosed in single quotes. To represent a single quote within a literal, use two single quotes; for example, <code>'literal''s'</code> . String literals use the Unicode character encoding. String literals are case sensitive.
Exact Numeric Literal	An exact numeric literal is a numeric value without a decimal point, such as <code>57</code> , <code>-957</code> , and <code>+62</code> ; numbers in the range of <code>long</code> are supported.
Approximate Numeric Literal	An approximate numeric literal is a numeric value with a decimal point (such as <code>7.</code> , <code>-95.7</code> , and <code>+6.2</code> ), or a numeric value in scientific notation (such as <code>7E3</code> and <code>-57.9E2</code> ); numbers in the range of <code>double</code> are supported. Approximate literals use the floating-point literal syntax of the Java programming language.

**Boolean Literal** The boolean literals are `TRUE` and `FALSE` (case insensitive).

Internal computations of expression values use a 3-value boolean logic similar to SQL. However, the final value of an expression is always either `TRUE` or `FALSE`—never `UNKNOWN`.

## Expressions

**Selectors as Expressions** Every selector is a conditional expression. A selector that evaluates to `true` matches the message; a selector that evaluates to `false` or `unknown` does not match.

**Arithmetic Expression** Arithmetic expressions are composed of numeric literals, identifiers (that evaluate to numeric literals), arithmetic operations, and smaller arithmetic expressions.

**Conditional Expression** Conditional expressions are composed of comparison operations, logical operations, and smaller conditional expressions.

**Order of Evaluation** Order of evaluation is left-to-right, within precedence levels. Parentheses override this order.

## Operators

**Case Insensitivity** Operator names are case-insensitive.

**Logical Operators** Logical operators in precedence order: `NOT`, `AND`, `OR`.

**Comparison Operators** Comparison operators: `=`, `>`, `>=`, `<`, `<=`, `<>` (not equal).

These operators can compare only values of comparable types. (Exact numeric values and approximate numerical values are comparable types.) Attempting to compare incomparable types yields `false`. If either value in a comparison evaluates to `NULL`, then the result is `unknown` (in SQL 3-valued logic).

Comparison of string values is restricted to `=` and `<>`. Two strings are equal if and only if they contain the same sequence of characters. Comparison of boolean values is restricted to `=` and `<>`.

**Arithmetic Operators** Arithmetic operators in precedence order:

- `+`, `-` (unary)
- `*`, `/` (multiplication and division)
- `+`, `-` (addition and subtraction)

Arithmetic operations obey numeric promotion rules of the Java programming language.

Between Operator	<p><i>arithmetic-expr1</i> [NOT] BETWEEN <i>arithmetic-expr2</i> AND <i>arithmetic-expr3</i></p> <p>The BETWEEN comparison operator includes its endpoints. For example:</p> <ul style="list-style-type: none"> <li>• <i>age</i> BETWEEN 5 AND 9 is equivalent to <i>age</i> &gt;= 5 AND <i>age</i> &lt;= 9</li> <li>• <i>age</i> NOT BETWEEN 5 AND 9 is equivalent to <i>age</i> &lt; 5 OR <i>age</i> &gt; 9</li> </ul>
String Set Membership	<p><i>identifier</i> [NOT] IN (<i>string-literal1</i>, <i>string-literal2</i>, ...)</p> <p>The <i>identifier</i> must evaluate to either a string or NULL. If it is NULL, then the value of this expression is unknown.</p>
Pattern Matching	<p><i>identifier</i> [NOT] LIKE <i>pattern-value</i> [ESCAPE <i>escape-character</i>]</p> <p>The <i>identifier</i> must evaluate to a string.</p> <p>The <i>pattern-value</i> is a string literal, in which some characters bear special meaning:</p> <ul style="list-style-type: none"> <li>• <i>_</i> (underscore) can match any single character.</li> <li>• <i>%</i> (percent) can match any sequence of zero or more characters.</li> <li>• <i>escape-character</i> preceding either of the special characters changes them into ordinary characters (which match only themselves).</li> </ul>
Null Header or Property	<p><i>identifier</i> IS NULL</p> <p>This comparison operator tests whether a message header is null, or a message property is absent.</p> <p><i>identifier</i> IS NOT NULL</p> <p>This comparison operator tests whether a message header or message property is non-null.</p>

## White Space

White space is any of the characters space, horizontal tab, form feed, or line terminator—or any contiguous run of characters in this set.

## Data Type Conversion

Table 6 summarizes legal datatype conversions. The symbol X in Table 6 indicates that a value written into a message as the row type can be extracted as the column type. This table applies to all message values—including map pairs, headers and properties—except as noted below.

Table 6 Data Type Conversion

	bool	byte	short	char	int	long	float	double	string	byte[]
bool	X								X	
byte		X	X		X	X			X	
short			X		X	X			X	
char				X					X	
int					X	X			X	
long						X			X	
float							X	X	X	
double								X	X	
string	X	X	X		X	X	X	X	X	
byte[]										X

- Notes
- Message properties cannot have byte array values.
  - Values written as strings can be extracted as a numeric or boolean type only when it is possible to parse the string as a number of that type.

## tibemsMsg

*Type*

**Purpose** Messages carry information among EMS client programs.

**Related Types** [tibemsBytesMsg](#), [tibemsMapMsg](#), [tibemsObjectMsg](#), [tibemsStreamMsg](#), [tibemsTextMsg](#)

Function	Description	Page
<b>Receipt</b>		
<a href="#">tibemsMsg_Acknowledge</a>	Acknowledge messages.	24
<b>Body</b>		
<a href="#">tibemsMsg_GetBodyType</a>	Get the body type of a message.	35
<b>Message Life Cycle</b>		
<a href="#">tibemsMsg_ClearBody</a>	Clear the body of a message.	26
<a href="#">tibemsMsg_ClearProperties</a>	Clear the properties of a message.	27
<a href="#">tibemsMsg_Create</a>	Create a message object.	28
<a href="#">tibemsMsg_CreateCopy</a>	Create a copy of the message object.	29
<a href="#">tibemsMsg_CreateFromBytes</a>	Create a message object from data in a byte sequence.	30
<a href="#">tibemsMsg_Destroy</a>	Destroy a message.	31
<a href="#">tibemsMsg_MakeWriteable</a>	Make a message writeable.	53
<a href="#">tibemsMsg_Recover</a>	Recover a single message.	57
<b>Output</b>		
<a href="#">tibemsMsg_GetAsBytes</a>	Get a byte sequence representation of the message object.	32
<a href="#">tibemsMsg_GetAsBytesCopy</a>	Copies a byte sequence representation of the message object into storage supplied by the program.	33
<a href="#">tibemsMsg_GetByteSize</a>	Computes the size of the byte sequence representation of the message.	36

Function	Description	Page
<code>tibemsMsg_Print</code>	Print a message.	54
<code>tibemsMsg_PrintToBuffer</code>	Prints a message into a buffer.	55
<b>Headers and Properties</b>		
For details, see <a href="#">Headers</a> on page 10.		
<code>tibemsMsg_ClearProperties</code>	Clear the properties of a message.	27
<code>tibemsMsg_GetCorrelationID</code>	Get the correlation ID header of a message.	37
<code>tibemsMsg_GetDeliveryMode</code>	Get the delivery mode header from a message.	39
<code>tibemsMsg_GetDestination</code>	Get the destination header from a message.	40
<code>tibemsMsg_GetEncoding</code>	Get the character encoding header from a message.	41
<code>tibemsMsg_GetExpiration</code>	Get the expiration header from a message.	42
<code>tibemsMsg_GetMessageID</code>	Get the message ID header from a message.	43
<code>tibemsMsg_GetPriority</code>	Get the priority header from a message.	44
<code>tibemsMsg_Get_Property</code>	Get the value of a message property.	45
<code>tibemsMsg_GetPropertyNames</code>	Get a list of property names from a message.	48
<code>tibemsMsg_GetRedelivered</code>	Get the redelivered header from a message.	49
<code>tibemsMsg_GetReplyTo</code>	Get the reply-to header from a message.	50
<code>tibemsMsg_GetTimestamp</code>	Get the timestamp header from a message.	51
<code>tibemsMsg_GetType</code>	Get the type header of a message.	52
<code>tibemsMsg_PropertyExists</code>	Test whether a named property has been set on a message.	56
<code>tibemsMsg_SetCorrelationID</code>	Set the correlation ID header of a message.	58
<code>tibemsMsg_SetDeliveryMode</code>	Set the delivery mode header of a message.	60
<code>tibemsMsg_SetDestination</code>	Set the destination header of a message.	61
<code>tibemsMsg_SetEncoding</code>	Set the character encoding header of a message.	62

Function	Description	Page
<a href="#">tibemsMsg_SetExpiration</a>	Set the expiration header of a message.	63
<a href="#">tibemsMsg_SetMessageID</a>	Set the message ID header of a message.	64
<a href="#">tibemsMsg_SetPriority</a>	Set the priority header of a message.	65
<a href="#">tibemsMsg_SetRedelivered</a>	Set the redelivered header of a message.	69
<a href="#">tibemsMsg_SetReplyTo</a>	Set the reply-to header of a message.	70
<a href="#">tibemsMsg_SetTimestamp</a>	Set the timestamp header of a message.	71
<a href="#">tibemsMsg_SetType</a>	Set the type header of a message.	72
<a href="#">tibemsMsg_Set_Property</a>	Set the value of a message property.	66

Table 7 Message Constants

Constant	Description
TIBEMS_DEFAULT_DELIVERY_MODE	<p><a href="#">TIBEMS_PERSISTENT</a></p> <p>When neither the sending call nor the producer supplies a delivery mode, this default applies.</p>
TIBEMS_DEFAULT_PRIORITY	<p>4</p> <p>When neither the sending call nor the producer supplies a priority, this default applies.</p> <p>See also, <a href="#">Priority on page 12</a>.</p>
TIBEMS_DEFAULT_TIME_TO_LIVE	<p>0</p> <p>When neither the sending call nor the producer supplies a priority, this default applies. The default value, zero, indicates that messages do not expire.</p> <p>See also <a href="#">Expiration on page 11</a>.</p>

# tibemsMsg\_Acknowledge

Function

**Purpose**


Acknowledge messages.

**C Declaration**

`tibems_status tibemsMsg_Acknowledge(  
tibemsMsg message );`

**COBOL Call**

`CALL "tibemsMsg_Acknowledge"  
USING BY VALUE message,  
RETURNING tibems-status  
END-CALL.`



message has usage pointer.

Parameters	Parameter	Description
	message	Acknowledge this message (but for the actual behavior of this call, see the Remarks below).

**Remarks**

The behavior of this call depends on the acknowledgement mode of the `tibemsSession`.

- In `TIBEMS_CLIENT_ACKNOWLEDGE` mode, this call acknowledges *all* messages that the program has consumed within the *session*. (This behavior complies with the JMS specification.)
- In `TIBEMS_EXPLICIT_CLIENT_ACKNOWLEDGE` mode, this call acknowledges *only* the individual message. (This mode and behavior are proprietary extensions, specific to TIBCO EMS.)
- In `TIBEMS_EXPLICIT_CLIENT_DUPS_OK_ACKNOWLEDGE` mode, this call lazily acknowledges *only* the individual message. *Lazy* means that the provider client library can delay transferring the acknowledgement to the server until a convenient time; meanwhile the server might redeliver the message. (This mode and behavior are proprietary extensions, specific to TIBCO EMS.)
- In all other modes, this call has no effect. In particular, modes that specify transactions or implicit acknowledgement do not require the consuming program to call this function. However, calling it does not produce an exception. (This behavior complies with the JMS specification.)



Consumed	<p>Two events mark a message as <i>consumed</i>—that is, eligible for acknowledgment using this function:</p> <ul style="list-style-type: none"><li>• Just before the provider calls an <a href="#">tibemsMsgCallback</a> function, it marks the message argument as consumed.</li><li>• Just before a receive call returns a message, it marks that message as consumed.</li></ul>
Redelivery	<p>The server might redeliver unacknowledged messages.</p>
Restriction	<p>It is illegal to call this function after closing the session, the connection or the consumer through which the message arrived.</p>
See Also	<p><a href="#">tibemsMsgConsumer_Receive</a> on page 168 <a href="#">tibemsSession</a> on page 286 <a href="#">tibemsAcknowledgeMode</a> on page 312</p>

# tibemsMsg\_ClearBody

Function

**Purpose** Clear the body of a message.

**C Declaration** `tibems_status tibemsMsg_ClearBody(  
tibemsMsg message );`

**COBOL Call** `CALL "tibemsMsg_ClearBody"  
USING BY VALUE message,  
RETURNING tibems-status  
END-CALL.`



message has usage pointer.

**Parameters**

Parameter	Description
message	Message to be cleared.

**Remarks** Clearing the body of a message leaves its header and property values unchanged. If the message body was read-only, this function makes it writeable. The message body appears and behaves identically to an empty body in a newly created message.

# tibemsMsg\_ClearProperties

Function

**Purpose** Clear the properties of a message.

**C Declaration** `tibems_status tibemsMsg_ClearProperties(  
tibemsMsg message );`

**COBOL Call** `CALL "tibemsMsg_ClearProperties"  
USING BY VALUE message,  
RETURNING tibems-status  
END-CALL.`



message has usage pointer.

**Parameters**

Parameter	Description
message	Message to be cleared.

**Remarks** Clearing the property values of a message leaves its header values and body unchanged.

# tibemsMsg\_Create


Function

- Purpose

Create a message object.
- C Declaration

`tibems_status tibemsMsg_Create(  
tibemsMsg* message );`
- COBOL Call

`CALL "tibemsMsg_Create"  
USING BY REFERENCE message,  
RETURNING tibems-status  
END-CALL.`



message has usage pointer.

Parameters	Parameter	Description
	message	The function stores a pointer to the new message in this location.

Remarks

This call creates a new message.

When your application creates a message, it also allocates storage for that message. This storage must subsequently be freed by a call to `tibemsMsg_Destroy`.

See Also

[tibemsMsg\\_Destroy on page 31](#)

# tibemsMsg\_CreateCopy

Function

**Purpose** Create a copy of the message object.

**C Declaration** `tibems_status tibemsMsg_CreateCopy(  
const tibemsMsg message,  
tibemsMsg* copy );`

**COBOL Call** `CALL "tibemsMsg_CreateCopy"  
USING BY VALUE message,  
BY REFERENCE copy,  
RETURNING tibems-status  
END-CALL.`



message and copy have usage pointer.

**Parameters**

Parameter	Description
message	Copy this message.
copy	The function stores a pointer to the new copy in this location.

**Remarks** This call creates a new message by copying an existing message.

The copy is completely independent of the original message. Pointer data in fields are independent copies of the original values.

This function copies the entire message, including headers, properties, and body data.

This function allocates the storage for the copy. The duration of the copy is independent of the original message. Your program owns the messages that it creates, and must destroy those messages to reclaim the storage. That is, each call to this function must be paired with a call to [tibemsMsg\\_Destroy](#).

**See Also** [tibemsMsg\\_Destroy on page 31](#)

# tibemsMsg\_CreateFromBytes

Function

**Purpose** Create a message object from data in a byte sequence.

**C Declaration** `tibems_status tibemsMsg_CreateFromBytes(  
tibemsMsg* message,  
const void* bytes );`

**COBOL Call** CALL "tibemsMsg\_CreateFromBytes"  
USING BY REFERENCE message,  
BY REFERENCE bytes,  
RETURNING tibems-status  
END-CALL.



message has usage pointer.

**Parameters**

Parameter	Description
message	The function stores a pointer to the new message in this location.
bytes	Create a message from the data in this byte sequence.  This data buffer represents the message in EMS wire format. To produce this type of buffer, use either <code>tibemsMsg_GetAsBytes</code> or <code>tibemsMsg_GetAsBytesCopy</code> .

**Remarks** This call creates a new message from a byte sequence and populates the message with data.

This function allocates the storage for the new message. Your program owns the messages that it creates, and must destroy those messages to reclaim the storage. That is, each call to this function must be paired with a call to `tibemsMsg_Destroy`.

The new message is independent of the original byte sequence. They do not share any storage.

The newly created message is read-only; to enable modification without erasing the content, call `tibemsMsg_MakeWriteable`.

**See Also** [tibemsMsg\\_Destroy on page 31](#)  
[tibemsMsg\\_GetAsBytes on page 32](#)  
[tibemsMsg\\_GetAsBytesCopy on page 33](#)  
[tibemsMsg\\_MakeWriteable on page 53](#)

# tibemsMsg\_Destroy

Function

**Purpose** Destroy a message.

**C Declaration** `tibems_status tibemsMsg_Destroy(  
tibemsMsg message );`

**COBOL Call** `CALL "tibemsMsg_Destroy"  
USING BY VALUE message,  
RETURNING tibems-status  
END-CALL.`



message has usage pointer.

**Parameters**

Parameter	Description
message	Destroy this message.

# tibemsMsg\_GetAsBytes

Function

**Purpose** Get a byte sequence representation of the message object.

**C Declaration** `tibems_status tibemsMsg_GetAsBytes(  
const tibemsMsg message,  
const void** bytes,  
tibems_int* actual_size );`

**COBOL Call** `CALL "tibemsMsg_GetAsBytes"  
USING BY VALUE message,  
BY REFERENCE bytes,  
BY REFERENCE actual-size,  
RETURNING tibems-status  
END-CALL.`



message and bytes have usage pointer.

**Parameters**

Parameter	Description
message	Fill the byte array with the content of this message.
bytes	The function allocates a byte sequence, and stores a pointer to it in this location.
actual_size	The function stores the length of the byte sequence in this location.

**Remarks** This call formats the data of the message as a byte sequence in EMS wire format, which is suitable for archiving in a file.

The function allocates storage for the byte sequence, and associates it with the message; the byte sequence storage persists until your program destroys the message object.

Your program *must not* modify the byte sequence. To make a modifiable byte sequence, use `tibemsMsg_GetAsBytesCopy` instead.

The byte sequence includes data from the message header, message properties, and all message fields.

The byte sequence might contain interior null bytes.

**See Also** [tibemsMsg\\_CreateFromBytes on page 30](#)  
[tibemsMsg\\_GetAsBytesCopy on page 33](#)  
[tibemsMsg\\_GetByteSize on page 36](#)



## tibemsMsg\_GetAsBytesCopy

### Function

**Purpose** Copies a byte sequence representation of the message object into storage supplied by the program.

**C Declaration**

```
tibems_status tibemsMsg_GetAsBytesCopy(
    const tibemsMsg message,
    const void* bytes,
    tibems_int avail_size,
    tibems_int* actual_size );
```

**COBOL Call**

```
CALL "tibemsMsg_GetAsBytesCopy"
    USING BY VALUE message,
          BY REFERENCE bytes,
          BY VALUE avail-size,
          BY REFERENCE actual-size,
          RETURNING tibems-status
END-CALL.
```



message has usage pointer.

### Parameters

Parameter	Description
message	Fill the byte array with the content of this message.
bytes	Your program must supply storage suitable for a byte sequence. The function stores the byte sequence in this location.
avail_size	The length of the storage available for the byte sequence.
actual_size	The function stores the length of the byte sequence in this location.

**Remarks**

This call formats the data of the message as a byte sequence in EMS wire format, which is suitable for archiving in a file.

Your program must allocate storage for the byte sequence, and supply a pointer to it as an argument.

The byte sequence includes data from the message header, message properties, and all message fields.

The byte sequence might contain interior null bytes.


Status Code	Description
TIBEMS_INSUFFICIENT_BUFFER	The buffer is not large enough for the data. The return parameter <code>actual_size</code> indicates the size of the required buffer.

**See Also**    [tibemsMsg\\_CreateFromBytes on page 30](#)  
[tibemsMsg\\_GetAsBytes on page 32](#)  
[tibemsMsg\\_GetByteSize on page 36](#)

# tibemsMsg\_GetBodyType

Function


**Purpose**      Get the body type of a message.



Message body type is distinct from message type—even though they have similar names. Contrast [tibemsMsg\\_GetType on page 52](#).

**C Declaration**      `tibems_status tibemsMsg_GetBodyType(  
                          tibemsMsg message,  
                          tibemsMsgType* type );`

**COBOL Call**      `CALL "tibemsMsg_GetBodyType"  
                  USING BY VALUE message,  
                          BY REFERENCE type,  
                          RETURNING tibems-status  
END-CALL.`



message has usage pointer.

Parameters	Parameter	Description
	message	Get the body type of this message.
	type	The function stores the body type in this location.

**See Also**      [Body Types on page 9](#)  
                  [tibemsMsgType on page 138](#)

# tibemsMsg\_GetByteSize

Function

**Purpose** Computes the size of the byte sequence representation of the message.

**C Declaration** `tibems_status tibemsMsg_GetByteSize(  
tibemsMsg message,  
tibems_int* size );`

**COBOL Call** `CALL "tibemsMsg_GetByteSize"  
USING BY VALUE message,  
BY REFERENCE size,  
RETURNING tibems-status  
END-CALL.`



message has usage pointer.

**Parameters**

Parameter	Description
message	Compute the size of this message.
size	The function stores the message size in this location.

**Remarks** This call computes the size of a message in bytes. This measurement accounts for the actual space that the wire format message occupies, including its header, properties, and body data. (It does not include allocated storage that remains unused.)

Before calling `tibemsMsg_GetAsBytesCopy`, use this call to measure the size of a message, then allocate sufficient space to store a copy.

You can also use this call to measure network throughput, or to limit a program’s output rate (also called *throttling*).

**Deprecated Form** `tibems_int tibemsMsg_ByteSize(  
tibemsMsg message );`



Do not use this deprecated form. It will become obsolete in a future release.

**See Also** [tibemsMsg\\_GetAsBytesCopy on page 33](#)

# tibemsMsg\_GetCorrelationID

Function

**Purpose** Get the correlation ID header of a message.

**C Declaration** `tibems_status tibemsMsg_GetCorrelationID(  
tibemsMsg message,  
const char** value );`

**COBOL Call** `CALL "tibemsMsg_GetCorrelationID"  
USING BY VALUE message,  
BY REFERENCE value,  
RETURNING tibems-status  
END-CALL.`



message and value have usage pointer.

Parameters

Parameter	Description
message	Get the correlation ID of this message.
value	The function stores the correlation ID in this location.

**Remarks** Correlation ID refers to a related message. For example, when a consumer responds to a request message by sending a reply, it can set the correlation ID of the reply to indicate the request message.

The JMS specification allows three categories of values for the correlation ID property:

- Message ID** A message ID is a unique string that the provider assigns to a message. Programs can use these IDs to correlate messages. For example, a program can link a response to a request by setting the correlation ID of a response message to the message ID of the corresponding request message.  
  
Message ID strings begin with the prefix ID: (which is reserved for this purpose).
- String** Programs can also correlate messages using arbitrary strings, with semantics determined by the application.  
  
These strings must *not* begin with the prefix ID: (which is reserved for message IDs).
- Byte Array** This implementation does not support byte array values for the correlation ID property. The JMS specification does not require support.

**See Also**    [tibemsMsg\\_GetMessageID on page 43](#)  
                 [tibemsMsg\\_SetCorrelationID on page 58](#)

# tibemsMsg\_GetDeliveryMode

Function

**Purpose** Get the delivery mode header from a message.

**C Declaration** `tibems_status tibemsMsg_GetDeliveryMode(  
tibemsMsg message,  
tibemsDeliveryMode* value );`

**COBOL Call** `CALL "tibemsMsg_GetDeliveryMode"  
USING BY VALUE message,  
BY REFERENCE value,  
RETURNING tibems-status  
END-CALL.`



message has usage pointer.

Parameters

Parameter	Description
message	Get the delivery mode from this message.
value	The function stores the delivery mode in this location.

**Remarks** Delivery mode is a header property of message objects.

**See Also** [tibemsDeliveryMode on page 128](#)  
[tibemsMsg\\_SetDeliveryMode on page 60](#)

# tibemsMsg\_GetDestination

Function

**Purpose** Get the destination header from a message.

**C Declaration** `tibems_status tibemsMsg_GetDestination(  
tibemsMsg message,  
tibemsDestination* value );`

**COBOL Call** `CALL "tibemsMsg_GetDestination"  
USING BY VALUE message,  
BY REFERENCE value,  
RETURNING tibems-status  
END-CALL.`



message and value have usage pointer.

**Parameters**

Parameter	Description
message	Get the destination from this message.
value	The function stores the destination in this location.

**Remarks** Sending calls record the destination (queue or topic) of the message in this header (ignoring and overwriting any existing value). The value is based on either a property of the producer, or on a parameter to the send call.

Listeners that consume messages from several destinations can use this property to determine the actual destination of a message.

**See Also** [tibemsDestination on page 144](#)  
[tibemsMsg\\_SetDestination on page 61](#)



# tibemsMsg\_GetEncoding

Function

**Purpose** Get the character encoding header from a message.

**C Declaration** `tibems_status tibemsMsg_GetEncoding(  
const tibemsMsg message,  
const char** value );`

**COBOL Call** `CALL "tibemsMsg_GetEncoding"  
USING BY VALUE message,  
BY REFERENCE value,  
RETURNING tibems-status  
END-CALL.`



message and value have usage pointer.

**Parameters**

Parameter	Description
message	Get the character encoding from this message.
value	The function stores the character encoding in this location.

**Remarks** This call extends the JMS specification.

This encoding applies to all strings in message bodies (names and values), and properties (names and values). It does *not* apply to header names nor values. The functions `tibemsBytesMsg_ReadUTF` and `tibemsBytesMsg_WriteUTF` are exempt from message encoding settings.

**See Also** [Strings and Character Encodings on page 4](#)  
[tibemsMsg\\_SetEncoding on page 62](#)

# tibemsMsg\_GetExpiration

Function

**Purpose** Get the expiration header from a message.

**C Declaration** `tibems_status tibemsMsg_GetExpiration(  
tibemsMsg message,  
tibems_long* value );`

**COBOL Call** `CALL "tibemsMsg_GetExpiration"  
USING BY VALUE message,  
BY REFERENCE value,  
RETURNING tibems-status  
END-CALL.`



message has usage pointer.

**Parameters**

Parameter	Description
message	Get the expiration from this message.
value	The function stores the expiration in this location.

**Remarks** Sending calls record the expiration time (in milliseconds) of the message in this field:

- If the time-to-live is non-zero, the expiration is the sum of that time-to-live and the sending client’s current time (GMT).
- If the time-to-live is zero, then expiration is also zero—indicating that the message never expires.

The server discards a message when its expiration time has passed. However, the JMS specification does not guarantee that clients do not receive expired messages.

**See Also** [tibemsMsg\\_SetExpiration on page 63](#)  
[tibemsMsgProducer\\_GetTimeToLive on page 183](#)

# tibemsMsg\_GetMessageID

Function

**Purpose** Get the message ID header from a message.

**C Declaration** `tibems_status tibemsMsg_GetMessageID(  
tibemsMsg message,  
const char** value );`

**COBOL Call** `CALL "tibemsMsg_GetMessageID"  
USING BY VALUE message,  
BY REFERENCE value,  
RETURNING tibems-status  
END-CALL.`



message and value have usage pointer.

Parameters

Parameter	Description
message	Get the message ID from this message.
value	The function stores the message ID in this location.

**Remarks** Sending calls assign a unique ID to each message, and record it in this header. All message ID values start with the 3-character prefix ID: (which is reserved for this purpose). Applications that do not require message IDs can reduce overhead costs by disabling IDs; see [tibemsMsgProducer\\_SetDisableMessageID on page 188](#). When the producer disables IDs, the value of this header is null.

**See Also** [tibemsMsg\\_GetCorrelationID on page 37](#)  
[tibemsMsg\\_SetMessageID on page 64](#)  
[tibemsMsgProducer\\_SetDisableMessageID on page 188](#)

# tibemsMsg\_GetPriority

Function

**Purpose** Get the priority header from a message.

**C Declaration** `tibems_status tibemsMsg_GetPriority(  
tibemsMsg message,  
tibems_int* value );`

**COBOL Call** `CALL "tibemsMsg_GetPriority"  
USING BY VALUE message,  
BY REFERENCE value,  
RETURNING tibems-status  
END-CALL.`



message has usage pointer.

**Parameters**

Parameter	Description
message	Get the priority from this message.
value	The function stores the priority in this location.

**Remarks** Sending calls record the priority of a message in this header, based on either a property of the producer, or on a parameter to the send call.

The JMS specification defines ten levels of priority value, from zero (lowest priority) to 9 (highest priority). The specification suggests that clients consider 0–4 as gradations of normal priority, and priorities 5–9 as gradations of expedited priority.

Priority affects the order in which the server delivers messages to consumers (higher values first). The JMS specification does not require all providers to implement priority ordering of messages. (EMS supports priorities, but other JMS providers might not.)

**See Also** [tibemsMsg\\_SetPriority on page 65](#)  
[tibemsMsgProducer\\_Send on page 184](#)  
[tibemsMsgProducer\\_SetPriority on page 192](#)

## tibemsMsg\_Get Property

---

### Function

**Purpose** Get the value of a message property.

**C Declaration**

```

tibems_status tibemsMsg_GetProperty(
    tibemsMsg message,
    const char* name,
    tibemsMsgField* value );

tibems_status tibemsMsg_GetBooleanProperty(
    tibemsMsg message,
    const char* name,
    tibems_bool* value );

tibems_status tibemsMsg_GetByteProperty(
    tibemsMsg message,
    const char* name,
    tibems_byte* value );

tibems_status tibemsMsg_GetDoubleProperty(
    tibemsMsg message,
    const char* name,
    tibems_double* value );

tibems_status tibemsMsg_GetFloatProperty(
    tibemsMsg message,
    const char* name,
    tibems_float* value );

tibems_status tibemsMsg_GetIntProperty(
    tibemsMsg message,
    const char* name,
    tibems_int* value );

tibems_status tibemsMsg_GetLongProperty(
    tibemsMsg message,
    const char* name,
    tibems_long* value );

tibems_status tibemsMsg_GetShortProperty(
    tibemsMsg message,
    const char* name,
    tibems_short* value );

tibems_status tibemsMsg_GetStringProperty(
    tibemsMsg message,
    const char* name,
    char** value );

```

```

COBOL Call    CALL "tibemsMsg_GetProperty"
                USING BY VALUE message,
                    BY REFERENCE name,
                    BY REFERENCE value,
                    RETURNING tibems-status
                END-CALL.

                CALL "tibemsMsg_GetBooleanProperty"
                USING BY VALUE message,
                    BY REFERENCE name,
                    BY REFERENCE value,
                    RETURNING tibems-status
                END-CALL.

                CALL "tibemsMsg_GetByteProperty"
                USING BY VALUE message,
                    BY REFERENCE name,
                    BY REFERENCE value,
                    RETURNING tibems-status
                END-CALL.

                CALL "tibemsMsg_GetDoubleProperty"
                USING BY VALUE message,
                    BY REFERENCE name,
                    BY REFERENCE value,
                    RETURNING tibems-status
                END-CALL.

                CALL "tibemsMsg_GetFloatProperty"
                USING BY VALUE message,
                    BY REFERENCE name,
                    BY REFERENCE value,
                    RETURNING tibems-status
                END-CALL.

                CALL "tibemsMsg_GetIntProperty"
                USING BY VALUE message,
                    BY REFERENCE name,
                    BY REFERENCE value,
                    RETURNING tibems-status
                END-CALL.

                CALL "tibemsMsg_GetLongProperty"
                USING BY VALUE message,
                    BY REFERENCE name,
                    BY REFERENCE value,
                    RETURNING tibems-status
                END-CALL.

                CALL "tibemsMsg_GetShortProperty"
                USING BY VALUE message,
                    BY REFERENCE name,
                    BY REFERENCE value,
                    RETURNING tibems-status
                END-CALL.

```

```
CALL "tibemsMsg_GetStringProperty"  
  USING BY VALUE message,  
        BY REFERENCE name,  
        BY REFERENCE value,  
        RETURNING tibems-status  
END-CALL.
```



message has usage pointer.  
value has usage pointer only in `tibemsMsg_GetStringProperty` (but not in the other calls documented in this group).

Parameters

Parameter	Description
message	Get a property from this message.
name	Get the property with this name (case sensitive).  Property names must obey the JMS rules for a message selector identifier (see <a href="#">Message Selectors on page 17</a> ). Property names must not be null, and must not be empty strings.
value	The call stores the value in this location.

Remarks

The JMS specification defines eight calls to get properties with different value types—converting between compatible types. All of these functions convert property values to the corresponding type (if possible).

Status Code	Description
<a href="#">TIBEMS_CONVERSION_FAILED</a>	The actual type of the property is not compatible with the requested type.
<a href="#">TIBEMS_NOT_FOUND</a>	The property is not set in this message.

See Also

[tibemsMsg\\_Set Property on page 66](#)

# tibemsMsg\_GetPropertyNames

Function

**Purpose** Get a list of property names from a message.

**C Declaration** `tibems_status tibemsMsg_GetPropertyNames(  
tibemsMsg message,  
tibemsMsgEnum* enumeration );`

**COBOL Call** `CALL "tibemsMsg_GetPropertyNames"  
USING BY VALUE message,  
BY REFERENCE enumeration,  
RETURNING tibems-status  
END-CALL.`



message and enumeration have usage pointer.

**Parameters**

Parameter	Description
message	Get the property names from this message.
enumeration	The function stores the property names in this location.

**See Also** [tibemsMsgEnum on page 130](#)



# tibemsMsg\_GetRedelivered

Function

**Purpose** Get the redelivered header from a message.

**C Declaration** `tibems_status tibemsMsg_GetRedelivered(  
tibemsMsg message,  
tibems_bool* value );`

**COBOL Call** `CALL "tibemsMsg_GetRedelivered"  
USING BY VALUE message,  
BY REFERENCE value,  
RETURNING tibems-status  
END-CALL.`



message has usage pointer.

**Parameters**

Parameter	Description
message	Get the redelivered indicator from this message.
value	The function stores the redelivered indicator in this location.

**Remarks** The server sets this header to indicate whether a message might duplicate a previously delivered message:

- false—The server has *not* previously attempted to deliver this message to the consumer.
- true—It is likely, but not guaranteed, that this message was delivered earlier but that its receipt was not acknowledged at that time.

**See Also** [tibemsMsg\\_SetRedelivered on page 69](#)

# tibemsMsg\_GetReplyTo

Function

**Purpose** Get the reply-to header from a message.

**C Declaration** `tibems_status tibemsMsg_GetReplyTo(  
tibemsMsg message,  
tibemsDestination* value );`

**COBOL Call** `CALL "tibemsMsg_GetReplyTo"  
USING BY VALUE message,  
BY REFERENCE value,  
RETURNING tibems-status  
END-CALL.`



message and value have usage pointer.

Parameters

Parameter	Description
message	Get the reply-to header from this message.
value	The function stores the reply-to header in this location.

**Remarks** Sending clients can set this header to request that recipients reply to the message:

- When the value is a destination object, recipients can send replies to that destination. Such a message is called a *request*.
- When the value is null, the sender does not expect a reply.

When sending a reply, clients can refer to the corresponding request by setting the correlation ID field.

**See Also** [tibemsMsg\\_SetCorrelationID on page 58](#)  
[tibemsMsg\\_SetReplyTo on page 70](#)

# tibemsMsg\_GetTimestamp

Function

**Purpose** Get the timestamp header from a message.

**C Declaration** `tibems_status tibemsMsg_GetTimestamp(  
tibemsMsg message,  
tibems_long* value );`

**COBOL Call** `CALL "tibemsMsg_GetTimestamp"  
USING BY VALUE message,  
BY REFERENCE value,  
RETURNING tibems-status  
END-CALL.`



message has usage pointer.

**Parameters**

Parameter	Description
message	Get the timestamp from this message.
value	The function stores the timestamp in this location.

**Remarks** Sending calls record a UTC timestamp in this header, indicating the approximate time that the server accepted the message.

The value is in milliseconds since January 1, 1970 (as in Java).


Applications that do not require timestamps can reduce overhead costs by disabling timestamps; see [tibemsMsgProducer\\_SetDisableMessageTimestamp on page 189](#). When the producer disables timestamps, the value of this header is zero.

**See Also** [tibemsMsg\\_SetTimestamp on page 71](#)  
[tibemsMsgProducer\\_SetDisableMessageTimestamp on page 189](#)

# tibemsMsg\_GetType

Function

**Purpose** Get the type header of a message.




Message type is distinct from message body type—even though they have similar names. Contrast [tibemsMsg\\_GetBodyType](#) on page 35.

**C Declaration**

```
tibems_status tibemsMsg_GetType(  
    tibemsMsg message,  
    const char** value );
```

**COBOL Call**

```
CALL "tibemsMsg_GetType"  
    USING BY VALUE message,  
          BY REFERENCE value,  
          RETURNING tibems-status  
END-CALL.
```



message and value have usage pointer.

Parameters	Parameter	Description
	message	Get the type header of this message.
	value	The function stores the type in this location.

**Remarks**

Some JMS providers use a message repository to store message type definitions. Client programs can store a body type that references a definition in the repository. EMS supports this header, but does not use it.

The JMS specification does not define a standard message definition repository, nor does it define a naming policy for message type definitions.

Some providers require message type definitions for each application message. To ensure compatibility with such providers, client programs can set this header, even if the client application does not use it.

To ensure portability, clients can set this header with symbolic values (rather than literals), and configure them to match the provider’s repository.

**See Also** [tibemsMsg\\_SetType](#) on page 72

# tibemsMsg\_MakeWriteable

Function

**Purpose**      Make a message writeable.

**C Declaration**      `tibems_status tibemsMsg_MakeWriteable(  
                         tibemsMsg message );`

**COBOL Call**      `CALL "tibemsMsg_MakeWriteable"  
                     USING BY VALUE message,  
                     RETURNING tibems-status  
                     END-CALL.`



message has usage pointer.


**Parameters**

Parameter	Description
message	Make this message writeable.

# tibemsMsg\_Print

Function

- Purpose**
- Print a message.
- C Declaration**
- ```
void tibemsMsg_Print(  
    tibemsMsg message );
```
- COBOL Call**
- ```
CALL "tibemsMsg_Print"  
    USING BY VALUE message,  
    END-CALL.
```



message has usage pointer.

Parameters	Parameter	Description
	message	Print this message.
Remarks	<p>This call prints a string that includes the body type, headers (name-value pairs), properties (name-value pairs), and body content.</p> <p>tibemsMsg_Print prints the message to stdout.</p>	
See Also	<a href="#">tibemsMsg_PrintToBuffer on page 55</a>	

# tibemsMsg\_PrintToBuffer

Function

**Purpose** Prints a message into a buffer.

**C Declaration** `tibems_status tibemsMsg_PrintToBuffer(  
tibemsMsg message,  
char* buffer,  
tibems_int maxlen );`

**COBOL Call** `CALL "tibemsMsg_PrintToBuffer"  
USING BY VALUE message,  
BY REFERENCE buffer,  
BY VALUE maxlen,  
RETURNING tibems-status  
END-CALL.`



message has usage pointer.

**Parameters**

Parameter	Description
message	Print this message.
buffer	Location to store the string representation of the message.
maxlen	The size of the buffer.

**Remarks** This call prints a string that includes the body type, headers (name-value pairs), properties (name-value pairs), and body content.

tibemsMsg\_PrintToBuffer prints the message to a buffer.

Status Code	Description
TIBEMS_INSUFFICIENT_BUFFER	The buffer is too small to hold the data.

**See Also** [tibemsMsg\\_Print on page 54](#)

# tibemsMsg\_PropertyExists

Function

**Purpose** Test whether a named property has been set on a message.

**C Declaration** `tibems_status tibemsMsg_PropertyExists(  
tibemsMsg message,  
const char* name,  
tibems_bool* result );`

**COBOL Call** `CALL "tibemsMsg_PropertyExists"  
USING BY VALUE message,  
BY REFERENCE name,  
BY REFERENCE result,  
RETURNING tibems-status  
END-CALL.`



message has usage pointer.

**Parameters**

Parameter	Description
message	Test this message for the property.
name	Test whether the message has a property with this name.
result	The function stores the boolean result of the test in this location: <ul style="list-style-type: none"><li>TIBEMS_TRUE if the property has a value on the message</li><li>TIBEMS_FALSE otherwise</li></ul>



# tibemsMsg\_Recover

Function

**Purpose** Recover a single message.

**C Declaration** `tibems_status tibemsMsg_Recover(  
tibemsMsg message );`

**COBOL Call** `CALL "tibemsMsg_Recover"  
USING BY VALUE message,  
RETURNING tibems-status  
END-CALL.`



message has usage pointer.

Parameters

Parameter	Description
message	Recover the specified message.

**Remarks** When the application calls this function, TIBCO Enterprise Message Service puts this message back on the queue or topic and makes it available for redelivery. The JMSRedelivered header is set to true.

This call is only legal for the [TIBEMS\\_EXPLICIT\\_CLIENT\\_ACKNOWLEDGE](#) and [TIBEMS\\_EXPLICIT\\_CLIENT\\_DUPS\\_OK\\_ACKNOWLEDGE](#) acknowledgement modes. In all other modes, this call returns [TIBEMS\\_ILLEGAL\\_STATE](#).

This function recovers only the specified message. To recover all unacknowledged messages from a session, use [tibemsSession\\_Recover](#).

**Restriction** It is illegal to call this function on an acknowledged message or on a message that is included in a transaction.

Additionally, it is illegal to call this function twice on the same message, or again on a message that was previously recovered using [tibemsSession\\_Recover](#).

**See Also** [tibemsSession\\_Recover](#) on page 309  
[tibemsAcknowledgeMode](#) on page 312

# tibemsMsg\_SetCorrelationID

Function

**Purpose** Set the correlation ID header of a message.

**C Declaration** `tibems_status tibemsMsg_SetCorrelationID(  
tibemsMsg message,  
const char* value );`

**COBOL Call** `CALL "tibemsMsg_SetCorrelationID"  
USING BY VALUE message,  
BY REFERENCE value,  
RETURNING tibems-status  
END-CALL.`



message has usage pointer.

**Parameters**

Parameter	Description
message	Set the correlation ID of this message.
value	Set the correlation ID to this value.

**Remarks** Correlation ID refers to a related message. For example, when a consumer responds to a request message by sending a reply, it can set the correlation ID of the reply to indicate the request message.

The JMS specification allows three categories of values for the correlation ID property:

- Message ID** A message ID is a unique string that the provider assigns to a message. Programs can use these IDs to correlate messages. For example, a program can link a response to a request by setting the correlation ID of a response message to the message ID of the corresponding request message.  
  
Message ID strings begin with the prefix ID: (which is reserved for this purpose).
- String** Programs can also correlate messages using arbitrary strings, with semantics determined by the application.  
  
These strings must *not* begin with the prefix ID: (which is reserved for message IDs).
- Byte Array** This implementation does not support byte array values for the correlation ID property. The JMS specification does not require support.

**See Also**    [tibemsMsg\\_GetCorrelationID on page 37](#)  
                 [tibemsMsg\\_GetMessageID on page 43](#)

# tibemsMsg\_SetDeliveryMode

Function

**Purpose** Set the delivery mode header of a message.

**C Declaration** `tibems_status tibemsMsg_SetDeliveryMode(  
tibemsMsg message,  
tibemsDeliveryMode value );`

**COBOL Call** `CALL "tibemsMsg_SetDeliveryMode"  
USING BY VALUE message,  
BY VALUE value,  
RETURNING tibems-status  
END-CALL.`



message has usage pointer.

**Parameters**

Parameter	Description
message	Set the delivery mode of this message.
value	Set the delivery mode to this value.

**Remarks** Sending calls set the delivery mode header automatically. The JMS specification defines this call for symmetry.

**See Also** [tibemsDeliveryMode on page 128](#)  
[tibemsMsg\\_GetDeliveryMode on page 39](#)

## tibemsMsg\_SetDestination

### Function

**Purpose** Set the destination header of a message.

**C Declaration** `tibems_status tibemsMsg_SetDestination(  
tibemsMsg message,  
tibemsDestination value );`

**COBOL Call** `CALL "tibemsMsg_SetDestination"  
USING BY VALUE message,  
BY VALUE value,  
RETURNING tibems-status  
END-CALL.`



message and value have usage pointer.

### Parameters

Parameter	Description
message	Set the destination of this message.
value	Set the destination to this value.

**Remarks** Sending calls set the delivery mode header automatically. The JMS specification defines this call for symmetry.

Sending calls record the destination (queue or topic) of the message in this header (ignoring and overwriting any existing value). The value is based on either a property of the producer, or on a parameter to the send call.

**See Also** [tibemsDestination on page 144](#)  
[tibemsMsg\\_GetDestination on page 40](#)  
[tibemsMsgProducer\\_Send on page 184](#)  
[tibemsMsgProducer\\_GetDestination on page 178](#)

# tibemsMsg\_SetEncoding

Function

**Purpose** Set the character encoding header of a message.

**C Declaration** `tibems_status tibemsMsg_SetEncoding(  
tibemsMsg message,  
const char* value );`

**COBOL Call** `CALL "tibemsMsg_SetEncoding"  
USING BY VALUE message,  
BY REFERENCE value,  
RETURNING tibems-status  
END-CALL.`



message has usage pointer.

**Parameters**

Parameter	Description
message	Set the character encoding of this message.
value	Set the character encoding to this value. For a list of standard encoding names, see <a href="http://www.iana.org">www.iana.org</a> .

**Remarks** This call extends the JMS specification.  
Programs can set the encoding for individual messages.  
This encoding applies to all strings in message bodies (names and values), and properties (names and values). It does *not* apply to header names nor values. The functions `tibemsBytesMsg_ReadUTF` and `tibemsBytesMsg_WriteUTF` are exempt from message encoding settings.

**See Also** [Strings and Character Encodings on page 4](#)  
[tibemsMsg\\_GetEncoding on page 41](#)

# tibemsMsg\_SetExpiration

Function

**Purpose** Set the expiration header of a message.

**C Declaration** `tibems_status tibemsMsg_SetExpiration(  
tibemsMsg message,  
tibems_long value );`

**COBOL Call** `CALL "tibemsMsg_SetExpiration"  
USING BY VALUE message,  
BY REFERENCE value,  
RETURNING tibems-status  
END-CALL.`



message has usage pointer.

**Parameters**

Parameter	Description
message	Set the expiration of this message.
value	Set the expiration to this value.

**Remarks** Sending calls set the expiration header automatically. The JMS specification defines this call for symmetry.

Sending calls record the expiration time (in milliseconds) of the message in this field:

- If the time-to-live is non-zero, the expiration is the sum of that time-to-live and the sending client’s current time (GMT).
- If the time-to-live is zero, then expiration is also zero—indicating that the message never expires.

The server discards a message when its expiration time has passed. However, the JMS specification does not guarantee that clients do not receive expired messages.

**See Also** [tibemsMsg\\_GetExpiration on page 42](#)  
[tibemsMsgProducer\\_GetTimeToLive on page 183](#)  
[tibemsMsgProducer\\_SetTimeToLive on page 193](#)

# tibemsMsg\_SetMessageID

Function

**Purpose** Set the message ID header of a message.

**C Declaration** `tibems_status tibemsMsg_SetMessageID(  
tibemsMsg message,  
const char* value );`

**COBOL Call** `CALL "tibemsMsg_SetMessageID"  
USING BY VALUE message,  
BY REFERENCE value,  
RETURNING tibems-status  
END-CALL.`



message has usage pointer.

**Parameters**

Parameter	Description
message	Set the message ID of this message.
value	Set the message ID to this value.

**Remarks** Sending calls set the message ID header automatically. The JMS specification defines this call for symmetry.

Sending calls assign a unique ID to each message, and record it in this header.

All message ID values start with the 3-character prefix ID: (which is reserved for this purpose).

Applications that do not require message IDs can reduce overhead costs by disabling IDs; see [tibemsMsgProducer\\_SetDisableMessageID on page 188](#). When the producer disables IDs, the value of this header is null.

**See Also** [tibemsMsg\\_GetCorrelationID on page 37](#)  
[tibemsMsg\\_GetMessageID on page 43](#)  
[tibemsMsg\\_SetCorrelationID on page 58](#)  
[tibemsMsgProducer\\_SetDisableMessageID on page 188](#)



# tibemsMsg\_SetPriority

Function

**Purpose** Set the priority header of a message.

**C Declaration** `tibems_status tibemsMsg_SetPriority(  
tibemsMsg message,  
tibems_int value );`

**COBOL Call** `CALL "tibemsMsg_SetPriority"  
USING BY VALUE message,  
BY VALUE value,  
RETURNING tibems-status  
END-CALL.`



message has usage pointer.

## Parameters

Parameter	Description
message	Set the priority of this message.
value	Set the priority to this value.

**Remarks** Sending calls set the priority header automatically. The JMS specification defines this call for symmetry.

Sending calls record the priority of a message in this header, based on either a property of the producer, or on a parameter to the send call.

The JMS specification defines ten levels of priority value, from zero (lowest priority) to 9 (highest priority). The specification suggests that clients consider 0–4 as gradations of normal priority, and priorities 5–9 as gradations of expedited priority.

Priority affects the order in which the server delivers messages to consumers (higher values first). The JMS specification does not require all providers to implement priority ordering of messages. (EMS supports priorities, but other JMS providers might not.)

**See Also** [tibemsMsg\\_GetPriority on page 44](#)  
[tibemsMsgProducer\\_GetPriority on page 182](#)  
[tibemsMsgProducer\\_SetPriority on page 192](#)

## tibemsMsg\_Set Property

---

*Function*

**Purpose** Set the value of a message property.

**C Declaration**

```

tibems_status tibemsMsg_SetBooleanProperty(
    tibemsMsg message,
    const char* name,
    tibems_bool value );

tibems_status tibemsMsg_SetByteProperty(
    tibemsMsg message,
    const char* name,
    tibems_byte value );

tibems_status tibemsMsg_SetDoubleProperty(
    tibemsMsg message,
    const char* name,
    tibems_double value );

tibems_status tibemsMsg_SetFloatProperty(
    tibemsMsg message,
    const char* name,
    tibems_float value );

tibems_status tibemsMsg_SetIntProperty(
    tibemsMsg message,
    const char* name,
    tibems_int value );

tibems_status tibemsMsg_SetLongProperty(
    tibemsMsg message,
    const char* name,
    tibems_long value );

tibems_status tibemsMsg_SetShortProperty(
    tibemsMsg message,
    const char* name,
    tibems_short value );

tibems_status tibemsMsg_SetStringProperty(
    tibemsMsg message,
    const char* name,
    const char* value );

```

**COBOL Call**

```

CALL "tibemsMsg_SetBooleanProperty"
    USING BY VALUE message,
          BY REFERENCE name,
          BY VALUE value,
          RETURNING tibems-status
END-CALL.

```

```
CALL "tibemsMsg_SetByteProperty"
  USING BY VALUE message,
        BY REFERENCE name,
        BY VALUE value,
        RETURNING tibems-status
END-CALL.
```

```
CALL "tibemsMsg_SetDoubleProperty"
  USING BY VALUE message,
        BY REFERENCE name,
        BY VALUE value,
        RETURNING tibems-status
END-CALL.
```

```
CALL "tibemsMsg_SetFloatProperty"
  USING BY VALUE message,
        BY REFERENCE name,
        BY VALUE value,
        RETURNING tibems-status
END-CALL.
```

```
CALL "tibemsMsg_SetIntProperty"
  USING BY VALUE message,
        BY REFERENCE name,
        BY VALUE value,
        RETURNING tibems-status
END-CALL.
```

```
CALL "tibemsMsg_SetLongProperty"
  USING BY VALUE message,
        BY REFERENCE name,
        BY VALUE value,
        RETURNING tibems-status
END-CALL.
```

```
CALL "tibemsMsg_SetShortProperty"
  USING BY VALUE message,
        BY REFERENCE name,
        BY VALUE value,
        RETURNING tibems-status
END-CALL.
```

```
CALL "tibemsMsg_SetStringProperty"
  USING BY VALUE message,
        BY REFERENCE name,
        BY REFERENCE value,
        RETURNING tibems-status
END-CALL.
```



message has usage pointer.

value has usage pointer only in tibemsMsg\_SetStringProperty (but not in the other calls documented in this group).

Parameters	Parameter	Description
	message	Set a property on this message.  Property names must obey the JMS rules for a message selector identifier (see <a href="#">Message Selectors on page 17</a> ). Property names must not be null, and must not be empty strings.
	name	Set a property with this name.  Property names must obey the JMS rules for a message selector identifier (see <a href="#">Message Selectors on page 17</a> ). Property names must not be null, and must not be empty strings.
	value	Set the property to this value.
Remarks	The JMS specification defines eight calls to set properties with different primitive value types.	
	Status Code	Description
	<a href="#">TIBEMS_MSG_NOT_WRITEABLE</a>	The message is read-only.
See Also	<a href="#">tibemsMsg_Get Property on page 45</a>	

# tibemsMsg\_SetRedelivered

Function

**Purpose** Set the redelivered header of a message.

**C Declaration** `tibems_status tibemsMsg_SetRedelivered(  
tibemsMsg message,  
tibems_bool value );`

**COBOL Call** `CALL "tibemsMsg_SetRedelivered"  
USING BY VALUE message,  
BY VALUE value,  
RETURNING tibems-status  
END-CALL.`



message has usage pointer.

Parameters

Parameter	Description
message	Set the redelivered indicator of this message.
value	Set the redelivered indicator to this value.

**Remarks** Sending calls set the redelivered header automatically. The JMS specification defines this call for symmetry.

The server sets this header to indicate whether a message might duplicate a previously delivered message:

- false—The server has *not* previously attempted to deliver this message to the consumer.
- true—It is likely (but not guaranteed) that the server has previously attempted to deliver this message to the consumer, but the consumer did not return timely acknowledgement.

**See Also** [tibemsMsg\\_GetRedelivered on page 49](#)

# tibemsMsg\_SetReplyTo

Function

**Purpose** Set the reply-to header of a message.

**C Declaration** `tibems_status tibemsMsg_SetReplyTo(  
tibemsMsg message,  
tibemsDestination value );`

**COBOL Call** `CALL "tibemsMsg_SetReplyTo"  
USING BY VALUE message,  
BY VALUE value,  
RETURNING tibems-status  
END-CALL.`



message and value have usage pointer.

**Parameters**

Parameter	Description
message	Set the reply-to header of this message.
value	Set the reply-to header to this value.

**Remarks** Sending clients can set this header to request that recipients reply to the message:

- When the value is a destination object, recipients can send replies to that destination. Such a message is called a *request*.
- When the value is null, the sender does not expect a reply.

When sending a reply, clients can refer to the corresponding request by setting the correlation ID field.

**See Also** [tibemsMsg\\_GetReplyTo on page 50](#)  
[tibemsMsg\\_SetCorrelationID on page 58](#)

## tibemsMsg\_SetTimestamp

### Function

**Purpose** Set the timestamp header of a message.

**C Declaration** `tibems_status tibemsMsg_SetTimestamp(  
tibemsMsg message,  
tibems_long value );`

**COBOL Call** `CALL "tibemsMsg_SetTimestamp"  
USING BY VALUE message,  
BY VALUE value,  
RETURNING tibems-status  
END-CALL.`



message has usage pointer.

### Parameters

Parameter	Description
message	Set the timestamp of this message.
value	Set the timestamp to this value.

**Remarks** Sending calls set the timestamp header automatically. The JMS specification defines this call for symmetry.

Sending calls record a UTC timestamp in this header, indicating the approximate time that the server accepted the message.

The value is in milliseconds since January 1, 1970 (as in Java).


Applications that do not require timestamps can reduce overhead costs by disabling timestamps; see [tibemsMsgProducer\\_SetDisableMessageTimestamp on page 189](#). When the producer disables timestamps, the value of this header is zero.

**See Also** [tibemsMsg\\_GetTimestamp on page 51](#)  
[tibemsMsgProducer\\_SetDisableMessageTimestamp on page 189](#)

# tibemsMsg\_SetType

Function


**Purpose** Set the type header of a message.



Message type is distinct from message body type—even though they have similar names. Contrast [tibemsMsg\\_GetBodyType on page 35](#).

**C Declaration** `tibems_status tibemsMsg_SetType(  
tibemsMsg message,  
const char* value );`

**COBOL Call** `CALL "tibemsMsg_SetType"  
USING BY VALUE message,  
BY REFERENCE value,  
RETURNING tibems-status  
END-CALL.`



message has usage pointer.

Parameters	Parameter	Description
	message	Set the type header of this message.
	value	Set the type to this value.

**Remarks** Some JMS providers use a message repository to store message type definitions. Client programs can store a body type that references a definition in the repository. EMS supports this header, but does not use it.

The JMS specification does not define a standard message definition repository, nor does it define a naming policy for message type definitions.

Some providers require message type definitions for each application message. To ensure compatibility with such providers, client programs can set this header, even if the client application does not use it.

To ensure portability, clients can set this header with symbolic values (rather than literals), and configure them to match the provider’s repository.

**See Also** [tibemsMsg\\_GetType on page 52](#)



## tibemsBytesMsg

### Type

**Purpose** A message containing a stream of uninterpreted bytes.

**Related Types** [tibemsMsg on page 21](#)

**Remarks** Messages with this body type contain a single value, which is a byte sequence.

Function	Description	Page
<a href="#">tibemsBytesMsg_Create</a>	Create a bytes message.	74
<a href="#">tibemsBytesMsg_GetBodyLength</a>	Get the body length (in bytes) of a bytes message.	75
<a href="#">tibemsBytesMsg_GetBytes</a>	Get the body data of a bytes message.	76
<a href="#">tibemsBytesMsg_Read</a>	Read primitive datatypes from the byte stream in the message body.	77
<a href="#">tibemsBytesMsg_ReadBytes</a>	Read bytes to a byte sequence from the byte stream in the message body.	81
<a href="#">tibemsBytesMsg_Reset</a>	Set the read position to the beginning of the byte stream, and mark the message body as read-only.	83
<a href="#">tibemsBytesMsg_SetBytes</a>	Set the body data of a bytes message from a byte sequence.	84
<a href="#">tibemsBytesMsg_Write</a>	Write primitive datatypes to the byte stream in the message body.	85
<a href="#">tibemsBytesMsg_WriteBytes</a>	Write bytes from a byte array to the byte stream in the message body.	88

# tibemsBytesMsg\_Create

Function

**Purpose** Create a bytes message.

**C Declaration** `tibems_status tibemsBytesMsg_Create(  
tibemsBytesMsg* message );`

**COBOL Call** CALL "tibemsBytesMsg\_Create"  
USING BY REFERENCE message,  
RETURNING tibems-status  
END-CALL.



message has usage pointer.

**Parameters**

Parameter	Description
message	The function stores a pointer to the new message in this location.

**Remarks** This call creates a new bytes message.  
  
When your application creates a message, it also allocates storage for that message. This storage must subsequently be freed by a call to `tibemsMsg_Destroy`.

**See Also** [tibemsMsg\\_Create on page 28](#)  
[tibemsMsg\\_Destroy on page 31](#)

# tibemsBytesMsg\_GetBodyLength

Function

**Purpose** Get the body length (in bytes) of a bytes message.

**C Declaration** `tibems_status tibemsBytesMsg_GetBodyLength(  
tibemsMsg message,  
tibems_int* return_length );`

**COBOL Call** `CALL "tibemsBytesMsg_GetBodyLength"  
USING BY VALUE message,  
BY REFERENCE return-length,  
RETURNING tibems-status  
END-CALL.`



message has usage pointer.

**Parameters**

Parameter	Description
message	Get the body length of this message.
return_length	The function stores the body length in this location.

# tibemsBytesMsg\_GetBytes

Function

**Purpose** Get the body data of a bytes message.

**C Declaration** `tibems_status tibemsBytesMsg_GetBytes(  
tibemsBytesMsg message,  
void** bytes,  
tibems_uint* byteSize );`

**COBOL Call** `CALL "tibemsBytesMsg_GetBytes"  
USING BY VALUE message,  
BY REFERENCE bytes,  
BY REFERENCE byteSize,  
RETURNING tibems-status  
END-CALL.`



message and bytes have usage pointer.

**Parameters**

Parameter	Description
message	Get the byte sequence of this bytes message.
bytes	The function stores a pointer to the bytes of the message in this location.  Your program must not change the bytes, which belong to the message; if you must modify the bytes, make a private copy first.
byteSize	The function stores the length of the byte sequence in this location.

**Remarks** This call extracts a pointer to the body data of a bytes message.  
  
The byte sequence storage persists until your program destroys the message object.

## tibemsBytesMsg\_Read

---

### Function

**Purpose** Read primitive datatypes from the byte stream in the message body.

**C Declaration**

```

tibems_status tibemsBytesMsg_ReadBoolean(
    tibemsBytesMsg message,
    tibems_bool* value );

tibems_status tibemsBytesMsg_ReadByte(
    tibemsBytesMsg message,
    tibems_byte* value );

tibems_status tibemsBytesMsg_ReadChar(
    tibemsBytesMsg message,
    tibems_wchar* value );

tibems_status tibemsBytesMsg_ReadDouble(
    tibemsBytesMsg message,
    tibems_double* value );

tibems_status tibemsBytesMsg_ReadFloat(
    tibemsBytesMsg message,
    tibems_float* value );

tibems_status tibemsBytesMsg_ReadInt(
    tibemsBytesMsg message,
    tibems_int* value );

tibems_status tibemsBytesMsg_ReadLong(
    tibemsBytesMsg message,
    tibems_long* value );

tibems_status tibemsBytesMsg_ReadShort(
    tibemsBytesMsg message,
    tibems_short* value );

tibems_status tibemsBytesMsg_ReadUnsignedByte(
    tibemsBytesMsg message,
    tibems_int* value );

tibems_status tibemsBytesMsg_ReadUnsignedShort(
    tibemsBytesMsg message,
    tibems_int* value );

tibems_status tibemsBytesMsg_ReadUTF(
    tibemsBytesMsg message,
    const char** value,
    tibems_int* length );

```

```

COBOL Call    CALL "tibemsBytesMsg_ReadBoolean"
                USING BY VALUE message,
                   BY REFERENCE tibems-Boolean,
                   RETURNING tibems-status
                END-CALL.

                CALL "tibemsBytesMsg_ReadByte"
                USING BY VALUE message,
                   BY REFERENCE value,
                   RETURNING tibems-status
                END-CALL.

                CALL "tibemsBytesMsg_ReadChar"
                USING BY VALUE message,
                   BY REFERENCE value,
                   RETURNING tibems-status
                END-CALL.

                CALL "tibemsBytesMsg_ReadDouble"
                USING BY VALUE message,
                   BY REFERENCE value,
                   RETURNING tibems-status
                END-CALL.

                CALL "tibemsBytesMsg_ReadFloat"
                USING BY VALUE message,
                   BY REFERENCE value,
                   RETURNING tibems-status
                END-CALL.

                CALL "tibemsBytesMsg_ReadInt"
                USING BY VALUE message,
                   BY REFERENCE value,
                   RETURNING tibems-status
                END-CALL.

                CALL "tibemsBytesMsg_ReadLong"
                USING BY VALUE message,
                   BY REFERENCE value,
                   RETURNING tibems-status
                END-CALL.

                CALL "tibemsBytesMsg_ReadShort"
                USING BY VALUE message,
                   BY REFERENCE value,
                   RETURNING tibems-status
                END-CALL.

                CALL "tibemsBytesMsg_ReadUnsignedByte"
                USING BY VALUE message,
                   BY REFERENCE value,
                   RETURNING tibems-status
                END-CALL.

```

```
CALL "tibemsBytesMsg_ReadUnsignedShort"
  USING BY VALUE message,
        BY REFERENCE value,
        RETURNING tibems-status
END-CALL.

CALL "tibemsBytesMsg_ReadUTF"
  USING BY VALUE message,
        BY REFERENCE value,
        BY REFERENCE length,
        RETURNING tibems-status
END-CALL.
```



message has usage pointer in all calls.

value has usage pointer in tibemsBytesMsg\_ReadUTF.

#### Parameters

Parameter	Description
message	Read a datum from the body byte stream of this message.
value	The function stores the datum in this location.
length	tibemsBytesMsg_ReadUTF reads a UTF-8 string. Since the length of the string cannot be determined in advance, the function stores the actual length in this location.

#### Remarks

The JMS specification defines eleven calls to extract data from the byte stream body of a [tibemsBytesMsg](#).

Each call reads a unit of data from the stream, and advances the read position so that the next read call gets the next datum.

*Table 8 BytesMessage Read Functions*

Function	# Bytes	Interpret As
tibemsBytesMsg_ReadBoolean	1	<a href="#">tibems_bool</a>
tibemsBytesMsg_ReadByte	1	<a href="#">tibems_byte</a>
tibemsBytesMsg_ReadUnsignedByte	1	<a href="#">tibems_int</a>
tibemsBytesMsg_ReadShort	2	<a href="#">tibems_short</a>
tibemsBytesMsg_ReadUnsignedShort	2	<a href="#">tibems_int</a>
tibemsBytesMsg_ReadChar	2	<a href="#">tibems_wchar</a>

Table 8 BytesMessage Read Functions

Function	# Bytes	Interpret As
tibemsBytesMsg_ReadInt	4	<a href="#">tibems_int</a>
tibemsBytesMsg_ReadLong	8	<a href="#">tibems_long</a>
tibemsBytesMsg_ReadFloat	4	<a href="#">tibems_float</a>
tibemsBytesMsg_ReadDouble	8	<a href="#">tibems_double</a>
tibemsBytesMsg_ReadUTF	varies	char* Encoded as UTF.

**See Also** [tibemsBytesMsg\\_ReadBytes](#) on page 81



# tibemsBytesMsg\_ReadBytes

Function

**Purpose** Read bytes to a byte sequence from the byte stream in the message body.

**C Declaration**

```
tibems_status tibemsBytesMsg_ReadBytes(  
    tibemsBytesMsg message,  
    const void** value,  
    tibems_int requested_length,  
    tibems_int* return_length );
```

**COBOL Call**

```
CALL "tibemsBytesMsg_ReadBytes"  
  USING BY VALUE message,  
        BY REFERENCE value,  
        BY VALUE requested-length,  
        BY REFERENCE return-length,  
        RETURNING tibems-status  
END-CALL.
```



message and value have usage pointer.

Parameters

Parameter	Description
message	Read bytes from the body of this message.
value	<p>The program supplies a location. In that location, this call stores a pointer to the next block of bytes within the bytes message.</p> <p>Your program must not change the bytes, which belong to the message; if you must modify the bytes, make a private copy first.</p>
requested_length	<p>Read (at most) this number of bytes from the stream.</p> <p>This argument must be greater than zero.</p>

Parameter	Description
return_length	<p>The function stores in this location the actual number of bytes that it read. (If the number of bytes remaining in the message is less than the requested_length, then this location indicates that number of remaining bytes. Your program must not use bytes beyond this limit.)</p> <p>When the function cannot read even one byte, it stores -1 in this location (and returns a successful status code).</p>
Remarks	<p>Each call reads bytes from the stream into the byte array, and advances the read position.</p>


# tibemsBytesMsg\_Reset

Function

**Purpose** Set the read position to the beginning of the byte stream, and mark the message body as read-only.

**C Declaration** `tibems_status tibemsBytesMsg_Reset(  
tibemsBytesMsg message );`

**COBOL Call** `CALL "tibemsBytesMsg_Reset"  
USING BY VALUE message,  
RETURNING tibems-status  
END-CALL.`



message has usage pointer.

Parameters	Parameter	Description
	message	Reset the read position for this message.

**Remarks** This call prepares a message body for reading, as if the message were newly received. Contrast [tibemsMsg\\_ClearBody on page 26](#), which clears a message body in preparation for writing, as if it were newly created.

# tibemsBytesMsg\_SetBytes

Function

**Purpose** Set the body data of a bytes message from a byte sequence.

**C Declaration** `tibems_status tibemsBytesMsg_SetBytes(  
tibemsBytesMsg message,  
const void* bytes,  
tibems_uint byteSize );`

**COBOL Call** `CALL "tibemsBytesMsg_SetBytes"  
USING BY VALUE message,  
BY REFERENCE bytes,  
BY VALUE byteSize,  
RETURNING tibems-status  
END-CALL.`



message has usage pointer.

**Parameters**

Parameter	Description
message	Set the body data of this bytes message.
bytes	Copy this byte sequence into the message body.
byteSize	Copy this number of bytes into the message.

## tibemsBytesMsg\_Write

---

### Function

**Purpose** Write primitive datatypes to the byte stream in the message body.

**C Declaration**

```

tibems_status tibemsBytesMsg_WriteBoolean(
    tibemsBytesMsg message,
    tibems_bool value );

tibems_status tibemsBytesMsg_WriteByte(
    tibemsBytesMsg message,
    tibems_byte value );

tibems_status tibemsBytesMsg_WriteChar(
    tibemsBytesMsg message,
    tibems_wchar value );

tibems_status tibemsBytesMsg_WriteDouble(
    tibemsBytesMsg message,
    tibems_double value );

tibems_status tibemsBytesMsg_WriteFloat(
    tibemsBytesMsg message,
    tibems_float value );

tibems_status tibemsBytesMsg_WriteInt(
    tibemsBytesMsg message,
    tibems_int value );

tibems_status tibemsBytesMsg_WriteLong(
    tibemsBytesMsg message,
    tibems_long value );

tibems_status tibemsBytesMsg_WriteShort(
    tibemsBytesMsg message,
    tibems_short value );

tibems_status tibemsBytesMsg_WriteUTF(
    tibemsBytesMsg message,
    const char* value );

```

**COBOL Call**

```

CALL "tibemsBytesMsg_WriteBoolean"
  USING BY VALUE message,
        BY VALUE tibems-Boolean,
        RETURNING tibems-status
END-CALL.

CALL "tibemsBytesMsg_WriteByte"
  USING BY VALUE message,
        BY VALUE value,
        RETURNING tibems-status
END-CALL.

```

```
CALL "tibemsBytesMsg_WriteChar"
  USING BY VALUE message,
        BY VALUE value,
        RETURNING tibems-status
END-CALL.

CALL "tibemsBytesMsg_WriteDouble"
  USING BY VALUE message,
        BY VALUE value,
        RETURNING tibems-status
END-CALL.

CALL "tibemsBytesMsg_WriteFloat"
  USING BY VALUE message,
        BY VALUE value,
        RETURNING tibems-status
END-CALL.

CALL "tibemsBytesMsg_WriteInt"
  USING BY VALUE message,
        BY VALUE value,
        RETURNING tibems-status
END-CALL.

CALL "tibemsBytesMsg_WriteLong"
  USING BY VALUE message,
        BY VALUE value,
        RETURNING tibems-status
END-CALL.

CALL "tibemsBytesMsg_WriteShort"
  USING BY VALUE message,
        BY VALUE value,
        RETURNING tibems-status
END-CALL.

CALL "tibemsBytesMsg_WriteUTF"
  USING BY VALUE message,
        BY REFERENCE value,
        RETURNING tibems-status
END-CALL.
```



message has usage pointer in all calls.

Parameters

Parameter	Description
message	Write data to the body of this bytes message.
value	Write this value to the message.

**Remarks** The JMS specification defines these nine calls to insert data into the byte stream of a BytesMessage.

Each call writes a data value to the stream, and advances the write position so that the next write call appends to the new end of the stream.

Table 9 BytesMessage Write Functions

Function	# Bytes	Notes
<code>tibemsBytesMsg_WriteBoolean</code>	1	This function writes true as (byte)1, and false as (byte)0.
<code>tibemsBytesMsg_WriteByte</code>	1	
<code>tibemsBytesMsg_WriteShort</code>	2	
<code>tibemsBytesMsg_WriteChar</code>	2	This function writes a 2-byte character—high byte first.
<code>tibemsBytesMsg_WriteInt</code>	4	
<code>tibemsBytesMsg_WriteLong</code>	8	
<code>tibemsBytesMsg_WriteFloat</code>	4	
<code>tibemsBytesMsg_WriteDouble</code>	8	
<code>tibemsBytesMsg_WriteUTF</code>	varies	For information about the UTF-8 format, see <i>File System Safe UCS Transformation Format (FSS_UFT)</i> , X/Open Preliminary Specification, X/Open Company Ltd., Document Number: P316.  This information also appears in ISO/IEC 10646, Annex P.

**See Also** [tibemsBytesMsg\\_WriteBytes on page 88](#)

# tibemsBytesMsg\_WriteBytes

Function

**Purpose** Write bytes from a byte array to the byte stream in the message body.

**C Declaration** `tibems_status tibemsBytesMsg_WriteBytes(  
tibemsBytesMsg message,  
const void* value,  
tibems_uint length );`

**COBOL Call** `CALL "tibemsBytesMsg_WriteBytes"  
USING BY VALUE message,  
BY REFERENCE value,  
BY VALUE size,  
RETURNING tibems-status  
END-CALL.`



message has usage pointer in all calls.

**Parameters**

Parameter	Description
message	Write bytes into the body data of this bytes message.
value	Write bytes from this byte array into the message.
length	Write this number of bytes from the byte array.

**Remarks** Each call writes bytes from the byte array into the stream, and advances the write position.



## tibemsMapMsg

### Type

- Purpose** A message containing a set of name-value pairs.
- Related Types** [tibemsMsg on page 21](#)
- Remarks** Messages with this body type contain several values, indexed by name.

Function	Description	Page
<a href="#">tibemsMapMsg_Create</a>	Create a map message.	90
<a href="#">tibemsMapMsg_Get</a>	Get an enumeration of the field names in a map message.	91
<a href="#">tibemsMapMsg_GetMapNames</a>	Create a map message.	95
<a href="#">tibemsMapMsg_ItemExists</a>	Test if a named pair exists.	96
<a href="#">tibemsMapMsg_Set</a>	Set a name-value pair in a map message.	97

**Extensions** TIBCO Enterprise Message Service extends the JMS `MapMessage` and `StreamMessage` body types in two ways. These extensions allow TIBCO Enterprise Message Service to exchange messages with TIBCO Rendezvous and TIBCO SmartSockets programs, which have certain features not available within the JMS specification.

- You can insert another `MapMessage` or `StreamMessage` instance as a submessage into a `MapMessage` or `StreamMessage`, generating a series of nested messages, instead of a flat message.
- You can use arrays as well as primitive types for the values.

These extensions add considerable flexibility to the two body types. However, they are extensions and therefore not compliant with JMS specifications. Extended messages are tagged as extensions with the vendor property tag `JMS_TIBCO_MSG_EXT`.

For more information on message compatibility with Rendezvous messages, see [Message Body on page 403](#) in *TIBCO Enterprise Message Service Release Notes*.

# tibemsMapMsg\_Create


Function

- Purpose

Create a map message.
- C Declaration

`tibems_status tibemsMapMsg_Create(  
tibemsMapMsg* message );`
- COBOL Call

`CALL "tibemsMapMsg_Create"  
USING BY REFERENCE message,  
RETURNING tibems-status  
END-CALL.`



message has usage pointer.

Parameters	Parameter	Description
	message	The function stores a pointer to the new message in this location.

Remarks

This call creates a new map message.

When your application creates a message, it also allocates storage for that message. This storage must subsequently be freed by a call to `tibemsMsg_Destroy`.

See Also

[tibemsMsg\\_Create on page 28](#)  
[tibemsMsg\\_Destroy on page 31](#)

## tibemsMapMsg\_Get

---

### Function

**Purpose** Get data values from a map message.

**C Declaration**

```

tibems_status tibemsMapMsg_GetBoolean(
    tibemsMapMsg message,
    const char* name,
    tibems_bool* value );

tibems_status tibemsMapMsg_GetByte(
    tibemsMapMsg message,
    const char* name,
    tibems_byte* value );

tibems_status tibemsMapMsg_GetBytes(
    tibemsMapMsg message,
    const char* name,
    void** bytes,
    tibems_uint* bytesSize );

tibems_status tibemsMapMsg_GetChar(
    tibemsMapMsg message,
    const char* name,
    tibems_wchar* value );

tibems_status tibemsMapMsg_GetDouble(
    tibemsMapMsg message,
    const char* name,
    tibems_double* value );

tibems_status tibemsMapMsg_GetField(
    tibemsMapMsg message,
    const char* name,
    tibemsMsgField* value );

tibems_status tibemsMapMsg_GetFloat(
    tibemsMapMsg message,
    const char* name,
    tibems_float* value );

tibems_status tibemsMapMsg_GetInt(
    tibemsMapMsg message,
    const char* name,
    tibems_int* value );

tibems_status tibemsMapMsg_GetLong(
    tibemsMapMsg message,
    const char* name,
    tibems_long* value );

```

```

tibems_status tibemsMapMsg_GetMapMsg(
    tibemsMapMsg message,
    const char* name,
    tibemsMapMsg* value );

tibems_status tibemsMapMsg_GetShort(
    tibemsMapMsg message,
    const char* name,
    tibems_short* value );

tibems_status tibemsMapMsg_GetString(
    tibemsMapMsg message,
    const char* name,
    const char** value );

```

**COBOL Call**

```

CALL "tibemsMapMsg_GetBoolean"
    USING BY VALUE message,
          BY REFERENCE name,
          BY REFERENCE value,
          RETURNING tibems-status
END-CALL.

CALL "tibemsMapMsg_GetBytes"
    USING BY VALUE message,
          BY REFERENCE name,
          BY REFERENCE bytes,
          BY REFERENCE bytesSize,
          RETURNING tibems-status
END-CALL.

CALL "tibemsMapMsg_GetByte"
    USING BY VALUE message,
          BY REFERENCE name,
          BY REFERENCE value,
          RETURNING tibems-status
END-CALL.

CALL "tibemsMapMsg_GetChar"
    USING BY VALUE message,
          BY REFERENCE name,
          BY REFERENCE value,
          RETURNING tibems-status
END-CALL.

CALL "tibemsMapMsg_GetDouble"
    USING BY VALUE message,
          BY REFERENCE name,
          BY REFERENCE value,
          RETURNING tibems-status
END-CALL.

```

```
CALL "tibemsMapMsg_GetField"
  USING BY VALUE message,
        BY REFERENCE name,
        BY REFERENCE value,
        RETURNING tibems-status
END-CALL.
```

```
CALL "tibemsMapMsg_GetFloat"
  USING BY VALUE message,
        BY REFERENCE name,
        BY REFERENCE value,
        RETURNING tibems-status
END-CALL.
```

```
CALL "tibemsMapMsg_GetInt"
  USING BY VALUE message,
        BY REFERENCE name,
        BY REFERENCE value,
        RETURNING tibems-status
END-CALL.
```

```
CALL "tibemsMapMsg_GetLong"
  USING BY VALUE message,
        BY REFERENCE name,
        BY REFERENCE value,
        RETURNING tibems-status
END-CALL.
```

```
CALL "tibemsMapMsg_GetMapMsg"
  USING BY VALUE message,
        BY REFERENCE name,
        BY REFERENCE value,
        RETURNING tibems-status
END-CALL.
```

```
CALL "tibemsMapMsg_GetShort"
  USING BY VALUE message,
        BY REFERENCE name,
        BY REFERENCE value,
        RETURNING tibems-status
END-CALL.
```

```
CALL "tibemsMapMsg_GetString"
  USING BY VALUE message,
        BY REFERENCE name,
        BY REFERENCE value,
        RETURNING tibems-status
END-CALL.
```



message and bytes have usage pointer.

value has usage pointer only in `tibemsMapMsg_GetMapMsg` and `tibemsMapMsg_GetString` (but not in the other calls documented in this group).

Parameters

Parameter	Description
message	Get a value from this map message.
name	Get the value associated with this name.
value	For unitary values, the function copies the value into this location.  For strings, nested messages and fields, the function stores (in this location) a pointer to the value within the message.
bytes	<code>tibemsMapMsg_GetBytes</code> stores a pointer to the byte sequence in this location.
bytesSize	<code>tibemsMapMsg_GetBytes</code> stores the length of the byte sequence in this location.

Remarks

The JMS specification defines these calls to extract data from the name-value pairs of a map message.

To get array values from a map message, call `tibemsMapMsg_GetField`, then extract the array value from the field; see [tibemsMsgField on page 133](#).

When the message does not have a field set for the name, these calls return `TIBEMS_NOT_FOUND`.

# tibemsMapMsg\_GetMapNames

Function

**Purpose** Get an enumeration of the field names in a map message.

**C Declaration** `tibems_status tibemsMapMsg_GetMapNames(  
tibemsMsg message,  
tibemsMsgEnum* enumeration );`

**COBOL Call** `CALL "tibemsMapMsg_GetMapNames"  
USING BY VALUE message,  
BY REFERENCE enumeration,  
RETURNING tibems-status  
END-CALL.`



message and enumeration have usage pointer.

**Parameters**

Parameter	Description
message	Get the field names of this message.
enumeration	The function stores a pointer to the enumeration in this location.

**See Also** [tibemsMsgEnum on page 130](#)

# tibemsMapMsg\_ItemExists

Function

**Purpose** Test if a named pair exists.

**C Declaration** `tibems_status tibemsMapMsg_ItemExists(  
tibemsMapMsg message,  
const char* name,  
tibems_bool* exists );`

**COBOL Call** `CALL "tibemsMapMsg_ItemExists"  
USING BY VALUE message,  
BY REFERENCE name,  
BY REFERENCE exists,  
RETURNING tibems-status  
END-CALL.`



message has usage pointer.

**Parameters**

Parameter	Description
message	Test in the body of this map message.
name	Test for a pair with this name.
exists	The function stores the boolean result of the test in this location.



## tibemsMapMsg—Set

### Function

**Purpose** Set a name-value pair in a map message.

**Single Value** `tibems_status` `tibemsMapMsg_SetBoolean(`  
**C Declarations** `tibemsMapMsg` `message,`  
`const char* name,`  
`tibems_bool value );`

`tibems_status` `tibemsMapMsg_SetByte(`  
`tibemsMapMsg` `message,`  
`const char* name,`  
`tibems_byte value );`

`tibems_status` `tibemsMapMsg_SetChar(`  
`tibemsMapMsg` `message,`  
`const char* name,`  
`tibems_wchar value );`

`tibems_status` `tibemsMapMsg_SetDouble(`  
`tibemsMapMsg` `message,`  
`const char* name,`  
`tibems_double value );`

`tibems_status` `tibemsMapMsg_SetFloat(`  
`tibemsMapMsg` `message,`  
`const char* name,`  
`tibems_float value );`

`tibems_status` `tibemsMapMsg_SetInt(`  
`tibemsMapMsg` `message,`  
`const char* name,`  
`tibems_int value );`

`tibems_status` `tibemsMapMsg_SetLong(`  
`tibemsMapMsg` `message,`  
`const char* name,`  
`tibems_long value );`

`tibems_status` `tibemsMapMsg_SetShort(`  
`tibemsMapMsg` `message,`  
`const char* name,`  
`tibems_short value );`

`tibems_status` `tibemsMapMsg_SetString(`  
`tibemsMapMsg` `message,`  
`const char* name,`  
`const char* value );`

<b>Array C Declarations</b>	<pre> tibems_status tibemsMapMsg_SetDoubleArray(     tibemsMapMsg message,     const char* name,     const tibems_double* value,     tibems_uint count );  tibems_status tibemsMapMsg_SetFloatArray(     tibemsMapMsg message,     const char* name,     const tibems_float* value,     tibems_uint count );  tibems_status tibemsMapMsg_SetIntArray(     tibemsMapMsg message,     const char* name,     const tibems_int* value,     tibems_uint count );  tibems_status tibemsMapMsg_SetLongArray(     tibemsMapMsg message,     const char* name,     const tibems_long* value,     tibems_uint count );  tibems_status tibemsMapMsg_SetShortArray(     tibemsMapMsg message,     const char* name,     const tibems_short* value,     tibems_uint count ); </pre>
---------------------------------	--

<b>Nested Message C Declarations</b>	<pre> tibems_status tibemsMapMsg_SetMapMsg(     tibemsMapMsg message,     const char* name,     tibemsMsg mapMsg,     tibems_bool takeOwnership );  tibems_status tibemsMapMsg_SetStreamMsg(     tibemsMsg message,     const char* name,     tibemsMsg streamMsg,     tibems_bool takeOwnership); </pre>
--	---

<b>COBOL Call</b>	<pre> CALL "tibemsMapMsg_SetBoolean"     USING BY VALUE message,           BY REFERENCE name,           BY VALUE value,           RETURNING tibems-status END-CALL.  CALL "tibemsMapMsg_SetByte"     USING BY VALUE message,           BY REFERENCE name,           BY VALUE value,           RETURNING tibems-status END-CALL. </pre>
-------------------	--

```
CALL "tibemsMapMsg_SetChar"
  USING BY VALUE message,
        BY REFERENCE name,
        BY VALUE value,
        RETURNING tibems-status
END-CALL.
```

```
CALL "tibemsMapMsg_SetDouble"
  USING BY VALUE message,
        BY REFERENCE name,
        BY VALUE value,
        RETURNING tibems-status
END-CALL.
```

```
CALL "tibemsMapMsg_SetDoubleArray"
  USING BY VALUE message,
        BY REFERENCE name,
        BY REFERENCE value,
        BY VALUE count,
        RETURNING tibems-status
END-CALL.
```

```
CALL "tibemsMapMsg_SetFloat"
  USING BY VALUE message,
        BY REFERENCE name,
        BY VALUE value,
        RETURNING tibems-status
END-CALL.
```

```
CALL "tibemsMapMsg_SetFloatArray"
  USING BY VALUE message,
        BY REFERENCE name,
        BY REFERENCE value,
        BY VALUE count,
        RETURNING tibems-status
END-CALL.
```

```
CALL "tibemsMapMsg_SetInt"
  USING BY VALUE message,
        BY REFERENCE name,
        BY VALUE value,
        RETURNING tibems-status
END-CALL.
```

```
CALL "tibemsMapMsg_SetIntArray"
  USING BY VALUE message,
        BY REFERENCE name,
        BY REFERENCE value,
        BY VALUE count,
        RETURNING tibems-status
END-CALL.
```

```

CALL "tibemsMapMsg_SetLong"
    USING BY VALUE message,
          BY REFERENCE name,
          BY VALUE value,
          RETURNING tibems-status
END-CALL.

CALL "tibemsMapMsg_SetLongArray"
    USING BY VALUE message,
          BY REFERENCE name,
          BY REFERENCE value,
          BY VALUE count,
          RETURNING tibems-status
END-CALL.

CALL "tibemsMapMsg_SetMapMsg"
    USING BY VALUE message,
          BY REFERENCE name,
          BY VALUE mapMsg,
          BY VALUE tibems-Boolean,
          RETURNING tibems-status
END-CALL.

CALL "tibemsMapMsg_SetShort"
    USING BY VALUE message,
          BY REFERENCE name,
          BY VALUE value,
          RETURNING tibems-status
END-CALL.

CALL "tibemsMapMsg_SetShortArray"
    USING BY VALUE message,
          BY REFERENCE name,
          BY REFERENCE value,
          BY VALUE count,
          RETURNING tibems-status
END-CALL.

CALL "tibemsMapMsg_SetStreamMsg"
    USING BY VALUE message,
          BY REFERENCE name,
          BY VALUE streamMsg,
          BY VALUE tibems-Boolean,
          RETURNING tibems-status
END-CALL.

CALL "tibemsMapMsg_SetString"
    USING BY VALUE message,
          BY REFERENCE name,
          BY REFERENCE value,
          RETURNING tibems-status
END-CALL.

```



message, streamMsg and mapMsg have usage pointer.

**Parameters**

Parameter	Description
message	Set the pair in the body of this map message.
name	Set the pair with this name.  Field names must not be null, and must not be empty strings.
value	Associate this value with the name.
count	Array functions set array values of this size (must be a positive number).
mapMsg	<code>tibemsMapMsg_SetMapMsg</code> sets this map message as a nested value.
takeOwnership	Nested message functions use this parameter to control ownership of nested messages.  When this argument is <code>TIBEMS_TRUE</code> , the call increments the reference count of the nested message. This action prevents other calls from destroying the nested message improperly.  We recommend that all calls supply <code>TIBEMS_TRUE</code> .

**Remarks** The JMS specification defines functions to set name-value pairs in a `MapMessage`.

**Extensions** Array functions and nested message functions extend the JMS specification. Use them only with `SmartSockets` or `Rendezvous` messages. Programs that use these extensions might be non-compliant, and cannot interoperate with other JMS providers.

**See Also** [tibemsMapMsg\\_Get on page 91](#)  
[tibemsMapMsg\\_SetBytes on page 102](#)

# tibemsMapMsg\_SetBytes

Function

**Purpose** Set a byte array as a named value in a map message.

**C Declaration**

```
tibems_status tibemsMapMsg_SetBytes(  
    tibemsMapMsg message,  
    const char* name,  
    void* bytes,  
    tibems_uint bytesSize );  
  
tibems_status tibemsMapMsg_SetReferencedBytes(  
    tibemsMapMsg message,  
    const char* name,  
    void* bytes,  
    tibems_uint bytesSize );
```

**COBOL Call**

```
CALL "tibemsMapMsg_SetBytes"  
  USING BY VALUE message,  
        BY REFERENCE name,  
        BY REFERENCE bytes,  
        BY VALUE bytesSize,  
        RETURNING tibems-status  
END-CALL.  
  
CALL "tibemsMapMsg_SetReferencedBytes"  
  USING BY VALUE message,  
        BY REFERENCE name,  
        BY REFERENCE bytes,  
        BY VALUE bytesSize,  
        RETURNING tibems-status  
END-CALL.
```



message has usage pointer.

Parameters

Parameter	Description
message	Set the name and value pair in the body of this map message.
name	Set the pair with this name.
bytes	Associate this byte array value with the name.
bytesSize	Set a byte array value of this length.

**Remarks**     `tibemsMapMsg_SetBytes` copies the byte array into the map message field. The program may free the original byte array after this call returns.

`tibemsMapMsg_SetReferencedBytes` adds a reference to the byte array, but does not copy the bytes. When the byte array is very large, it can be more efficient to avoid making a copy. However, the program must not free nor modify the original byte array until after freeing the map message.

# tibemsObjectMsg

Type

**Purpose** A message containing a serializable object.

**Related Types** [tibemsMsg on page 21](#)

Function	Description	Page
<a href="#">tibemsObjectMsg_Create</a>	Create an object message.	105
<a href="#">tibemsObjectMsg_GetObjectBytes</a>	Get the byte sequence representing a serialized object from a message.	106
<a href="#">tibemsObjectMsg_SetObjectBytes</a>	Set the byte sequence of an object message.	107

**Object Messages in C** Object messages are used for objects created in .NET or Java. A C program can create, receive, and send object messages. For example, a C application can forward or store an object generated from a Java or .NET application.

C programs cannot create object messages. However, a C program can receive an object message from a Java or .NET program, and forward it, or store it for later resending.

**Serialization** The C library neither serializes objects nor reassembles them from bytes.



# tibemsObjectMsg\_Create

Function

**Purpose** Create an object message.

**C Declaration** `tibems_status tibemsObjectMsg_Create(  
tibemsObjectMsg* message );`

**COBOL Call** CALL "tibemsObjectMsg\_Create"  
USING BY REFERENCE message,  
RETURNING tibems-status  
END-CALL.



message has usage pointer.

**Parameters**

Parameter	Description
message	The function stores a pointer to the new message in this location.

**Remarks** This call creates a new object message.  
  
When your application creates a message, it also allocates storage for that message. This storage must subsequently be freed by a call to `tibemsMsg_Destroy`.

**See Also** [tibemsMsg\\_Create on page 28](#)  
[tibemsMsg\\_Destroy on page 31](#)

# tibemsObjectMsg\_GetObjectBytes

Function

**Purpose** Get the byte sequence representing a serialized object from a message.

**C Declaration** `tibems_status tibemsObjectMsg_GetObjectBytes(  
tibemsObjectMsg message,  
void** bytes,  
tibems_uint* byteSize );`

**COBOL Call** `CALL "tibemsObjectMsg_GetObjectBytes"  
USING BY VALUE message,  
BY REFERENCE bytes,  
BY REFERENCE byteSize,  
RETURNING tibems-status  
END-CALL.`



message and bytes have usage pointer.

**Parameters**

Parameter	Description
message	Get bytes (representing an object) from this message.
bytes	The function stores a pointer to the byte sequence (within the message) in this location.
byteSize	The function stores the length of the byte sequence in this location.

**Remarks** When the message does not contain an object (because none has been set), this function places null in the bytes argument, and zero in the byteSize argument.

## tibemsObjectMsg\_SetObjectBytes

Function

**Purpose** Set the byte sequence of an object message.

**C Declaration**

```
tibems_status tibemsObjectMsg_SetObjectBytes(
    tibemsObjectMsg message,
    const void* bytes,
    tibems_uint byteSize );
```

**COBOL Call**

```
CALL "tibemsObjectMsg_SetObjectBytes"
    USING BY VALUE message,
          BY REFERENCE bytes,
          BY VALUE byteSize,
          RETURNING tibems-status
END-CALL.
```



message has usage pointer.

### Parameters

Parameter	Description
message	Put bytes (representing an object) into this message.
bytes	Use these bytes (representing a serialized object) as the message body data.
byteSize	Length of the byte sequence.

**Remarks** Setting the content of an object message stores a snapshot of the object. subsequent changes to the original object or its serialized representation (as a byte sequence) do not affect the message.

# tibemsStreamMsg

Type

**Purpose** A message containing a stream of data items.

**Related Types** [tibemsMsg on page 21](#)

Member	Description	Page
<a href="#">tibemsStreamMsg_Create</a>	<a href="#">Create a stream message.</a>	<a href="#">110</a>
<a href="#">tibemsStreamMsg_FreeField</a>	<a href="#">Free storage allocated during the reading of a stream message.</a>	<a href="#">111</a>
<a href="#">tibemsStreamMsg_Read</a>	<a href="#">Read primitive datatypes from a stream message.</a>	<a href="#">112</a>
<a href="#">tibemsStreamMsg_ReadBytes</a>	<a href="#">Read a byte array from a stream message.</a>	<a href="#">115</a>
<a href="#">tibemsStreamMsg_ReadField</a>	<a href="#">Read a field from a stream message.</a>	<a href="#">116</a>
<a href="#">tibemsStreamMsg_Reset</a>	<a href="#">Set the read position to the beginning of the stream, and mark the message body as read-only.</a>	<a href="#">117</a>
<a href="#">tibemsStreamMsg_Write</a>	<a href="#">Write data to a stream message.</a>	<a href="#">118</a>
<a href="#">tibemsBytesMsg_WriteBytes</a>	<a href="#">Write bytes from a byte array to a stream message.</a>	<a href="#">122</a>

**Remarks** Each datum in the stream must be a primitive type, or an object representation of a primitive type.

**Extensions** TIBCO Enterprise Message Service extends the `MapMessage` and `StreamMessage` body types in two ways. These extensions allow TIBCO Enterprise Message Service to exchange messages with TIBCO Rendezvous and ActiveEnterprise formats that have certain features not available within the JMS specification.

- You can insert another `MapMessage` or `StreamMessage` instance as a submessage into a `MapMessage` or `StreamMessage`, generating a series of nested messages, instead of a flat message.
- You can use arrays as well as primitive types for the values.

These extensions add considerable flexibility to the two body types. However, they are extensions and therefore not compliant with JMS specifications. Extended messages are tagged as extensions with the vendor property tag `JMS_TIBCO_MSG_EXT`.

For more information on message compatibility with Rendezvous messages, see [Message Body on page 403](#) in *TIBCO Enterprise Message Service User's Guide*.

# tibemsStreamMsg\_Create

Function

**Purpose** Create a stream message.

**C Declaration** `tibems_status tibemsStreamMsg_Create(  
tibemsStreamMsg* message );`

**COBOL Call** CALL "tibemsStreamMsg\_Create"  
USING BY REFERENCE message,  
RETURNING tibems-status  
END-CALL.



message has usage pointer.

Parameters	Parameter	Description
	message	The function stores a pointer to the new message in this location.

**Remarks** This call creates a new stream message.  
  
When your application creates a message, it also allocates storage for that message. This storage must subsequently be freed by a call to `tibemsMsg_Destroy`.

**See Also** [tibemsMsg\\_Create on page 28](#)  
[tibemsMsg\\_Destroy on page 31](#)

# tibemsStreamMsg\_FreeField

Function

**Purpose** Free storage allocated during the reading of a stream message.

**C Declaration** `void tibemsStreamMsg_FreeField(  
tibemsMsgField* field );`

**COBOL Call** `CALL "tibemsStreamMsg_FreeField"  
USING BY REFERENCE field  
END-CALL.`

Parameters	Parameter	Description
	field	Free the storage associated with this field struct.

**Remarks** Each successful call to `tibemsStreamMsg_ReadField` allocates storage for a `tibemsMsgField`. Programs that call `tibemsStreamMsg_ReadField` must subsequently call this function to free that allocated storage.

This function does not need to be called after `tibemsMapMsg_GetField`.

**See Also** [tibemsMsgField on page 133](#)  
[tibemsStreamMsg\\_ReadField on page 116](#)

## tibemsStreamMsg\_Read

---

*Function*

**Purpose** Read primitive datatypes from a stream message.

**C Declaration**

```

tibems_status tibemsStreamMsg_ReadBoolean(
    tibemsStreamMsg message,
    tibems_bool* value );

tibems_status tibemsStreamMsg_ReadByte(
    tibemsStreamMsg message,
    tibems_byte* value );

tibems_status tibemsStreamMsg_ReadChar(
    tibemsStreamMsg message,
    tibems_wchar* value );

tibems_status tibemsStreamMsg_ReadDouble(
    tibemsStreamMsg message,
    tibems_double* value );

tibems_status tibemsStreamMsg_ReadFloat(
    tibemsStreamMsg message,
    tibems_float* value );

tibems_status tibemsStreamMsg_ReadInt(
    tibemsStreamMsg message,
    tibems_int* value );

tibems_status tibemsStreamMsg_ReadLong(
    tibemsStreamMsg message,
    tibems_long* value );

tibems_status tibemsStreamMsg_ReadShort(
    tibemsStreamMsg message,
    tibems_short* value );

tibems_status tibemsStreamMsg_ReadString(
    tibemsStreamMsg message,
    char** value );

```

**COBOL Call**

```

CALL "tibemsStreamMsg_ReadBoolean"
    USING BY VALUE message,
          BY REFERENCE value,
          RETURNING tibems-status
END-CALL.

CALL "tibemsStreamMsg_ReadByte"
    USING BY VALUE message,
          BY REFERENCE value,
          RETURNING tibems-status
END-CALL.

```



```

CALL "tibemsStreamMsg_ReadChar"
  USING BY VALUE message,
        BY REFERENCE value,
        RETURNING tibems-status
END-CALL.

CALL "tibemsStreamMsg_ReadDouble"
  USING BY VALUE message,
        BY REFERENCE value,
        RETURNING tibems-status
END-CALL.

CALL "tibemsStreamMsg_ReadFloat"
  USING BY VALUE message,
        BY REFERENCE value,
        RETURNING tibems-status
END-CALL.

CALL "tibemsStreamMsg_ReadInt"
  USING BY VALUE message,
        BY REFERENCE value,
        RETURNING tibems-status
END-CALL.

CALL "tibemsStreamMsg_ReadLong"
  USING BY VALUE message,
        BY REFERENCE value,
        RETURNING tibems-status
END-CALL.

CALL "tibemsStreamMsg_ReadShort"
  USING BY VALUE message,
        BY REFERENCE value,
        RETURNING tibems-status
END-CALL.

CALL "tibemsStreamMsg_ReadString"
  USING BY VALUE message,
        BY REFERENCE value,
        RETURNING tibems-status
END-CALL.

```



message has usage pointer.

value has usage pointer only in tibemsStreamMsg\_ReadString (but not in the other calls documented in this group).

#### Parameters

Parameter	Description
message	Read a field struct from this message.
value	The function stores a pointer to the field struct in this location.

**Remarks** Each call reads a unit of data from the stream, and advances the read position so that the next read call gets the next datum. (Other read functions are documented on separate pages.)

**See Also** [tibemsStreamMsg\\_ReadBytes on page 115](#)  
[tibemsStreamMsg\\_ReadField on page 116](#)

# tibemsStreamMsg\_ReadBytes

Function

**Purpose** Read a byte array from a stream message.

**C Declaration** `tibems_status tibemsStreamMsg_ReadBytes(  
tibemsStreamMsg message,  
void** value,  
tibems_uint* length );`

**COBOL Call** `CALL "tibemsStreamMsg_ReadBytes"  
USING BY VALUE message,  
BY REFERENCE value,  
BY REFERENCE size,  
RETURNING tibems-status  
END-CALL.`



message and value have usage pointer.

Parameters

Parameter	Description
message	Read a byte array from this message.
value	The function stores a pointer to the byte sequence (within the message) in this location.
length	The function stores the actual number of bytes read in this location.

**Remarks** Each call reads bytes from the stream into the byte array, and advances the read position so that the next read call gets the next datum. (Other read functions are documented on separate pages.)

This call uses the length parameter to return the actual number of bytes read. When the call cannot read even one byte, the length is -1.

A program that calls this function must call it repeatedly until it returns -1, indicating that the program has extracted the complete set of bytes. Only then may the program call another read function.

**See Also** [tibemsStreamMsg\\_Read on page 112](#)  
[tibemsStreamMsg\\_ReadField on page 116](#)

# tibemsStreamMsg\_ReadField

Function

**Purpose** Read a field from a stream message.

**C Declaration** `tibems_status tibemsStreamMsg_ReadField(  
tibemsStreamMsg message,  
tibemsMsgField* value );`

**COBOL Call** `CALL "tibemsStreamMsg_ReadField"  
USING BY VALUE message,  
BY REFERENCE value,  
RETURNING tibems-status  
END-CALL.`



message has usage pointer.

**Parameters**

Parameter	Description
message	Read a field struct from this message.
value	The function stores a pointer to the field struct in this location.

**Remarks** Each call reads a field from the stream, and advances the read position so that the next read call gets the next datum. (Other read functions are documented on separate pages.)

**Freeing Fields** Each successful call to `tibemsStreamMsg_ReadField` creates a field struct. Field structs can contain data in allocated storage. Programs that call `tibemsStreamMsg_ReadField` *must* subsequently call `tibemsStreamMsg_FreeField` to free that allocated storage.

**See Also** [tibemsStreamMsg\\_FreeField on page 111](#)

# tibemsStreamMsg\_Reset

Function

**Purpose** Set the read position to the beginning of the stream, and mark the message body as read-only.

**C Declaration** `tibems_status tibemsStreamMsg_Reset(  
tibemsStreamMsg message );`

**COBOL Call** `CALL "tibemsStreamMsg_Reset"  
USING BY VALUE message,  
RETURNING tibems-status  
END-CALL.`



message has usage pointer.

**Parameters**

Parameter	Description
message	Reset the read position of this message.

**Remarks** This call prepares a message body for reading, as if the message were newly received. Contrast [tibemsMsg\\_ClearBody on page 26](#), which clears a message body in preparation for writing, as if it were newly created.

## tibemsStreamMsg\_Write

---

*Function*

**Purpose** Write data to a stream message.

<b>Single Value</b>	<pre>tibems_status tibemsStreamMsg_WriteBoolean(     tibemsStreamMsg message,     tibems_bool value );</pre>
<b>C Declarations</b>	<pre>tibems_status tibemsStreamMsg_WriteByte(     tibemsStreamMsg message,     tibems_byte value );  tibems_status tibemsStreamMsg_WriteChar(     tibemsStreamMsg message,     tibems_wchar value );  tibems_status tibemsStreamMsg_WriteDouble(     tibemsStreamMsg message,     tibems_double value );  tibems_status tibemsStreamMsg_WriteFloat(     tibemsStreamMsg message,     tibems_float value );  tibems_status tibemsStreamMsg_WriteInt(     tibemsStreamMsg message,     tibems_int value ); tibems_status tibemsStreamMsg_WriteLong(     tibemsStreamMsg message,     tibems_long value );  tibems_status tibemsStreamMsg_WriteShort(     tibemsStreamMsg message,     tibems_short value );  tibems_status tibemsStreamMsg_WriteString(     tibemsStreamMsg message,     char* value );</pre>
<b>Array</b>	<pre>tibems_status tibemsStreamMsg_WriteDoubleArray(     tibemsMsg message,     const tibems_double* value,     tibems_int count );</pre>
<b>C Declarations</b>	<pre>tibems_status tibemsStreamMsg_WriteFloatArray(     tibemsMsg message,     const tibems_float* value,     tibems_int count );  tibems_status tibemsStreamMsg_WriteIntArray(     tibemsMsg message,     const tibems_int* value,     tibems_int count );</pre>

```

tibems_status tibemsStreamMsg_WriteLongArray(
    tibemsMsg message,
    const tibems_long* value,
    tibems_int count );

tibems_status tibemsStreamMsg_WriteShortArray(
    tibemsMsg message,
    const tibems_short* value,
    tibems_int count );

```

### Nested Message C Declarations

```

tibems_status tibemsStreamMsg_WriteMapMsg(
    tibemsMsg message,
    tibemsMsg value );

tibems_status tibemsStreamMsg_WriteStreamMsg(
    tibemsMsg message,
    tibemsMsg value );

```



Nested messages are an extension of the JMS specification. Programs that use this feature are non-compliant.

### COBOL Call

```

CALL "tibemsStreamMsg_WriteBoolean"
    USING BY VALUE message,
          BY VALUE value,
          RETURNING tibems-status
END-CALL.

CALL "tibemsStreamMsg_WriteByte"
    USING BY VALUE message,
          BY VALUE value,
          RETURNING tibems-status
END-CALL.

CALL "tibemsStreamMsg_WriteChar"
    USING BY VALUE message,
          BY VALUE value,
          RETURNING tibems-status
END-CALL.

CALL "tibemsStreamMsg_WriteDouble"
    USING BY VALUE message,
          BY VALUE value,
          RETURNING tibems-status
END-CALL.

CALL "tibemsStreamMsg_WriteDoubleArray"
    USING BY VALUE message,
          BY REFERENCE value,
          BY VALUE count,
          RETURNING tibems-status
END-CALL.

```

```

CALL "tibemsStreamMsg_WriteFloat"
    USING BY VALUE message,
          BY VALUE value,
          RETURNING tibems-status
END-CALL.

CALL "tibemsStreamMsg_WriteFloatArray"
    USING BY VALUE message,
          BY REFERENCE value,
          BY VALUE count,
          RETURNING tibems-status
END-CALL.

CALL "tibemsStreamMsg_WriteInt"
    USING BY VALUE message,
          BY VALUE value,
          RETURNING tibems-status
END-CALL.

CALL "tibemsStreamMsg_WriteIntArray"
    USING BY VALUE message,
          BY REFERENCE value,
          BY VALUE count,
          RETURNING tibems-status
END-CALL.

CALL "tibemsStreamMsg_WriteLong"
    USING BY VALUE message,
          BY VALUE value,
          RETURNING tibems-status
END-CALL.

CALL "tibemsStreamMsg_WriteLongArray"
    USING BY VALUE message,
          BY REFERENCE value,
          BY VALUE count,
          RETURNING tibems-status
END-CALL.

CALL "tibemsStreamMsg_WriteMapMsg"
    USING BY VALUE message,
          BY VALUE value,
          RETURNING tibems-status
END-CALL.

CALL "tibemsStreamMsg_WriteShort"
    USING BY VALUE message,
          BY VALUE value,
          RETURNING tibems-status
END-CALL.

CALL "tibemsStreamMsg_WriteShortArray"
    USING BY VALUE message,
          BY REFERENCE value,
          BY VALUE count,
          RETURNING tibems-status
END-CALL.

```



```
CALL "tibemsStreamMsg_WriteStreamMsg"  
    USING BY VALUE message,  
          BY VALUE value,  
          RETURNING tibems-status  
END-CALL.  
  
CALL "tibemsStreamMsg_WriteString"  
    USING BY VALUE message,  
          BY REFERENCE value,  
          RETURNING tibems-status  
END-CALL.
```



message has usage pointer.  
value has usage pointer only in tibemsStreamMsg\_WriteStreamMsg and tibemsStreamMsg\_WriteMapMsg (but not in the other calls documented in this group).

Parameters

Parameter	Description
message	Write a datum to this stream message.
value	Write this datum. Arrays must not be null.
count	Array functions set array values of this size.

**Remarks** Each call writes a data value to the stream, and advances the write position so that the next write call appends to the new end of the stream.

**See Also** [tibemsStreamMsg\\_WriteBytes on page 122](#)

# tibemsStreamMsg\_WriteBytes

Function

**Purpose** Write bytes from a byte array to a stream message.

**C Declaration** `tibems_status tibemsStreamMsg_WriteBytes(  
tibemsStreamMsg message,  
void* value,  
tibems_uint length );`

**COBOL Call** `CALL "tibemsStreamMsg_WriteBytes"  
USING BY VALUE message,  
BY REFERENCE value,  
BY VALUE length,  
RETURNING tibems-status  
END-CALL.`



message has usage pointer.

**Parameters**

Parameter	Description
message	Write to the byte stream of this message.
value	Copy bytes from this byte array to the message.
length	Write this number of bytes from the byte array to the message.

**Remarks** Each call writes bytes from the byte array into the stream, and advances the write position.

## tibemsTextMsg

*Type*

**Purpose** A message containing a text string.

**Related Types** [tibemsMsg on page 21](#)

**Remarks** Messages with this body type contain a single value, which is a string.

Function	Description	Page
<a href="#">tibemsTextMsg_Create</a>	Create a text message.	124
<a href="#">tibemsTextMsg_GetText</a>	Get the string data from a text message.	125
<a href="#">tibemsTextMsg_SetText</a>	Set the data string of a text message.	126

# tibemsTextMsg\_Create

Function

**Purpose** Create a text message.

**C Declaration** `tibems_status tibemsTextMsg_Create(  
tibemsTextMsg* message );`

**COBOL Call** `CALL "tibemsTextMsg_Create"  
USING BY REFERENCE message,  
RETURNING tibems-status  
END-CALL.`



message has usage pointer.

Parameters	Parameter	Description
	message	The function stores a pointer to the new message in this location.

**Remarks** This call creates a new text message.  
  
When your application creates a message, it also allocates storage for that message. This storage must subsequently be freed by a call to `tibemsMsg_Destroy`.

**See Also** [tibemsMsg\\_Create on page 28](#)  
[tibemsMsg\\_Destroy on page 31](#)

**See Also** [tibemsSession\\_CreateTextMessage on page 304](#)

# tibemsTextMsg\_GetText

Function

**Purpose** Get the string data from a text message.

**C Declaration** `tibems_status tibemsTextMsg_GetText(  
tibemsTextMsg message,  
const char** text );`

**COBOL Call** `CALL "tibemsTextMsg_GetText"  
USING BY VALUE message,  
BY REFERENCE text,  
RETURNING tibems-status  
END-CALL.`



message and text have usage pointer.

**Parameters**

Parameter	Description
message	Get the string from this message.
text	The function stores a pointer to the string (within the message) in this location.

**Remarks** When the message does not contain any text (because none has been set), this function sets its text parameter to null.

# tibemsTextMsg\_SetText

Function

**Purpose** Set the data string of a text message.

**C Declaration** `tibems_status tibemsTextMsg_SetText(  
tibemsTextMsg message,  
const char* text );`

**COBOL Call** `CALL "tibemsTextMsg_SetText"  
USING BY VALUE message,  
BY REFERENCE text,  
RETURNING tibems-status  
END-CALL.`



message has usage pointer.

**Parameters**

Parameter	Description
message	Put the text into this message.
text	Copy this string into the message body.

# tibemsData

*Type*

**Purpose** Union type that covers all possible datatypes in a [tibemsMsgField](#) struct.

**C Declaration**

```
typedef union {
    tibems_bool boolValue;
    tibems_byte byteValue;
    tibems_short shortValue;
    tibems_wchar wcharValue;
    tibems_int intValue;
    tibems_long longValue;
    tibems_float floatValue;
    tibems_double doubleValue;
    char* utf8Value;
    void* bytesValue;
    struct __tibemsMsg* msgValue;
    void* arrayValue;
} tibemsData;
```

**COBOL**

```
05 MsgFld-data.
  10 MFD                                PIC  X(8).
  10 MFD-boolValue                      PIC  S9(8) BINARY.
      redefines MFD
  10 MFD-byteValue                      PIC  X(1) USAGE DISPLAY.
      redefines MFD
  10 MFD-shortValue                    PIC  S9(4) BINARY.
      redefines MFD
  10 MFD-wcharValue                    PIC  9(4) COMPUTATIONAL-5.
      redefines MFD
  10 MFD-intValue                      PIC  S9(9) BINARY.
      redefines MFD
  10 MFD-longValue                     PIC  S9(18) COMPUTATIONAL-5.
      redefines MFD
  10 MFD-floatValue                     USAGE COMPUTATIONAL-1.
      redefines MFD
  10 MFD-doubleValue                   USAGE COMPUTATIONAL-2.
      redefines MFD
  10 MFD-utf8Value                      USAGE POINTER.
      redefines MFD
  10 MFD-bytesValue                     USAGE POINTER.
      redefines MFD
  10 MFD-msgValue                       USAGE POINTER.
      redefines MFD
  10 MFD-arrayValue                     USAGE POINTER.
      redefines MFD
```

**See Also** [tibemsMsgField on page 133](#)

# tibemsDeliveryMode

Type

Purpose	Define delivery mode constants.		
C Declaration	<pre>typedef enum {     TIBEMS_NON_PERSISTENT,     TIBEMS_PERSISTENT,     TIBEMS_RELIABLE } tibemsDeliveryMode;</pre>		
COBOL	01	TIBEMS-DELIVERY-MODES.	
	05	tibemsDeliveryMode	PIC S9(8) BINARY.
	88	TIBEMS-NON-PERSISTENT	VALUE 1.
	88	TIBEMS-PERSISTENT	VALUE 2.
	88	TIBEMS-RELIABLE	VALUE 22.

Member	Description
TIBEMS_NON_PERSISTENT	Non-persistent delivery.
TIBEMS_PERSISTENT	Persistent delivery.
TIBEMS_RELIABLE	Reliable delivery mode is a TIBCO proprietary extension that offers increased performance of the message producers. See also <a href="#">RELIABLE_DELIVERY</a> on page 25 in <i>TIBCO Enterprise Message Service User's Guide</i> .



## tibemsNpCheckMode

Type

**Purpose** Define when a producer should check the result of sending a NON\_PERSISTENT message.

**C Declaration**

```
typedef enum
{
    NPSEND_CHECK_DEFAULT    = 0,
    NPSEND_CHECK_ALWAYS     = 1,
    NPSEND_CHECK_NEVER      = 2,
    NPSEND_CHECK_TEMP_DEST  = 3,
    NPSEND_CHECK_AUTH       = 4,
    NPSEND_CHECK_TEMP_AUTH  = 5
} tibemsNpCheckMode;
```

**COBOL**

```
01  TIBEMS-NPCHECK-MODES .
   05  tibemsNpCheckMode          PIC S9(8) BINARY.
   88  NPSEND_CHECK_DEFAULT      VALUE 0.
   88  NPSEND_CHECK_ALWAYS       VALUE 1.
   88  NPSEND_CHECK_NEVER        VALUE 2.
   88  NPSEND_CHECK_TEMP_DEST    VALUE 3.
   88  NPSEND_CHECK_AUTH         VALUE 4.
   88  NPSEND_CHECK_TEMP_AUTH    VALUE 5.
```

Member	Description
NPSEND_CHECK_DEFAULT	Defines default check mode for sending a NON_PERSISTENT message.
NPSEND_CHECK_ALWAYS	Defines mode when producer always checks result of sending a NON_PERSISTENT message.
NPSEND_CHECK_NEVER	Defines mode when producer never checks result of sending a NON_PERSISTENT message.
NPSEND_CHECK_TEMP_DEST	Defines mode when producer checks result of sending a NON_PERSISTENT message only when sending into temporary destination.
NPSEND_CHECK_AUTH	Defines mode when producer checks result of sending a NON_PERSISTENT message only when server authorization is enabled.
NPSEND_CHECK_TEMP_AUTH	Defines mode when producer checks result of sending a NON_PERSISTENT message when sending into temporary destination or if server authorization is enabled.

# tibemsMsgEnum

Type

- Purpose** Enumerate the properties of a message, or the field names of a map message.
- Remarks** [tibemsMsg\\_GetPropertyNames](#) and [tibemsMapMsg\\_GetMapNames](#) create instances of this type.

Function	Description	Page
<a href="#">tibemsMsgEnum_Destroy</a>	Destroy a message enumerator.	131
<a href="#">tibemsMsgEnum_GetNextName</a>	Get the next item from a message enumerator.	132

- See Also** [tibemsMsg\\_GetPropertyNames](#) on page 48
- [tibemsMapMsg\\_GetMapNames](#) on page 95

# tibemsMsgEnum\_Destroy

Function

**Purpose** Destroy a message enumerator.

**C Declaration** `tibems_status tibemsMsgEnum_Destroy(  
tibemsMsgEnum enumeration );`

**COBOL Call** CALL "tibemsMsgEnum\_Destroy"  
USING BY VALUE enumeration,  
RETURNING tibems-status  
END-CALL.



enumeration has usage pointer.

**Parameters**

Parameter	Description
enumeration	Destroy this enumerator.

# tibemsMsgEnum\_GetNextName

Function

**Purpose** Get the next item from a message enumerator.

**C Declaration** `tibems_status tibemsMsgEnum_GetNextName(  
tibemsMsgEnum enumeration,  
const char** name );`

**COBOL Call** `CALL "tibemsMsgEnum_GetNextName"  
USING BY VALUE enumeration,  
BY REFERENCE name,  
RETURNING tibems-status  
END-CALL.`



enumeration and name have usage pointer.

**Parameters**

Parameter	Description
enumeration	Get the next item from this enumerator.
name	The function stores the next item in this location.

# tibemsMsgField

Type

**Purpose** Represents a message field or property.

**C Declaration**

```
typedef struct {
    tibems_byte type;
    tibems_int size;
    tibems_int count;
    tibemsData data;
} tibemsMsgField
```

**COBOL**

```
01 tibemsMsgField.
  05 MsgFld-type PIC X(1).
    88 TIBEMS-NULL VALUE X'00'.
    88 TIBEMS-BOOL VALUE X'01'.
    88 TIBEMS-BYTE VALUE X'02'.
    88 TIBEMS-WCHAR VALUE X'03'.
    88 TIBEMS-SHORT VALUE X'04'.
    88 TIBEMS-INT VALUE X'05'.
    88 TIBEMS-LONG VALUE X'06'.
    88 TIBEMS-FLOAT VALUE X'07'.
    88 TIBEMS-DOUBLE VALUE X'08'.
    88 TIBEMS-UTF8 VALUE X'09'.
    88 TIBEMS-BYTES VALUE X'0A'.
    88 TIBEMS-MAP-MSG VALUE X'0B'.
    88 TIBEMS-STREAM-MSG VALUE X'0C'.
    88 TIBEMS-SHORT-ARRAY VALUE X'14'.
    88 TIBEMS-INT-ARRAY VALUE X'15'.
    88 TIBEMS-LONG-ARRAY VALUE X'16'.
    88 TIBEMS-FLOAT-ARRAY VALUE X'17'.
    88 TIBEMS-DOUBLE-ARRAY VALUE X'18'.
  05 Filler PIC X(3).
  05 MsgFld-size PIC S9(9) BINARY.
  05 MsgFld-count PIC S9(9) BINARY.
  05 Filler PIC X(4).
  05 MsgFld-data.
    10 MFD PIC X(8).
```

**Remarks** Any message can have property values. Only map messages and stream messages can have fields.

Field	Description
type	A one-byte indicator of the field’s datatype; for values, see <a href="#">Table 10</a> below.
size	The size of the data (in bytes). Zero is a special value, indicating that the size is unknown.
count	If the data is an array, this value is the number of elements in the array.

Field	Description
data	The actual data in the field, or the property value.

Table 10 Message Field Type Indicators

Constant	Value	Comment
TIBEMS_NULL	0	
TIBEMS_BOOL	1	
TIBEMS_BYTE	2	
TIBEMS_WCHAR	3	wide character; 2 bytes
TIBEMS_SHORT	4	
TIBEMS_INT	5	
TIBEMS_LONG	6	
TIBEMS_FLOAT	7	
TIBEMS_DOUBLE	8	
TIBEMS_UTF8	9	UTF8-encoded string
TIBEMS_BYTES	10	
TIBEMS_MAP_MSG	11	
TIBEMS_STREAM_MSG	12	
TIBEMS_SHORT_ARRAY	20	
TIBEMS_INT_ARRAY	21	
TIBEMS_LONG_ARRAY	22	
TIBEMS_FLOAT_ARRAY	23	
TIBEMS_DOUBLE_ARRAY	24	

**See Also**    [tibemsMsg\\_GetProperty](#), listed at [tibemsMsg\\_Get Property](#) on page 45  
              [tibemsMapMsg\\_GetField](#), listed at [tibemsMapMsg\\_Get](#) on page 91  
              [tibemsStreamMsg\\_FreeField](#) on page 111  
              [tibemsStreamMsg\\_ReadField](#) on page 116  
              [tibemsMsgEnum\\_GetNextName](#) on page 132

# tibemsMsgField\_Print

Function

**Purpose** Print a message field.

**C Declaration** `void tibemsMsgField_Print(  
tibemsMsgField* field );`

**COBOL Call** `CALL "tibemsMsgField_Print"  
USING BY REFERENCE field,  
END-CALL.`

Parameters	Parameter	Description
	field	Print this message field instance.

**Remarks** tibemsMsgField\_Print prints to stdout in the format *FieldDataType:Value*.



# tibemsMsgField\_PrintToBuffer

Function

**Purpose** Print a message field into a buffer.

**C Declaration** `tibems_status tibemsMsgField_PrintToBuffer(  
tibemsMsgField* field,  
char* buffer,  
tibems_int maxlen);`

**COBOL Call** `CALL "tibemsMsgField_PrintToBuffer"  
USING BY REFERENCE field,  
BY REFERENCE buffer,  
BY VALUE maxlen,  
RETURNING tibems-status  
END-CALL.`

Parameters	Parameter	Description
	field	Print this message field instance.
	buffer	Location to store the string representation of the message.
	maxlen	The size of the buffer.

**Remarks** tibemsMsgField\_PrintToBuffer prints to a buffer, in the format *FieldDataType: Value*.

Status Code	Description
TIBEMS_INSUFFICIENT_BUFFER	The buffer is too small to hold the data.

# tibemsMsgType

---

**Purpose** Enumerated constants representing message body types.

**C Declaration**

```
typedef enum {
    TIBEMS_MESSAGE_UNKNOWN,
    TIBEMS_MESSAGE,
    TIBEMS_BYTES_MESSAGE,
    TIBEMS_MAP_MESSAGE,
    TIBEMS_OBJECT_MESSAGE,
    TIBEMS_STREAM_MESSAGE,
    TIBEMS_TEXT_MESSAGE,
    TIBEMS_MESSAGE_UNDEFINED
} tibemsMsgType;
```

**COBOL**

```
01 TIBEMS-MSG-TYPES.
   05 tibemsMsgType          PIC S9(8) BINARY.
      88 TIBEMS-MESSAGE-UNKNOWN VALUE 0.
      88 TIBEMS-MESSAGE          VALUE 1.
      88 TIBEMS-BYTES-MESSAGE    VALUE 2.
      88 TIBEMS-MAP-MESSAGE      VALUE 3.
      88 TIBEMS-OBJECT-MESSAGE   VALUE 4.
      88 TIBEMS-STREAM-MESSAGE   VALUE 5.
      88 TIBEMS-TEXT-MESSAGE     VALUE 6.
      88 TIBEMS-MESSAGE-UNDEFINED VALUE 256.
```

**See Also** [tibemsMsg\\_GetBodyType on page 35](#)

## Chapter 3      **Destination**

This chapter documents the functions that create and modify destination objects. The destination of a message determines where the message is sent.

### Topics

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- [Destination Overview, page 140](#)
- [tibemsDestination, page 144](#)
- [tibemsQueue, page 150](#)
- [tibemsTemporaryQueue, page 154](#)
- [tibemsTemporaryTopic, page 155](#)
- [tibemsTopic, page 156](#)

## Destination Overview

Destination objects represent destinations within the EMS server—the queues and topics to which programs send messages, and from which they receive messages. Queues deliver each message to exactly one consumer. Topics deliver each message to every subscriber. Queues and topics can be static, dynamic or temporary.

Table 11 Destination Overview

Aspect	Static	Dynamic	Temporary
Purpose	Static destinations let administrators configure EMS behavior at the enterprise level. Administrators define these administered objects, and client programs use them—relieving program developers and end users of the responsibility for correct configuration.	Dynamic destinations give client programs the flexibility to define destinations as needed for short-term use.	Temporary destinations are ideal for limited-scope uses, such as reply subjects.
Scope of Delivery	Static destinations support concurrent use. That is, several client processes (and in several threads within a process) can create local objects denoting the destination, and consume messages from it.	Dynamic destinations support concurrent use. That is, several client processes (and in several threads within a process) can create local objects denoting the destination, and consume messages from it.	Temporary destinations support only local use. That is, only the client connection that created a temporary destination can consume messages from it. However, servers connected by routes do exchange messages sent to temporary topics.

Table 11 Destination Overview

Aspect	Static	Dynamic	Temporary
Creation	Administrators create static destinations using EMS server administration tools or API.	<p>If the server configuration permits dynamic destinations, client programs can create one in two steps:</p> <ol style="list-style-type: none"> <li>1. Create a local destination object; see <a href="#">tibemsSession on page 286</a>.</li> <li>2. Send a message to that destination, or create a consumer for it. Either of these actions automatically creates the destination in the server.</li> </ol>	Client programs create temporary destinations; see <a href="#">tibemsSession on page 286</a> .
Lookup	Client programs lookup static destinations by name. Successful lookup returns a local object representation of the destination; see <a href="#">tibemsLookupContext_Lookup on page 327</a> .	Not applicable.	Not applicable.

Table 11 Destination Overview

Aspect	Static	Dynamic	Temporary
Duration	A static destination remains in the server until an administrator explicitly deletes it.	<p>A dynamic destination remains in the server as long as at least one client actively uses it. The server automatically deletes it (at a convenient time) when all applicable conditions are true:</p> <ul style="list-style-type: none"><li>• <b>Topic or Queue</b> all client programs that access the destination have disconnected</li><li>• <b>Topic</b> no offline durable subscribers exist for the topic</li><li>• <b>Queue</b> queue, no messages are stored in the queue</li></ul>	A temporary destination remains in the server either until the client that created it explicitly deletes it, or until the client disconnects from the server.

# tibemsDestinationType

Type

**Purpose** Enumerated constants representing destination types.

**C Declaration**

```
typedef enum {
    TIBEMS_UNKNOWN,
    TIBEMS_QUEUE,
    TIBEMS_TOPIC
} tibemsDestinationType;
```

**COBOL**

01	TIBEMS-DESTINATION-TYPES.		
05	tibemsDestinationType	PIC S9(8) BINARY.	
88	TIBEMS-UNKNOWN	VALUE	0.
88	TIBEMS-QUEUE	VALUE	1.
88	TIBEMS-TOPIC	VALUE	2.
88	TIBEMS-UNDEFINED	VALUE	256.

**See Also** [tibemsDestination\\_Create on page 146](#)  
[tibemsDestination\\_GetType on page 149](#)

# tibemsDestination

Type

- Purpose**Represent a named queue or topic in the server.
- Remarks**Administrators define destinations in the server. Client programs access them using functions of [tibemsLookupContext](#).

Function	Description	Page
<a href="#">tibemsDestination_Copy</a>	Create an independent copy of a destination object.	145
<a href="#">tibemsDestination_Create</a>	Create a destination object.	146
<a href="#">tibemsDestination_Destroy</a>	Destroy a destination object.	147
<a href="#">tibemsDestination_GetName</a>	Get the name of a destination object.	148
<a href="#">tibemsDestination_GetType</a>	Get the type of a destination object.	149

- Related Types**[tibemsQueue](#) on page 150  
[tibemsTemporaryQueue](#) on page 154  
[tibemsTopic](#) on page 156  
[tibemsTemporaryTopic](#) on page 155
- See Also**[tibemsMsg\\_GetDestination](#) on page 40  
[tibemsMsg\\_SetDestination](#) on page 61  
[tibemsLookupContext](#) on page 322



# tibemsDestination\_Copy

Function

**Purpose** Create an independent copy of a destination object.

**C Declaration** `tibems_status tibemsDestination_Copy(  
tibemsDestination destination,  
tibemsDestination* copy );`

**COBOL Call** `CALL "tibemsDestination_Copy"  
USING BY VALUE destination,  
BY REFERENCE copy,  
RETURNING tibems-status  
END-CALL.`



destination has usage pointer.

**Parameters**

Parameter	Description
destination	Copy this existing destination object.
copy	The function stores the new copy in this location.

# tibemsDestination\_Create

Function

**Purpose** Create a destination object.

**C Declaration** `tibems_status tibemsDestination_Create(  
tibemsDestination* destination,  
tibemsDestinationType type,  
const char* name );`

**COBOL Call** `CALL "tibemsDestination_Create"  
USING BY REFERENCE destination,  
BY VALUE type,  
BY REFERENCE name,  
RETURNING tibems-status  
END-CALL.`



destination has usage pointer.

**Parameters**

Parameter	Description
destination	The function stores the new destination in this location.
type	Create a destination of this type (queue or topic).
name	Create a destination with this name.

**See Also** [tibemsDestinationType on page 143](#)

# tibemsDestination\_Destroy

Function

**Purpose** Destroy a destination object.

**C Declaration** `tibems_status tibemsDestination_Destroy(  
tibemsDestination destination );`

**COBOL Call** `CALL "tibemsDestination_Destroy"  
USING BY VALUE destination,  
RETURNING tibems-status  
END-CALL.`



destination has usage pointer.

Parameters

Parameter	Description
destination	Destroy this destination.

# tibemsDestination\_GetName

Function

**Purpose** Get the name of a destination object.

**C Declaration** `tibems_status tibemsDestination_GetName(  
tibemsDestination destination,  
char* name,  
tibems_int name_len );`

**COBOL Call** `CALL "tibemsDestination_GetName"  
USING BY VALUE destination,  
BY REFERENCE name,  
BY VALUE name-len  
RETURNING tibems-status  
END-CALL.`



destination has usage pointer.

**Parameters**

Parameter	Description
destination	Get the name of this destination.
name	The function copies the name to this location.
name_len	Length of the name buffer.

**Remarks** A null character terminates the copied name string.  
Your program must allocate the name buffer, and pass its length to the function. If the length of the name is greater than the size of the buffer provided, the entire destination name may not be copied. The buffer size is determined by the TIBEMS\_DESTINATION\_MAX constant. Constants such as TIBEMS\_DESTINATION\_MAX are located in the tibems/types.h header file.

# tibemsDestination\_GetType

Function

**Purpose** Get the type of a destination object.

**C Declaration** `tibems_status tibemsDestination_GetType(  
tibemsDestination destination,  
tibemsDestinationType* type );`

**COBOL Call** `CALL "tibemsDestination_GetType"  
USING BY VALUE destination,  
BY REFERENCE type,  
RETURNING tibems-status  
END-CALL.`



destination has usage pointer.

**Parameters**

Parameter	Description
destination	Get the type of this destination.
type	The function stores the type in this location.

**See Also** [tibemsDestinationType on page 143](#)

# tibemsQueue

Type

**Purpose**      Queues deliver each message to exactly one consumer.

Function	Description	Page
<a href="#">tibemsQueue_Create</a>	Create a queue object.	151
<a href="#">tibemsQueue_Destroy</a>	Destroy a queue object.	152
<a href="#">tibemsQueue_GetQueueName</a>	Get the name of a queue object.	153

**Related Types**      [tibemsDestination](#) on page 144  
                              [tibemsTemporaryQueue](#) on page 154

## tibemsQueue\_Create

Function

**Purpose** Create a queue object.

**C Declaration** `tibems_status tibemsQueue_Create(  
tibemsQueue* queue,  
const char* queueName );`

**COBOL Call** `CALL "tibemsQueue_Create"  
USING BY REFERENCE queue,  
BY REFERENCE queueName,  
RETURNING tibems-status  
END-CALL.`



queue has usage pointer.

### Parameters

Parameter	Description
queue	The function stores the queue object in this location.
queueName	Create a local queue instance with this name.

**Remarks** This call creates only local objects (within the program). It does not attempt to bind the local queue object to the corresponding server object until the program creates a [tibemsMsgConsumer](#) or a [tibemsMsgProducer](#) that uses the queue.

The bind can fail for the following reasons:

- Authorization is enabled for the queue and the user does not have the appropriate permissions.
- The queue does not exist and the server cannot dynamically create the queue.

**See Also** [tibemsLookupContext](#) on page 322

# tibemsQueue\_Destroy

Function

**Purpose** Destroy a queue object.

**C Declaration** `tibems_status tibemsQueue_Destroy(  
tibemsQueue queue );`

**COBOL Call** `CALL "tibemsQueue_Destroy"  
USING BY VALUE queue,  
RETURNING tibems-status  
END-CALL.`



queue has usage pointer.

**Parameters**

Parameter	Description
queue	Destroy this queue.



## tibemsQueue\_GetQueueName

### Function

**Purpose** Get the name of a queue object.

**C Declaration**

```
tibems_status tibemsQueue_GetQueueName(
    tibemsQueue queue,
    char* name,
    tibems_int name_len );
```

**COBOL Call**

```
CALL "tibemsQueue_GetQueueName"
    USING BY VALUE queue,
          BY REFERENCE name,
          BY VALUE name-len
    RETURNING tibems-status
END-CALL.
```



queue has usage pointer.

### Parameters

Parameter	Description
queue	Get the name of this queue.
name	The function copies the name to this location.
name_len	Length of the name buffer.

**Remarks** A null character terminates the copied name string.

Your program must allocate the name buffer, and pass its length to the function. If the length of the queue name is greater than the size of the buffer provided, the entire queue name may not be copied. The buffer size is determined by the TIBEMS\_DESTINATION\_MAX constant. Constants such as TIBEMS\_DESTINATION\_MAX are located in the `tibems/types.h` header file.

# tibemsTemporaryQueue

Type

- Purpose** Programs can use temporary queues as reply destinations.
- Remarks** Programs create temporary queues using [tibemsSession\\_CreateTemporaryQueue](#).  
  
A temporary queue exists only for the duration of the session’s connection, and is available only within that connection.  
  
Only consumers associated with the same connection as the temporary queue can consume messages from it.  
  
All functions that accept a queue or a generic destination as an argument also accept a temporary queue.

Function	Description	Page
<a href="#">tibemsSession_CreateTemporaryQueue</a>	Create a temporary queue.	302
<a href="#">tibemsSession_DeleteTemporaryQueue</a>	Delete a temporary queue.	305

**Related Types** [tibemsDestination](#) on page 144  
[tibemsQueue](#) on page 150

# tibemsTemporaryTopic

Type

- Purpose** Programs can use temporary topics as reply destinations.
- Remarks** Programs create temporary topics using [tibemsSession\\_CreateTemporaryTopic](#).  
  
A temporary topic exists only for the duration of the session’s connection, and is available only within that connection.  
  
Only consumers associated with the same connection as the temporary topic can consume messages from it.  
  
Servers connected by routes do exchange messages sent to temporary topics.  
  
All functions that accept a topic or a generic destination as an argument also accept a temporary queue.

Function	Description	Page
<a href="#">tibemsSession_CreateTemporaryTopic</a>	Create a temporary topic.	303
<a href="#">tibemsSession_DeleteTemporaryTopic</a>	Delete a temporary topic.	306

- Related Types** [tibemsDestination](#) on page 144  
[tibemsTopic](#) on page 156

# tibemsTopic

Type

**Purpose** Topics deliver each message to multiple consumers.

Function	Description	Page
<a href="#">tibemsTopic_Create</a>	Create a topic object.	157
<a href="#">tibemsTopic_Destroy</a>	Destroy a topic object.	158
<a href="#">tibemsTopic_GetTopicName</a>	Get the name of a topic object.	159

**Related Types** [tibemsDestination](#) on page 144  
[tibemsTemporaryTopic](#) on page 155

## tibemsTopic\_Create

Function

**Purpose** Create a topic object.

**C Declaration**

```
tibems_status tibemsTopic_Create(  
    tibemsTopic* topic,  
    const char* topicName );
```

**COBOL Call**

```
CALL "tibemsTopic_Create"  
    USING BY REFERENCE topic,  
          BY REFERENCE topicName,  
          RETURNING tibems-status  
END-CALL.
```



topic has usage pointer.

### Parameters

Parameter	Description
topic	The function stores the topic object in this location.
topicName	Create a local topic instance with this name.

**Remarks** This constructor creates only local objects (within the program). It does not attempt to bind the local topic object to the corresponding server object until the program creates a [tibemsMsgConsumer](#) or a [tibemsMsgProducer](#) that uses the topic.

The bind can fail for the following reasons:

- Authorization is enabled for the topic and the user does not have the appropriate permissions.
- The topic does not exist and the server cannot dynamically create the topic.

**See Also** [tibemsLookupContext](#) on page 322

# tibemsTopic\_Destroy

Function

**Purpose** Destroy a topic object.

**C Declaration** `tibems_status tibemsTopic_Destroy(  
tibemsTopic topic );`

**COBOL Call** `CALL "tibemsTopic_Destroy"  
USING BY VALUE topic,  
RETURNING tibems-status  
END-CALL.`



topic has usage pointer.

**Parameters**

Parameter	Description
topic	Destroy this topic object.

# tibemsTopic\_GetTopicName

Function

**Purpose** Get the name of a topic object.

**C Declaration** `tibems_status tibemsTopic_GetTopicName(  
tibemsTopic topic,  
char* name,  
tibems_int name_len );`

**COBOL Call** `CALL "tibemsTopic_GetTopicName"  
USING BY VALUE topic,  
BY REFERENCE name,  
BY VALUE name-len,  
RETURNING tibems-status  
END-CALL.`



topic has usage pointer.

**Parameters**

Parameter	Description
topic	Get the name of this topic.
name	The function copies the name to this location.
name_len	Length of the name buffer.

**Remarks** A null character terminates the copied name string.  
Your program must allocate the name buffer, and pass its length to the function. If the length of the topic name is greater than the size of the buffer provided, the entire topic name may not be copied. The buffer size is determined by the TIBEMS\_DESTINATION\_MAX constant. Constants such as TIBEMS\_DESTINATION\_MAX are located in the tibems/types.h header file.





## Chapter 4      **Consumer**

This chapter documents the functions that create and modify message consumers. A message consumer receives messages from a destination.

### Topics

---

- [tibemsMsgConsumer](#), page 162

# tibemsMsgConsumer

Type

- Purpose** Consume messages from a destination.
- Remarks** Consumers can receive messages synchronously (using the receive functions), or asynchronously.  
Consumers can receive messages asynchronously using callback functions.  
Clients create message consumers using functions of a `tibemsSession` object.

Function	Description	Page
<code>tibemsMsgConsumer_Close</code>	Closes a message consumer and releases associated storage.	163
<code>tibemsMsgConsumer_GetDestination</code>	Get the destination from a message consumer.	164
<code>tibemsMsgConsumer_GetMsgListener</code>	Get the message callback and closure data from a consumer.	165
<code>tibemsMsgConsumer_GetMsgSelector</code>	Get the message selector from a consumer.	166
<code>tibemsMsgConsumer_GetNoLocal</code>	Get the no local property of a message consumer.	167
<code>tibemsMsgConsumer_Receive</code>	Receive a message (synchronous).	168
<code>tibemsMsgConsumer_ReceiveNoWait</code>	Receive a message (synchronous, non-blocking).	169
<code>tibemsMsgConsumer_ReceiveTimeout</code>	Receive a message (synchronous, blocks up to a time limit).	170
<code>tibemsMsgConsumer_SetMsgListener</code>	Set the message callback and closure data of a consumer.	171

**See Also** `tibemsMsgCallback` on page 172  
`tibemsSession_CreateConsumer` on page 293

# tibemsMsgConsumer\_Close

Function

**Purpose** Closes a message consumer and releases associated storage.

**C Declaration** `tibems_status tibemsMsgConsumer_Close(  
tibemsMsgConsumer msgConsumer );`

**COBOL Call** `CALL "tibemsMsgConsumer_Close"  
USING BY VALUE msgConsumer,  
RETURNING tibems-status  
END-CALL.`



msgConsumer has usage pointer.

**Parameters**

Parameter	Description
msgConsumer	Close this consumer.

**Remarks** If a receive call or a message listener callback is in progress, then this function waits until that call returns, and then closes the consumer.

This call also notifies the server that the client program is closing the consumer. In response, the server stops sending message data to the consumer.

Your program must explicitly close all consumers that it creates.

**See Also** [tibemsMsgConsumer\\_Receive on page 168](#)  
[tibemsSession\\_CreateConsumer on page 293](#)

# tibemsMsgConsumer\_GetDestination

Function

**Purpose** Get the destination from a message consumer.

**C Declaration** `tibems_status tibemsMsgConsumer_GetDestination(  
tibemsMsgConsumer msgConsumer,  
tibemsDestination* destination );`

**COBOL Call** `CALL "tibemsMsgConsumer_GetDestination"  
USING BY VALUE msgConsumer,  
BY REFERENCE destination,  
RETURNING tibems-status  
END-CALL.`



msgConsumer and destination have usage pointer.

**Parameters**

Parameter	Description
msgConsumer	Get the destination from this consumer.
destination	The function stores the destination in this location.

**Remarks** The consumer consumes messages from this destination.  
Programs set this destination when creating the consumer, and cannot subsequently change it.

# tibemsMsgConsumer\_GetMsgListener

Function

**Purpose** Get the message callback and closure data from a consumer.

**C Declaration** `tibems_status tibemsMsgConsumer_GetMsgListener(  
tibemsMsgConsumer msgConsumer,  
tibemsMsgCallback* callbackPtr,  
void** closure );`

Parameters	Parameter	Description
	msgConsumer	Get the listener from this consumer.
	callbackPtr	The function stores a pointer to the callback in this location.
	closure	The function stores a pointer to the closure data in this location. This pointer is passed into the message listener callback.

**Remarks** EMS C programs can implement a message listener as a callback function paired with closure data. This call extracts these items from a consumer object.

Your program implements the callback, and registers it by calling [tibemsMsgConsumer\\_SetMsgListener](#). When a message arrives, the consumer calls the callback.

This call is not supported in COBOL.

**See Also** [tibemsMsgConsumer\\_SetMsgListener on page 171](#)  
[tibemsMsgCallback on page 172](#)

# tibemsMsgConsumer\_GetMsgSelector

Function

**Purpose** Get the message selector from a consumer.

**C Declaration** `tibems_status tibemsMsgConsumer_GetMsgSelector(  
tibemsMsgConsumer msgConsumer,  
const char** selectorPtr );`

**COBOL Call** `CALL "tibemsMsgConsumer_GetMsgSelector"  
USING BY VALUE msgConsumer,  
BY REFERENCE selectorPtr,  
RETURNING tibems-status  
END-CALL.`



msgConsumer and selectorPtr have usage pointer.

**Parameters**

Parameter	Description
msgConsumer	Get the listener from this consumer.
selectorPtr	The function stores a pointer to the selector string in this location.

**Remarks** A message selector restricts the set of messages that the consumer receives to those that match the selector; see [Message Selectors on page 17](#).  
  
Programs can set this property only when creating the consumer object; see [tibemsSession\\_CreateConsumer on page 293](#).

**See Also** [tibemsMsgCallback on page 172](#)

# tibemsMsgConsumer\_GetNoLocal

Function

**Purpose** Get the no local property of a message consumer.

**C Declaration** `tibems_status tibemsMsgConsumer_GetNoLocal(  
tibemsMsgConsumer msgConsumer,  
tibems_bool* noLocal );`

**COBOL Call** `CALL "tibemsMsgConsumer_GetNoLocal"  
USING BY VALUE msgConsumer,  
BY REFERENCE noLocal,  
RETURNING tibems-status  
END-CALL.`



msgConsumer has usage pointer.

## Parameters

Parameter	Description
msgConsumer	Get the property from this consumer.
noLocal	The function stores the property value in this location.

## Remarks

When true, the consumer does not receive messages sent through the same server connection (that is, the connection associated with the consumer).

Programs set this property when creating the consumer, and cannot subsequently change it.

This property is only associated with topics, and does not apply to queues.

# tibemsMsgConsumer\_Receive

Function

**Purpose** Receive a message (synchronous).

**C Declaration** `tibems_status tibemsMsgConsumer_Receive(  
tibemsMsgConsumer msgConsumer,  
tibemsMsg* message );`

**COBOL Call** `CALL "tibemsMsgConsumer_Receive"  
USING BY VALUE msgConsumer,  
BY REFERENCE message,  
RETURNING tibems-status  
END-CALL.`



msgConsumer and message have usage pointer.

**Parameters**

Parameter	Description
msgConsumer	Receive a message through this consumer.
message	The function stores a pointer to the inbound message in this location.

**Remarks** This function consumes the next message from the consumer’s destination. When the destination does not have any messages ready, this function blocks:

- If a message arrives at the destination, this call immediately consumes that message and returns.
- If another thread closes the consumer, this call returns `TIBEMS_INTR`.

When calling `tibemsMsgConsumer_Receive` from a transaction, the consumer retains the message until transaction commits.

**See Also** [tibemsMsgConsumer\\_ReceiveNoWait on page 169](#)  
[tibemsMsgConsumer\\_ReceiveTimeout on page 170](#)



# tibemsMsgConsumer\_ReceiveNoWait

Function

**Purpose** Receive a message (synchronous, non-blocking).

**C Declaration** `tibems_status tibemsMsgConsumer_ReceiveNoWait(  
tibemsMsgConsumer msgConsumer,  
tibemsMsg* message);`

**COBOL Call** `CALL "tibemsMsgConsumer_ReceiveNoWait"  
USING BY VALUE msgConsumer,  
BY REFERENCE message,  
RETURNING tibems-status  
END-CALL.`



msgConsumer and message have usage pointer.

**Parameters**

Parameter	Description
msgConsumer	Receive a message through this consumer.
msg	The function stores a pointer to the inbound message in this location.

**Remarks** When the destination has at least one message ready, this function immediately returns the next message.

When the destination does *not* have any messages ready, this function immediately returns `TIBEMS_NOT_FOUND`.

When calling receiving within a transaction, the consumer retains the message until transaction commits.

**See Also** [tibemsMsgConsumer\\_Receive on page 168](#)  
[tibemsMsgConsumer\\_ReceiveTimeout on page 170](#)

# tibemsMsgConsumer\_ReceiveTimeout

Function

**Purpose** Receive a message (synchronous, blocks up to a time limit).

**C Declaration** `tibems_status tibemsMsgConsumer_ReceiveTimeout(  
tibemsMsgConsumer msgConsumer,  
tibemsMsg* message,  
tibems_long timeout );`

**COBOL Call** `CALL "tibemsMsgConsumer_ReceiveTimeout"  
USING BY VALUE msgConsumer,  
BY REFERENCE message,  
BY VALUE timeout,  
RETURNING tibems-status  
END-CALL.`



msgConsumer and message have usage pointer.

**Parameters**

Parameter	Description
msgConsumer	Receive a message through this consumer.
msg	The function stores a pointer to the inbound message in this location.
timeout	When present, wait no longer than this interval (in milliseconds) for a message to arrive. Zero is a special value, which specifies no timeout (block indefinitely).

**Remarks** This function consumes the next message from the consumer’s destination. When the destination does not have any messages ready, this function blocks:

- If a message arrives at the destination, this call immediately consumes that message and returns.
- If the (non-zero) timeout elapses before a message arrives, this call returns `TIBEMS_TIMEOUT`.
- If another thread closes the consumer, this call returns `TIBEMS_INTR`.

When calling receive within a transaction, the consumer retains the message until transaction commits.

**See Also** [tibemsMsgConsumer\\_Receive on page 168](#)  
[tibemsMsgConsumer\\_ReceiveNoWait on page 169](#)

## tibemsMsgConsumer\_SetMsgListener

*Function*

**Purpose** Set the message callback and closure data of a consumer.

**C Declaration** `tibems_status tibemsMsgConsumer_SetMsgListener(  
 tibemsMsgConsumer msgConsumer,  
 tibemsMsgCallback callback,  
 void* closure );`

**Parameters**

Parameter	Description
msgConsumer	Set the listener of this consumer.
callback	Use this callback function.
closure	Use this closure data.

**Remarks** EMS C programs can implement a message listener as a callback function paired with closure data. This call sets these items in a consumer object.

Your program implements the callback, and registers it by calling this function. When a message arrives, the consumer calls the callback.

This call is not supported in COBOL.

**See Also** [tibemsMsgCallback on page 172](#)

# tibemsMsgCallback

Type

**Purpose** Asynchronously process an arriving message.

**C Declaration**

```
typedef void (*tibemsMsgCallback) (  
    tibemsMsgConsumer msgConsumer,  
    tibemsMsg msg,  
    void* closure );
```

Parameters	Parameter	Description
	msgConsumer	This parameter receives the consumer object.
	msg	This parameter receives the message object.
	closure	This parameter receives the closure argument, which your program registered on the consumer.

**Remarks** To asynchronous receive messages, your program can define callback functions of this type, and register them with a consumer (using [tibemsMsgConsumer\\_SetMsgListener](#) or a related function). When a message arrives, the consumer calls its callback.

**Serialization** In compliance with the JMS specification, sessions distribute messages to consumers in serial (non-concurrent) fashion.

**See Also** [tibemsMsgConsumer](#) on page 162

## Chapter 5      **Producer**

Message producers send messages to destinations on the server.

### Topics

---

- [tibemsMsgProducer](#), page 174

# tibemsMsgProducer

Type

- Purpose** Send message to destinations on the server.
- Remarks** Clients use message producers to send messages. A message producer object can store several parameters that affect the messages it sends.  
  
Clients create message producers using functions of a `tibemsSession` object.

Function	Description	Page
<code>tibemsMsgProducer_Close</code>	Destroy the producer object; reclaim resources.	176
<code>tibemsMsgProducer_GetDeliveryMode</code>	Get the delivery mode property of a producer object.	177
<code>tibemsMsgProducer_GetDestination</code>	Get the destination of a message producer object.	178
<code>tibemsMsgProducer_GetDisableMessageID</code>	Get the disable message ID property of a producer object.	179
<code>tibemsMsgProducer_GetDisableMessageTimestamp</code>	Get the disable message timestamp property of a producer object.	180
<code>tibemsMsgProducer_GetNPSSendCheckMode</code>	Get the mode that defines when a producer checks the result of sending a NON_PERSISTENT message.	181
<code>tibemsMsgProducer_GetPriority</code>	Get the priority property of a producer object.	182
<code>tibemsMsgProducer_GetTimeToLive</code>	Get the time-to-live property of a producer object.	183
<code>tibemsMsgProducer_Send</code> <code>tibemsMsgProducer_SendEx</code> <code>tibemsMsgProducer_SendToDestination</code> <code>tibemsMsgProducer_SendToDestinationEx</code>	Send a message.	184

Function	Description	Page
<a href="#">tibemsMsgProducer_SetDeliveryMode</a>	Set the delivery mode property of a producer object.	187
<a href="#">tibemsMsgProducer_SetDisableMessageID</a>	Set the disable message ID property of a producer object.	188
<a href="#">tibemsMsgProducer_SetDisableMessageTimestamp</a>	Set the disable message timestamp property of a producer object.	189
<a href="#">tibemsMsgProducer_SetNPSENDCheckMode</a>	Set when a producer should check the result of sending a NON_PERSISTENT message.	190
<a href="#">tibemsMsgProducer_SetPriority</a>	Set the priority property of a producer object.	192
<a href="#">tibemsMsgProducer_SetTimeToLive</a>	Set the time-to-live property of a producer object.	193

**See Also**    [tibemsSession\\_CreateProducer](#) on page 300

# tibemsMsgProducer\_Close

Function

**Purpose** Destroy the producer object; reclaim resources.

**C Declaration** `tibems_status tibemsMsgProducer_Close(  
tibemsMsgProducer msgProducer );`

**COBOL Call** `CALL "tibemsMsgProducer_Close"  
USING BY VALUE msgProducer,  
RETURNING tibems-status  
END-CALL.`



msgProducer has usage pointer.

**Parameters**

Parameter	Description
msgProducer	Close this producer.

**Remarks** This call also notifies the server that the client program is closing the producer. In response, the server reclaims storage associated with the producer.  
Your program must explicitly close all producers that it creates.

**See Also** [tibemsSession\\_CreateProducer on page 300](#)



# tibemsMsgProducer\_GetDeliveryMode

Function

**Purpose** Get the delivery mode property of a producer object.

**C Declaration** `tibems_status tibemsMsgProducer_GetDeliveryMode(  
tibemsMsgProducer msgProducer,  
tibems_int* deliveryMode );`

**COBOL Call** `CALL "tibemsMsgProducer_GetDeliveryMode"  
USING BY VALUE msgProducer,  
BY REFERENCE deliveryMode,  
RETURNING tibems-status  
END-CALL.`



msgProducer has usage pointer.

**Parameters**

Parameter	Description
msgProducer	Get the property from this producer.
deliveryMode	The function stores the property in this location.

**Remarks** Delivery mode instructs the server concerning persistent storage.  
Programs can use this property to define a default delivery mode for messages that this producer sends. Individual sending calls can override this default value.  
For values, see the type [tibemsDeliveryMode on page 128](#).

# tibemsMsgProducer\_GetDestination

Function

**Purpose** Get the destination of a message producer object.

**C Declaration** `tibems_status tibemsMsgProducer_GetDestination(  
tibemsMsgProducer msgProducer,  
tibemsDestination* destination );`

**COBOL Call** `CALL "tibemsMsgProducer_GetDestination"  
USING BY VALUE msgProducer,  
BY REFERENCE destination,  
RETURNING tibems-status  
END-CALL.`



msgProducer and destination have usage pointer.

**Parameters**

Parameter	Description
msgProducer	Get the destination from this producer.
destination	The function stores the destination in this location.

**Remarks** Each send call directs a message to a destination.  
Programs can use this property to define a default destination for messages that this producer sends. Individual sending calls can override this default value.  
Programs set this destination when creating the sender, and cannot subsequently change it.

# tibemsMsgProducer\_GetDisableMessageID

Function

**Purpose** Get the disable message ID property of a producer object.

**C Declaration** `tibems_status tibemsMsgProducer_GetDisableMessageID(  
tibemsMsgProducer msgProducer,  
tibems_bool* disable );`

**COBOL Call** `CALL "tibemsMsgProducer_GetDisableMessageID"  
USING BY VALUE msgProducer,  
BY REFERENCE disable,  
RETURNING tibems-status  
END-CALL.`



msgProducer has usage pointer.

**Parameters**

Parameter	Description
msgProducer	Get the property from this producer.
disable	The function stores the property in this location.

**Remarks** Applications that do not require message IDs can reduce overhead costs by disabling IDs (set this property to true).

# tibemsMsgProducer\_GetDisableMessageTimestamp

Function

**Purpose** Get the disable message timestamp property of a producer object.

**C Declaration** `tibems_status tibemsMsgProducer_GetDisableMessageTimestamp(  
tibemsMsgProducer msgProducer,  
tibems_bool* disable );`

**COBOL Call** `CALL "tibemsMsgProducer_GetDisableMessageTimestamp"  
USING BY VALUE msgProducer,  
BY REFERENCE disable,  
RETURNING tibems-status  
END-CALL.`



msgProducer has usage pointer.

**Parameters**

Parameter	Description
msgProducer	Get the property from this producer.
disableMessageTimeStamp	The function stores the property in this location.

**Remarks** Applications that do not require timestamps can reduce overhead costs by disabling timestamps (set this property to true).

# tibemsMsgProducer\_GetNPSTransmitCheckMode

Function

**Purpose** Get the mode that defines when a producer checks the result of sending a NON\_PERSISTENT message.

**C Declaration** extern [tibems\\_status](#) tibemsMsgProducer\_GetNPSTransmitCheckMode(  
    [tibemsMsgProducer](#) msgProducer,  
    tibemsNpCheckMode\* mode);

**COBOL Call** CALL "tibemsMsgProducer\_GetNPSTransmitCheckMode"  
    USING BY VALUE msgProducer,  
          BY REFERENCE mode,  
          RETURNING tibems-status  
END-CALL.



msgProducer has usage pointer.

Parameters

Parameter	Description
msgProducer	Get the property from this producer.
mode	The function stores the mode in this location. Must not be null.  See <a href="#">tibemsNpCheckMode</a> on page 129 for details.

**Remarks** This function returns the send check mode set by the [tibemsMsgProducer\\_SetNPSTransmitCheckMode](#) function. If the returned value is NPSEND\_CHECK\_DEFAULT, then the effective mode can be set by the server parameter applied to all producers.

**See Also** [tibemsMsgProducer\\_SetNPSTransmitCheckMode](#) on page 190

# tibemsMsgProducer\_GetPriority

Function

**Purpose** Get the priority property of a producer object.

**C Declaration** `tibems_status tibemsMsgProducer_GetPriority(  
tibemsMsgProducer msgProducer,  
tibems_int* priority );`

**COBOL Call** `CALL "tibemsMsgProducer_GetPriority"  
USING BY VALUE msgProducer,  
BY REFERENCE priority,  
RETURNING tibems-status  
END-CALL.`



msgProducer has usage pointer.

**Parameters**

Parameter	Description
msgProducer	Get the property from this producer.
priority	The function stores the property in this location.

**Remarks** Priority affects the order in which the server delivers messages to consumers (higher values first).

The JMS specification defines ten levels of priority value, from zero (lowest priority) to 9 (highest priority). The specification suggests that clients consider 0–4 as gradations of normal priority, and priorities 5–9 as gradations of expedited priority.

Programs can use this property to define a default priority for messages that this producer sends. Individual sending calls can override this default value.

# tibemsMsgProducer\_GetTimeToLive

Function

**Purpose** Get the time-to-live property of a producer object.

**C Declaration** `tibems_status tibemsMsgProducer_GetTimeToLive(  
tibemsMsgProducer msgProducer,  
tibems_long* timeToLive );`

**COBOL Call** `CALL "tibemsMsgProducer_GetTimeToLive"  
USING BY VALUE msgProducer,  
BY REFERENCE timeToLive,  
RETURNING tibems-status  
END-CALL.`



msgProducer has usage pointer.

**Parameters**

Parameter	Description
msgProducer	Get the property from this producer.
timeToLive	The function stores the property in this location.

**Remarks** Time-to-live (in milliseconds) determines the expiration time of a message.

- If the time-to-live is non-zero, the expiration is the sum of that time-to-live and the sending client’s current time (GMT). This rule applies even within sessions with transaction semantics—the timer begins with the send call, not the commit call.
- If the time-to-live is zero, then expiration is also zero—indicating that the message never expires.

Programs can use this property to define a default time-to-live for messages that this producer sends. Individual sending calls can override this default value.

Whenever your application uses non-zero values for message expiration or time-to-live, you must ensure that clocks are synchronized among all the host computers that send and receive messages. Synchronize clocks to a tolerance that is a very small fraction of the smallest or time-to-live.

## tibemsMsgProducer\_Send

---

*Function*

**Purpose** Send a message.

**C Declaration**

```

tibems_status tibemsMsgProducer_Send(
    tibemsMsgProducer msgProducer,
    tibemsMsg message );

tibems_status tibemsMsgProducer_SendEx(
    tibemsMsgProducer msgProducer,
    tibemsMsg message,
    tibems_int deliveryMode,
    tibems_int priority,
    tibems_long timeToLive );

tibems_status tibemsMsgProducer_SendToDestination(
    tibemsMsgProducer msgProducer,
    tibemsDestination destination,
    tibemsMsg message );

tibems_status tibemsMsgProducer_SendToDestinationEx(
    tibemsMsgProducer msgProducer,
    tibemsDestination destination,
    tibemsMsg message,
    tibemsDeliveryMode deliveryMode,
    tibems_int priority,
    tibems_long timeToLive );

```

**COBOL Call**

```

CALL "tibemsMsgProducer_Send"
    USING BY VALUE msgProducer,
          BY VALUE message,
          RETURNING tibems-status
END-CALL.

CALL "tibemsMsgProducer_SendEx"
    USING BY VALUE msgProducer,
          BY VALUE message,
          BY VALUE deliveryMode,
          BY VALUE priority,
          BY VALUE timeToLive,
          RETURNING tibems-status
END-CALL.

CALL "tibemsMsgProducer_SendToDestination"
    USING BY VALUE msgProducer,
          BY VALUE destination,
          BY VALUE message,
          RETURNING tibems-status
END-CALL.

CALL "tibemsMsgProducer_SendToDestinationEx"
    USING BY VALUE msgProducer,
          BY VALUE destination,
          BY VALUE message,

```



```

        BY VALUE deliveryMode,
        BY VALUE priority,
        BY VALUE timeToLive,
        RETURNING tibems-status
END-CALL.

```



`msgProducer`, `message` and `destination` have usage pointer.

## Parameters

Parameter	Description
<code>msgProducer</code>	Send a message through this producer object.
<code>destination</code>	<p>When present, the call sends the message to this destination (queue or topic).</p> <p>Other send calls send the message to the producer's default destination. When the producer does not specify a default, the send call must supply this parameter.</p>
<code>message</code>	Send this message object.
<code>deliveryMode</code>	<p>When present, the call sends the message with this delivery mode.</p> <p>This argument is an enumerated value (see <a href="#">tibemsDeliveryMode on page 128</a>).</p> <p>Other send calls send the message with the producer's default delivery mode.</p>
<code>priority</code>	<p>When present, the call sends the message with this priority.</p> <p>Priority affects the order in which the server delivers messages to consumers (higher values first). The JMS specification defines ten levels of priority value, from zero (lowest priority) to 9 (highest priority). The specification suggests that clients consider 0–4 as gradations of normal priority, and priorities 5–9 as gradations of expedited priority.</p> <p>Other send calls send the message with the producer's default priority.</p>

Parameter	Description
timeToLive	<p>When present, the call uses this value (in milliseconds) to compute the message expiration.</p> <ul style="list-style-type: none"><li>• If the time-to-live is non-zero, the expiration is the sum of that time-to-live and the sending client's current time (GMT). This rule applies even within sessions with transaction semantics—the timer begins with the send call, not the commit call.</li><li>• If the time-to-live is zero, then expiration is also zero—indicating that the message never expires.</li></ul> <p>Other send calls use the producer's default value to compute expiration.</p> <p>Whenever your application uses non-zero values for message expiration or time-to-live, you must ensure that clocks are synchronized among all the host computers that send and receive messages. Synchronize clocks to a tolerance that is a very small fraction of the smallest or time-to-live.</p>

# tibemsMsgProducer\_SetDeliveryMode

Function

**Purpose** Set the delivery mode property of a producer object.

**C Declaration** `tibems_status tibemsMsgProducer_SetDeliveryMode(  
tibemsMsgProducer msgProducer,  
tibems_int deliveryMode );`

**COBOL Call** `CALL "tibemsMsgProducer_SetDeliveryMode"  
USING BY VALUE msgProducer,  
BY VALUE deliveryMode,  
RETURNING tibems-status  
END-CALL.`



msgProducer has usage pointer.

**Parameters**

Parameter	Description
msgProducer	Set the property of this producer.
deliveryMode	Set the property to this value.

**Remarks** Delivery mode instructs the server concerning persistent storage.  
Programs can use this property to define a default delivery mode for messages that this producer sends. Individual sending calls can override this default value.  
For values, see the type [tibemsDeliveryMode on page 128](#).

# tibemsMsgProducer\_SetDisableMessageID

Function

**Purpose** Set the disable message ID property of a producer object.

**C Declaration** `tibems_status tibemsMsgProducer_SetDisableMessageID(  
tibemsMsgProducer msgProducer,  
tibems_bool disable );`

**COBOL Call** `CALL "tibemsMsgProducer_SetDisableMessageID"  
USING BY VALUE msgProducer,  
BY VALUE disable,  
RETURNING tibems-status  
END-CALL.`



msgProducer has usage pointer.

**Parameters**

Parameter	Description
msgProducer	Set the property of this producer.
disable	Set the property to this value.

**Remarks** Applications that do not require message IDs can reduce overhead costs by disabling IDs (set this property to true).

# tibemsMsgProducer\_SetDisableMessageTimestamp

Function

**Purpose** Set the disable message timestamp property of a producer object.

**C Declaration** `tibems_status tibemsMsgProducer_SetDisableMessageTimestamp(  
tibemsMsgProducer msgProducer,  
tibems_bool disable );`

**COBOL Call** `CALL "tibemsMsgProducer_SetDisableMessageTimestamp"  
USING BY VALUE msgProducer,  
BY VALUE disable,  
RETURNING tibems-status  
END-CALL.`



msgProducer has usage pointer.

**Parameters**

Parameter	Description
msgProducer	Set the property of this producer.
disable	Set the property to this value.

**Remarks** Applications that do not require timestamps can reduce overhead costs by disabling timestamps (set this property to true).

## tibemsMsgProducer\_SetNPSendCheckMode

Function

**Purpose** Set when a producer should check the result of sending a NON\_PERSISTENT message.

**C Declaration**

```
extern tibems_status tibemsMsgProducer_SetNPSendCheckMode(  
    tibemsMsgProducer msgProducer,  
    tibemsNpCheckMode mode);
```

**COBOL Call**

```
CALL "tibemsMsgProducer_SetNPSendCheckMode"  
    USING BY VALUE msgProducer,  
          BY VALUE mode,  
          RETURNING tibems-status  
END-CALL.
```



msgProducer has usage pointer.

**Parameters**

Parameter	Description
msgProducer	Set the property of this producer.
mode	The send check mode. See <a href="#">tibemsNpCheckMode on page 129</a> for details.

**Remarks** [tibemsNpCheckMode](#) only applies to messages sent using the NON\_PERSISTENT delivery mode, using non-transactional Session. It does not apply to cases when message was sent using PERSISTENT or RELIABLE\_DELIVERY delivery modes, or if the corresponding Session is transactional.

If the producer's send check mode is not set, it may execute the mode applied globally to all producers via EMS server parameter. Setting any mode other than NPSEND\_CHECK\_DEFAULT unconditionally overrides global setting defined by the server.

Normally applications use the server's setting or configure producers with a specific send mode only once. However, if required, applications may choose to change this mode before sending every message.

If a producer does not check the result of sending a message, it will not know if a problem has occurred and the message was not processed by the server. If the producer checks the result of the send, the send method will receive the server's response to the send and throw the appropriate exception if any problem has occurred. However, checking the result of sending a message will reduce the performance of the producer.

**See Also**    [tibemsMsgProducer\\_GetNPSendCheckMode on page 181](#)

# tibemsMsgProducer\_SetPriority

Function

**Purpose** Set the priority property of a producer object.

**C Declaration** `tibems_status tibemsMsgProducer_SetPriority(  
tibemsMsgProducer msgProducer,  
tibems_int priority );`

**COBOL Call** `CALL "tibemsMsgProducer_SetPriority"  
USING BY VALUE msgProducer,  
BY VALUE priority,  
RETURNING tibems-status  
END-CALL.`



msgProducer has usage pointer.

**Parameters**

Parameter	Description
msgProducer	Set the property of this producer.
priority	Set the property to this value.

**Remarks** Priority affects the order in which the server delivers messages to consumers (higher values first).

The JMS specification defines ten levels of priority value, from zero (lowest priority) to 9 (highest priority). The specification suggests that clients consider 0–4 as gradations of normal priority, and priorities 5–9 as gradations of expedited priority.

Programs can use this property to define a default priority for messages that this producer sends. Individual sending calls can override this default value.



# tibemsMsgProducer\_SetTimeToLive

Function

**Purpose** Set the time-to-live property of a producer object.

**C Declaration** `tibems_status tibemsMsgProducer_SetTimeToLive(  
tibemsMsgProducer msgProducer,  
tibems_long timeToLive );`

**COBOL Call** `CALL "tibemsMsgProducer_SetTimeToLive"  
USING BY VALUE msgProducer,  
BY VALUE timeToLive,  
RETURNING tibems-status  
END-CALL.`



msgProducer has usage pointer.

Parameters

Parameter	Description
msgProducer	Set the property of this producer.
timeToLive	Set the property to this value.

**Remarks** Time-to-live (in milliseconds) determines the expiration time of a message.

- If the time-to-live is non-zero, the expiration is the sum of that time-to-live and the sending client’s current time (GMT). This rule applies even within sessions with transaction semantics—the timer begins with the send call, not the commit call.
- If the time-to-live is zero, then expiration is also zero—indicating that the message never expires.

Programs can use this property to define a default time-to-live for messages that this producer sends. Individual sending calls can override this default value.

Whenever your application uses non-zero values for message expiration or time-to-live, you must ensure that clocks are synchronized among all the host computers that send and receive messages. Synchronize clocks to a tolerance that is a very small fraction of the smallest or time-to-live.



## Chapter 6 Requestor

Requestors implement convenience functions for request-reply semantics. They send messages (called *requests*) and wait for *reply* messages in response.

### Topics

---

- [tibemsMsgRequestor](#), page 196

# tibemsMsgRequestor

Type

- Purpose**Encapsulate request-reply semantics.
- Remarks**

We recommend that programs follow these steps:
  1. Create a [tibemsSession](#), and use it to create either a [tibemsQueue](#) or [tibemsTopic](#) (respectively) for requests and replies.
  2. Supply that session and destination to [tibemsMsgRequestor\\_Create](#) to create a [tibemsMsgRequestor](#).
  3. Call [tibemsMsgRequestor\\_Request](#) to send a request and receive a reply. You may repeat this step for several request and reply pairs.
  4. Close the requestor object. [tibemsMsgRequestor\\_Close](#) also closes the requestor’s session as a side effect.

Function	Description	Page
<a href="#">tibemsMsgRequestor_Close</a>	Close a message requestor.	197
<a href="#">tibemsMsgRequestor_Create</a>	Create a message requestor.	198
<a href="#">tibemsMsgRequestor_Request</a>	Send a request message; wait for a reply.	200

- See Also**

[tibemsSession](#)  
[tibemsQueue](#) on page 150  
[tibemsTopic](#) on page 156

# tibemsMsgRequestor\_Close

Function

**Purpose** Close a message requestor.

**C Declaration** `tibems_status tibemsMsgRequestor_Close(  
tibemsMsgRequestor msgRequestor );`

**COBOL Call** `CALL "tibemsMsgRequestor_Close"  
USING BY VALUE msgRequestor,  
RETURNING tibems-status  
END-CALL.`



msgRequestor has usage pointer.

**Parameters**

Parameter	Description
msgRequestor	Close this requestor.

**Remarks** This call also closes the requestor’s session as a side effect.

# tibemsMsgRequestor\_Create

Function

**Purpose** Create a message requestor.

**C Declaration** `tibems_status tibemsMsgRequestor_Create(  
tibemsSession session,  
tibemsMsgRequestor* msgRequestor,  
tibemsDestination destination);`

**COBOL Call** `CALL "tibemsMsgRequestor_Create"  
USING BY VALUE session,  
BY REFERENCE msgRequestor,  
BY VALUE destination,  
RETURNING tibems-status  
END-CALL.`



session, msgRequestor and destination have usage pointer.

**Parameters**

Parameter	Description
session	The requestor operates within this session.  This session must not use transaction semantics. Its delivery mode must be either <a href="#">TIBEMS_AUTO_ACKNOWLEDGE</a> or <a href="#">TIBEMS_DUPS_OK_ACKNOWLEDGE</a> .
msgRequestor	The function stores the new requestor in this location.
destination	The requestor sends request messages to this destination, and waits for replies on an internally created temporary destination.  If the destination that request messages are sent to is a queue, then an internal temporary queue is created and used. If the destination that request messages are sent to is a topic, then an internal temporary topic is created and used.  You <i>must</i> create this destination using the session you supply as the first argument.

- Remarks** We recommend that programs follow these steps:
1. Create a [tibemsSession](#), and use it to create a [tibemsQueue](#) or [tibemsTopic](#) for requests and replies.
  2. Create a [tibemsMsgRequestor](#), using the session and destination as arguments.
  3. Send a request and receive a reply with [tibemsMsgRequestor\\_Request](#). You may repeat this step for several request and reply pairs.
  4. Close the requestor object. [tibemsMsgRequestor\\_Close](#) also closes the requestor's session as a side effect.
- See Also** [tibemsDestination](#) on page 144  
[tibemsMsgRequestor\\_Close](#) on page 197  
[tibemsMsgRequestor\\_Request](#) on page 200  
[tibemsSession](#) on page 286

# tibemsMsgRequestor\_Request

Function

**Purpose** Send a request message; wait for a reply.

**C Declaration** `tibems_status tibemsMsgRequestor_Request(  
tibemsMsgRequestor msgRequestor,  
tibemsMsg message,  
tibemsMsg* reply );`

**COBOL Call** `CALL "tibemsMsgRequestor_Request"  
USING BY VALUE msgRequestor,  
BY VALUE message,  
BY REFERENCE reply,  
RETURNING tibems-status  
END-CALL.`



msgRequestor, message and reply have usage pointer.

**Parameters**

Parameter	Description
msgRequestor	Send and receive through this requestor.
message	Send this request message.
reply	When a reply message arrives, the function stores it in this location.

**Remarks** This call blocks indefinitely, until a reply arrives.  
The requestor receives only the first reply. It discards other replies that arrive subsequently.



## Chapter 7      **Connection**

Connection objects represent a client program's network connection to the server.

### Topics

---

- [tibemsConnection](#), page 202
- [tibemsConnectionMetaData](#), page 219
- [tibemsExceptionCallback](#), page 225
- [tibemsMulticastExceptionCallback](#), page 226
- [tibemsSSL](#), page 227
- [tibemsSSLParams](#), page 231
- [tibemsSSLHostNameVerifier](#), page 250

# tibemsConnection

Type

- Purpose

Represent a server connection.
- Remarks

When a program first opens a connection, the connection is *stopped*—that is, it does not deliver inbound messages. To begin the flow of inbound messages, the program must explicitly call `tibemsConnection_Start`. (Outbound messages flow even before calling `tibemsConnection_Start`.)

The EMS C and COBOL APIs do *not* support the JMS methods `createConnectionConsumer` and `createDurableConnectionConsumer` (which are optional in the JMS specification).
- Asynchronous Errors

When a program uses a connection to send messages, the send calls can detect problems with the connection, and notify the client program (synchronously) by returning error codes.

However, when a program uses a connection only to receive messages, the client lacks that opportunity to detect problems. Instead, programs can handle such errors asynchronously by defining an exception listener callback (see [tibemsExceptionCallback on page 225](#)).

Function	Description	Page
<a href="#">tibemsConnection_Close</a>	Close the connection; reclaim resources.	204
<a href="#">tibemsConnection_Create</a> <a href="#">tibemsConnection_CreateSSL</a>	Create a new connection to an EMS server.	206
<a href="#">tibemsConnection_CreateSession</a>	Create a session object.	208
<a href="#">tibemsConnection_GetActiveURL</a>	Get the active URL of a connection.	209
<a href="#">tibemsConnection_GetClientId</a>	Get the client ID of a connection.	210
<a href="#">tibemsConnection_GetExceptionListener</a>	Get the exception listener of a connection.	211
<a href="#">tibemsConnection_GetMetaData</a>	Get the metadata from a connection.	212
<a href="#">tibemsConnection_IsDisconnected</a>	Checks whether the connection has been disconnected.	213
<a href="#">tibemsConnection_SetClientId</a>	Set the client ID of a connection.	214

Function	Description	Page
<a href="#">tibemsConnection_SetExceptionListener</a>	Set the exception listener for a connection.	<a href="#">215</a>
<a href="#">tibemsConnection_Start</a>	Start delivering inbound messages.	<a href="#">216</a>
<a href="#">tibemsConnection_Stop</a>	Stop delivering inbound messages.	<a href="#">217</a>

# tibemsConnection\_Close

Function

**Purpose** Close the connection; reclaim resources.

**C Declaration** `tibems_status tibemsConnection_Close(  
tibemsConnection connection );`

**COBOL Call** `CALL "tibemsConnection_Close"  
USING BY VALUE connection,  
RETURNING tibems-status  
END-CALL.`



connection has usage pointer.

**Parameters**

Parameter	Description
connection	Close this connection.

**Remarks** Closing the connection is not sufficient to reclaim all of its resources; your program must explicitly close the sessions, producers, and consumers associated with the connection.

Closing a connection deletes all temporary destinations associated with the connection.

**Blocking** If any message listener or receive call associated with the connection is processing a message when the program calls this function, all facilities of the connection and its sessions remain available to those listeners until they return. In the meantime, this function blocks until that processing completes—that is, until all message listeners and receive calls have returned.

**Acknowledge** Closing a connection does *not* force acknowledgment in client-acknowledged sessions. When the program still has a message that it received from a connection that has since closed, `tibemsMsg_Acknowledge` indicates status code `TIBEMS_ILLEGAL_STATE`.

Transactions      Closing a connection rolls back all open transactions in all sessions associated with the connection.

Status Code	Description
<a href="#">TIBEMS_ILLEGAL_STATE</a>	The connection is currently processing a message callback.

**See Also**      [tibemsMsg\\_Acknowledge on page 24](#)  
[tibemsMsgConsumer on page 162](#)  
[tibemsMsgProducer on page 174](#)  
[tibemsDestination on page 144](#)  
[tibemsSession on page 286](#)

# tibemsConnection\_Create

Function

**Purpose** Create a new connection to an EMS server.

**C Declarations**

```
tibems_status tibemsConnection_Create(  
    tibemsConnection* connection,  
    const char* brokerURL,  
    const char* clientId,  
    const char* username,  
    const char* password );  
  
tibems_status tibemsConnection_CreateSSL(  
    tibemsConnection* connection,  
    const char* brokerURL,  
    const char* clientId,  
    const char* username,  
    const char* password,  
    tibemsSSLParams sslParams,  
    const char* pk_password );
```

**COBOL Call**

```
CALL "tibemsConnection_Create"  
    USING BY REFERENCE connection,  
          BY REFERENCE brokerURL,  
          BY REFERENCE clientId,  
          BY REFERENCE username,  
          BY REFERENCE password  
    RETURNING tibems-status  
END-CALL.  
  
CALL "tibemsConnection_CreateSSL"  
    USING BY REFERENCE connection,  
          BY REFERENCE brokerURL,  
          BY REFERENCE clientId,  
          BY REFERENCE username,  
          BY REFERENCE password,  
          BY VALUE tibemsSSLParams,  
          BY REFERENCE pk-password,  
    RETURNING tibems-status  
END-CALL.
```



connection and sslParams have usage pointer.

**Parameters**

Parameter	Description
connection	The function stores the new connection in this location.

Parameter	Description
brokerURL	Find the EMS server at this URL. If configuring a fault-tolerant client, enter two or more URLs, as described in <a href="#">Configuring C and COBOL Clients for Fault-Tolerant Connections on page 5</a> .
clientId	Identify the client program to the server with this unique ID.
username	Authenticate the client program to the server with this user name.
password	Authenticate the client program to the server with this password.
sslParams	Establish SSL communication using these parameters.
pk_password	Private key password for SSL.

**Remarks** When the authentication parameters are null, the connection object presents a default user identity. If the server configuration permits that anonymous user, then the call succeeds.

Status Code	Description
<a href="#">TIBEMS_SERVER_NOT_CONNECTED</a>	<ul style="list-style-type: none"> <li>No server is running at the specified URL.</li> <li>The call could not communicate with a server because of mismatched SSL and TCP protocols.</li> <li>Other error situations are possible.</li> </ul>
<a href="#">TIBEMS_SECURITY_EXCEPTION</a>	<ul style="list-style-type: none"> <li>The server rejected the connection because the username or password was invalid.</li> <li>SSL setup is incorrect.</li> </ul>
<a href="#">TIBEMS_INVALID_CLIENT_ID</a>	The client ID is not unique; that is, another client already uses the ID.

**See Also** [tibemsConnectionFactory\\_Create on page 257](#)


# tibemsConnection\_CreateSession

Function

**Purpose** Create a session object.

**C Declaration** `tibems_status tibemsConnection_CreateSession(  
tibemsConnection connection,  
tibemsSession* session,  
tibems_bool transacted,  
tibemsAcknowledgeMode acknowledgeMode );`

**COBOL Call** `CALL "tibemsConnection_CreateSession"  
USING BY VALUE connection,  
BY REFERENCE session,  
BY VALUE transacted,  
BY VALUE acknowledgeMode,  
RETURNING tibems-status  
END-CALL.`



connection and session have usage pointer.

**Parameters**

Parameter	Description
connection	Create a session on this connection.
session	The function stores the new session in this location.
transacted	When true, the new session has transaction semantics. When false, it has non-transaction semantics.
acknowledgeMode	This parameter determines the acknowledge mode of the session.  Supply a value enumerated by <code>tibemsAcknowledgeMode</code> .

**Remarks** The new session uses the connection for all server communications.

**See Also** [tibemsMsg\\_Acknowledge on page 24](#)  
[tibemsSession on page 286](#)  
[tibemsAcknowledgeMode on page 312](#)



# tibemsConnection\_GetActiveURL

Function

**Purpose** Get the active URL of a connection.

**C Declaration** `tibems_status tibemsConnection_GetActiveURL(  
tibemsConnection connection,  
char** serverURL );`

**COBOL Call** `CALL "tibemsConnection_GetActiveURL"  
USING BY VALUE connection,  
BY REFERENCE serverURL,  
RETURNING tibems-status  
END-CALL.`



connection and serverURL have usage pointer.

**Parameters**

Parameter	Description
connection	Get the active URL of this connection.
serverURL	The function stores a pointer to the URL in this location.

**Remarks** This property is the URL of the server at the other endpoint of the connection. When the connection interacts with several servers in a fault-tolerant arrangement, this property indicates the current active server.

# tibemsConnection\_GetClientId

Function

**Purpose** Get the client ID of a connection.

**C Declaration** `tibems_status tibemsConnection_GetClientId(  
tibemsConnection connection,  
const char** clientId );`

**COBOL Call** `CALL "tibemsConnection_GetClientId"  
USING BY VALUE connection,  
BY REFERENCE clientId,  
RETURNING tibems-status  
END-CALL.`



connection and clientId have usage pointer.

**Parameters**

Parameter	Description
connection	Get the client ID of this connection.
clientId	The function stores a pointer to the ID string in this location.

**Remarks** Each connection uses a unique client ID.  
Client IDs partition the namespace of durable subscribers; see [tibemsSession\\_CreateDurableSubscriber on page 295](#).

**See Also** [tibemsConnection\\_SetClientId on page 214](#)

## tibemsConnection\_GetExceptionListener

*Function*

**Purpose** Get the exception listener of a connection.

**C Declaration**

```
tibems_status tibemsConnection_GetExceptionListener(  
    tibemsConnection connection,  
    tibemsExceptionCallback* listener,  
    void** closure );
```

**Parameters**

Parameter	Description
connection	Get the exception listener of this connection.
listener	The function stores a pointer to the exception listener callback in this location.
closure	The function stores a pointer to the exception listener closure argument in this location.

**Remarks** This is an alternate pathway for alerting a client program of connection problems. The program defines an exception listener callback function, and registers the callback using [tibemsConnection\\_SetExceptionListener](#). When the client library detects a connection problem, it calls the callback with an exception argument that details the problem.

This call is not available in COBOL.

**See Also** [tibemsConnection\\_SetExceptionListener](#) on page 215  
[Asynchronous Errors](#) on page 202.  
[tibemsExceptionCallback](#) on page 225

# tibemsConnection\_GetMetaData

Function

**Purpose** Get the metadata from a connection.

**C Declaration** `tibems_status tibemsConnection_GetMetaData(  
tibemsConnection connection,  
tibemsConnectionMetaData* metaData );`

**COBOL Call** `CALL "tibemsConnection_GetMetaData"  
USING BY VALUE connection,  
BY REFERENCE metaData,  
RETURNING tibems-status  
END-CALL.`



connection and metaData have usage pointer.

**Parameters**

Parameter	Description
connection	Get the metadata of this connection.
metaData	The function stores a metadata object in this location.

**See Also** [tibemsConnectionMetaData on page 219](#)

# tibemsConnection\_IsDisconnected

Function

**Purpose** Checks whether the connection has been disconnected.

**C Declaration** `tibems_status tibemsConnection_IsDisconnected(  
tibemsConnection* connection,  
tibems_bool* disconnected);`

**COBOL Call** `CALL "tibemsConnection_IsDisconnected"  
USING BY REFERENCE connection,  
BY REFERENCE disconnected,  
RETURNING tibems-status  
END-CALL.`



connection has usage pointer.

## Parameters

Parameter	Description
connection	Get the status of this connection.
disconnected	The function stores the connection status in this location.

## Remarks

This function gets a value indicating whether the connection is disconnected from the server. If the connection is disconnected from the server, `tibemsConnection_IsDisconnected` sets the connection status to TRUE. Otherwise, the connection status is FALSE.

That is, if the client has called `tibemsConnection_Close`, or if the connection has been terminated due to a network failure, `tibemsConnection_IsDisconnected` returns TRUE.

# tibemsConnection\_SetClientId

Function

**Purpose** Set the client ID of a connection.

**C Declaration** `tibems_status tibemsConnection_SetClientId(  
tibemsConnection connection,  
const char* clientId );`

**COBOL Call** `CALL "tibemsConnection_SetClientId"  
USING BY VALUE connection,  
BY REFERENCE clientId,  
RETURNING tibems-status  
END-CALL.`



connection has usage pointer.

**Parameters**

Parameter	Description
connection	Set the client ID of this connection.
clientId	Set the client ID to this string.

**Remarks** Each connection uses a unique client ID.

Client IDs partition the namespace of durable subscribers; see [tibemsSession\\_CreateDurableSubscriber on page 295](#).

Administrators can configure connection factories to assign client IDs to new connections. Alternatively, administrators can allow client programs to assign their own IDs. If the factory does not assign an ID, the program may set this property. However, it is illegal to overwrite an existing client ID value, and or to set this property after using the connection in any way (for example, after creating a session, or starting the connection); attempting to set this property in these situations results in [TIBEMS\\_ILLEGAL\\_STATE](#).

**See Also** [tibemsConnection\\_GetClientId on page 210](#)

# tibemsConnection\_SetExceptionListener

Function

**Purpose** Set the exception listener for a connection.

**C Declaration** `tibems_status tibemsConnection_SetExceptionListener(  
tibemsConnection connection,  
tibemsExceptionCallback listener,  
const void* closure );`

**COBOL Call** `CALL "tibemsConnection_SetExceptionListener_STL"  
USING BY VALUE tibemsConnection,  
BY REFERENCE tibems-Exception-Status,  
BY VALUE TIBEMS-NULLPTR,  
RETURNING tibems-status  
END-CALL.`



connection has usage pointer.  
tibems-Exception-Status has usage binary.

**Parameters**

Parameter	Description
connection	Set the exception listener for this connection.
listener	Register this exception listener callback.
closure	Register this closure argument.

**Remarks** This is an alternate pathway for alerting a client program of connection problems. The program defines an exception listener callback function, and calls this function to register the callback and a closure argument. When the client library detects a connection problem, it calls the callback with a status code that identifies the problem.

**See Also** [tibemsConnection\\_GetExceptionListener on page 211](#)  
[Asynchronous Errors on page 202.](#)  
[tibemsExceptionCallback on page 225](#)

# tibemsConnection\_Start

Function

**Purpose** Start delivering inbound messages.

**C Declaration** `tibems_status tibemsConnection_Start(  
tibemsConnection connection );`

**COBOL Call** `CALL "tibemsConnection_Start"  
USING BY VALUE connection,  
RETURNING tibems-status  
END-CALL.`



connection has usage pointer.

**Parameters**

Parameter	Description
connection	Start delivering inbound messages on this connection.

**Remarks** When a connection is created, it is stopped. It does not deliver inbound messages until the program calls this function to explicitly start it.  
If the connection is not stopped, this call has no effect.  
Outbound messages flow even before calling start.

**See Also** [tibemsConnection\\_Stop on page 217](#)



## tibemsConnection\_Stop

Function

**Purpose** Stop delivering inbound messages.

**C Declaration** `tibems_status tibemsConnection_Stop(  
tibemsConnection connection );`

**COBOL Call** `CALL "tibemsConnection_Stop"  
USING BY VALUE connection,  
RETURNING tibems-status  
END-CALL.`



connection has usage pointer.

### Parameters

Parameter	Description
connection	Stop delivering inbound messages on this connection.

**Remarks** This call temporarily stops the connection from delivering inbound messages. A program can restart delivery by calling `tibemsConnection_Start`.

When a connection is created, it is stopped. It does not deliver inbound messages until the program calls this function to explicitly start it.

If the connection is already stopped, this call has no effect.

**Effect** When this call returns, the connection has stopped delivery to all consumers associated with the connection:

- Messages do not arrive to trigger asynchronous message handler events, nor message listeners.
- Synchronous receive functions block. If their timeout intervals expire, they return null.

**Blocking** If any message listener or receive call associated with the connection is processing a message when the program calls this function, all facilities of the connection and its sessions remain available to those listeners until they return. In the meantime, this function blocks until that processing completes—that is, until all message listeners and receive calls have returned.

However, the stopped connection prevents the client program from processing any new messages.

**Sending** A stopped connection can still send outbound messages.

**See Also**    [tibemsConnection\\_Start](#) on page 216

## tibemsConnectionMetaData

*Type*

**Purpose** Get information about EMS and the EMS provider.

**Remarks** Functions of type `tibemsConnectionMetaData` retrieve information about the EMS application.

Function	Description	Page
<a href="#">tibemsConnectionMetaData_GetEMSMajorVersion</a>	Get information about the JMS specification supported by EMS.	220
<a href="#">tibemsConnectionMetaData_GetEMSMinorVersion</a>		
<a href="#">tibemsConnectionMetaData_GetEMSVersion</a>		
<a href="#">tibemsConnectionMetaData_GetProviderMajorVersion</a>	Get the version number of the EMS installation.	222
<a href="#">tibemsConnectionMetaData_GetProviderMinorVersion</a>		
<a href="#">tibemsConnectionMetaData_GetProviderVersion</a>		
<a href="#">tibemsConnectionMetaData_GetEMSProviderName</a>	Get the name of the EMS provider.	224

**See Also** [tibemsConnection\\_GetMetaData](#) on page 212

## tibemsConnectionMetaData\_GetEMS

Function

**Purpose** Get information about the JMS specification supported by EMS.

**C Declaration**

```
tibems_status tibemsConnectionMetaData_GetEMSMajorVersion(
    tibemsConnectionMetaData metaData,
    tibems_int* majorVersion);

tibems_status tibemsConnectionMetaData_GetEMSMinorVersion(
    tibemsConnectionMetaData metaData,
    tibems_int* minorVersion);

tibems_status tibemsConnectionMetaData_GetEMSVersion(
    tibemsConnectionMetaData metaData,
    const char** version);
```

**COBOL Call**

```
CALL "tibemsConnectionMetaData_GetEMSMajorVersion"
    USING BY VALUE metaData
          BY REFERENCE majorVersion
          RETURNING tibems_status
END-CALL.

CALL "tibemsConnectionMetaData_GetEMSMinorVersion"
    USING BY VALUE metaData
          BY REFERENCE minorVersion
          RETURNING tibems_status
END-CALL.

CALL "tibemsConnectionMetaData_GetEMSVersion"
    USING BY VALUE metaData
          BY REFERENCE version
          RETURNING tibems_status
END-CALL.
```



metadata has usage pointer.

**Parameters**

Parameter	Description
metaData	The tibemsConnectionMetaData object from which the version number will be extracted.
majorVersion	tibemsConnectionMetaData_GetEMSMajorVersion uses this location to store the major version number of the JMS specification supported by the EMS application.

Parameter	Description
minorVersion	tibemsConnectionMetaData_GetEMSMinorVersion uses this location to store the minor version number of the JMS specification supported by the EMS application.
version	tibemsConnectionMetaData_GetEMSVersion uses this location to store the version number of the JMS specification supported by the EMS application.

**Remarks** EMS applications can retrieve the metaData object from any connection; see [tibemsConnection\\_GetMetaData on page 212](#).

## tibemsConnectionMetaData\_GetProvider

Function

**Purpose** Get the version number of the EMS installation.

**C Declaration**

```
tibems_status tibemsConnectionMetaData_GetProviderMajorVersion(  
    tibemsConnectionMetaData metaData,  
    tibems_int* providerMajorVersion);  
  
tibems_status tibemsConnectionMetaData_GetProviderMinorVersion(  
    tibemsConnectionMetaData metaData,  
    tibems_int* providerMinorVersion);  
  
tibems_status tibemsConnectionMetaData_GetProviderVersion(  
    tibemsConnectionMetaData metaData,  
    const char** providerVersion);
```

**COBOL Call**

```
CALL "tibemsConnectionMetaData_GetProviderMajorVersion"  
    USING BY VALUE metaData  
          BY REFERENCE majorVersion  
          RETURNING tibems_status  
END-CALL.  
  
CALL "tibemsConnectionMetaData_GetProviderMinorVersion"  
    USING BY VALUE metaData  
          BY REFERENCE minorVersion  
          RETURNING tibems_status  
END-CALL.  
  
CALL "tibemsConnectionMetaData_GetProviderVersion"  
    USING BY VALUE metaData  
          BY REFERENCE version  
          RETURNING tibems_status  
END-CALL.
```



metaData and version have usage pointers.

Parameters

Parameter	Description
metaData	The tibemsConnectionMetaData object from which the version number will be extracted.
providerMajorVersion	tibemsConnectionMetaData_GetProviderMajorVersion uses this location to store the major version number of the EMS application.

Parameter	Description
providerMinorVersion	tibemsConnectionMetaData_GetProviderMinorVersion uses this location to store the minor version number of the EMS application.
providerVersion	tibemsConnectionMetaData_GetProviderVersion uses this location to store the version number of the EMS application.

**Remarks** EMS applications can retrieve the metaData object from any connection; see [tibemsConnection\\_GetMetaData on page 212](#).

## tibemsConnectionMetaData\_GetEMSProviderName

Function

**Purpose** Get the name of the EMS provider.

**C Declaration** `tibems_status tibemsConnectionMetaData_GetEMSProviderName(  
tibemsConnectionMetaData metaData,  
const char** providerName);`

**COBOL Call** `CALL "tibemsConnectionMetaData_GetEMSProviderName"  
USING BY VALUE metaData  
BY REFERENCE providerName  
RETURNING tibems_status  
END-CALL.`



metaData has usage pointer.

**Parameters**

Parameter	Description
metaData	The object from which the provider name will be extracted.
providerName	The location where the provider’s vendor name will be stored.

**Remarks** tibemsConnectionMetaData\_GetEMSProviderName provides the name of the EMS provider, TIBCO Software Inc.  
  
EMS applications can retrieve the metaData object from any connection; see [tibemsConnection\\_GetMetaData on page 212](#).



# tibemsExceptionCallback

Function Type

**Purpose** Programs define functions of this type to asynchronously detect problems with connections.

**C Declaration**

```
typedef void (*tibemsExceptionCallback) (  
    tibemsConnection connection,  
    tibems_status status,  
    void* closure);
```

Parameters	Parameter	Description
	connection	This parameter receives the connection object.
	status	This parameter receives a status code, which identifies the connection problem.
	closure	This parameter receives the closure data, which the program supplied in the call that registered the callback.

**Remarks** When a program uses a connection to send messages, the send calls can detect problems with the connection, and notify the client program by returning an error status code. However, when a program uses a connection only to receive messages, the client cannot detect errors in this way.

This callback provides an alternate pathway for alerting a client program of connection problems. The program implements this callback, and registers it with the connection object. When the client library detects a connection problem, it calls this callback with a status code that identifies the problem.

**See Also** [tibemsConnection on page 202](#)  
[tibemsConnection\\_SetExceptionListener on page 215](#)

# tibemsMulticastExceptionCallback

Function Type

**Purpose** Programs define functions of this type to asynchronously detect conditions with EMS multicast that may affect message consumers.

**C Declaration**

```
typedef void (*tibemsMulticastExceptionCallback) (  
    tibemsConnection connection,  
    tibemsSession session,  
    tibemsMsgConsumer consumer,  
    tibems_status status,  
    const char* description,  
    void* closure);
```

Parameters	Parameter	Description
	connection	This parameter receives the connection object.
	session	This parameter receives the session object.
	consumer	This parameter receives the consumer object.
	status	This parameter receives a status code, which identifies the multicast problem.
	description	This parameter receives a text description describing the multicast problem.
	closure	This parameter receives the closure data, which the program supplied in the call that registered the callback.

**Remarks** When a program uses a multicast consumer to receive messages, EMS can detect conditions that may indicate a problem, and notify the client program by returning an error status code. The client application can then take the appropriate action.

This callback provides a pathway for alerting a client program of multicast problems. The program implements this callback and registers it. When the client library detects a multicast problem, it calls this callback and passes it the appropriate EMS objects, a status code that identifies the problem, and a detailed description of the problem. This callback is invoked for each consumer that is affected by the multicast warning or error. Some applications may just simply log the problem; others may take further measures.

**See Also** [tibems\\_SetMulticastExceptionListener on page 403](#)  
[Chapter 13, Using Multicast](#), in the *TIBCO Enterprise Message Service User’s Guide*

## tibemsSSL

*Type*

*Table 12 Functions*

Function	Description	Page
<a href="#">tibemsSSL_GetTrace</a>	Determine whether SSL tracing is enabled.	228
<a href="#">tibemsSSL_OpenSSLVersion</a>	Get a string representing the OpenSSL version number.	229
<a href="#">tibemsSSL_SetTrace</a>	Enable or disable SSL tracing.	230

*Table 13 Certificate Encodings*

Constant	Value
TIBEMS_SSL_ENCODING_AUTO	(0x0000)
TIBEMS_SSL_ENCODING_PEM	(0x0001)
TIBEMS_SSL_ENCODING_DER	(0x0002)
TIBEMS_SSL_ENCODING_BER	(0x0004)
TIBEMS_SSL_ENCODING_PKCS7	(0x0010)
TIBEMS_SSL_ENCODING_PKCS8	(0x0020)
TIBEMS_SSL_ENCODING_PKCS12	(0x0040)
TIBEMS_SSL_ENCODING_ENTRUST	(0x0100)
TIBEMS_SSL_ENCODING_KEYSTORE	(0x0200)

# tibemsSSL\_GetTrace

---

Function

Purpose	Determine whether SSL tracing is enabled.
C Declaration	<pre>tibems_bool tibemsSSL_GetTrace(void);  tibems_bool tibemsSSL_GetDebugTrace(void);</pre>
COBOL Call	<pre>CALL "tibemsSSL_GetTrace"       RETURNING value-Boolean END-CALL.  CALL "tibemsSSL_GetDebugTrace"       RETURNING value-Boolean END-CALL.</pre>
Remarks	<p>Two levels of SSL tracing are available—regular tracing and debug tracing (more detailed).</p> <p>If tracing is enabled, these calls return TIBEMS_TRUE.</p> <p>If tracing is disabled, they return TIBEMS_FALSE.</p>

# tibemsSSL\_OpenSSLVersion

Function

**Purpose** Get a string representing the OpenSSL version number.

**C Declaration** `const char* tibemsSSL_OpenSSLVersion(  
char* buffer,  
tibems_int buf_size );`

**COBOL Call** `MOVE LENGTH OF buffer TO buf-size.  
  
CALL "tibemsSSL_OpenSSLVersion"  
USING BY REFERENCE buffer,  
BY VALUE buf-size,  
RETURNING value-Pointer  
END-CALL.`



value-Pointer has usage pointer.

Parameters

Parameter	Description
buffer	The function copies the version string in this buffer.
buf_size	Length (in bytes) of the buffer.

**Remarks** The versions string has the format *major.minor.update*.  
A null character terminates the version string.

# tibemsSSL\_SetTrace

Function

**Purpose** Enable or disable SSL tracing.

**C Declaration**

```
void tibemsSSL_SetTrace(  
    tibems_bool trace );  
  
void tibemsSSL_SetDebugTrace(  
    tibems_bool trace );
```

**COBOL Call**

```
CALL "tibemsSSL_SetTrace"  
    USING BY VALUE trace  
END-CALL.  
  
CALL "tibemsSSL_SetDebugTrace"  
    USING BY VALUE trace  
END-CALL.
```

Parameters	Parameter	Description
	trace	TIBEMS_TRUE enables tracing.  TIBEMS_FALSE disables tracing.

**Remarks** Two levels of SSL tracing are available—regular tracing and debug tracing (more detailed).

## tibemsSSLParams

*Type*

**Purpose** Group parameters representing a client identity.

**Remarks** These parameters apply when creating SSL connections to the EMS server.

Function	Description	Page
<a href="#">tibemsSSLParams_AddIssuerCert</a>	Add one or more issuer certificates to the SSL parameter object.	232
<a href="#">tibemsSSLParams_AddTrustedCert</a>	Add one or more trusted certificates to the SSL parameter object.	234
<a href="#">tibemsSSLParams_Create</a>	Create a new SSL parameter object.	236
<a href="#">tibemsSSLParams_Destroy</a>	Destroy an SSL parameter object.	237
<a href="#">tibemsSSLParams_GetIdentity</a>	Get the client identity that an SSL parameter object represents.	238
<a href="#">tibemsSSLParams_GetPrivateKey</a>	Get the private key from an SSL parameter object.	239
<a href="#">tibemsSSLParams_SetAuthOnly</a>	Limit the use of SSL to improve performance.	240
<a href="#">tibemsSSLParams_SetCiphers</a>	Set the cipher suites for SSL connections.	241
<a href="#">tibemsSSLParams_SetExpectedHostName</a>	Set the expected host name.	242
<a href="#">tibemsSSLParams_SetHostNameVerifier</a>	Set the host name verifier function.	243
<a href="#">tibemsSSLParams_SetIdentity</a>	Set the identity of the client program.	244
<a href="#">tibemsSSLParams_SetPrivateKey</a>	Set the client's private key.	245
<a href="#">tibemsSSLParams_SetRandData</a> <a href="#">tibemsSSLParams_SetRandEGD</a> <a href="#">tibemsSSLParams_SetRandFile</a>	Settings for generating random data.	246
<a href="#">tibemsSSLParams_SetVerifyHost</a>	Sets flags that enable client verification of the host certificate or host name.	248

# tibemsSSLParams\_AddIssuerCert

Function

**Purpose** Add one or more issuer certificates to the SSL parameter object.

**C Declaration**

```
tibems_status tibemsSSLParams_AddIssuerCert(  
    tibemsSSLParams SSLParams,  
    const void* data,  
    tibems_int size,  
    tibems_int encoding );  
  
tibems_status tibemsSSLParams_AddIssuerCertFile(  
    tibemsSSLParams SSLParams,  
    const char* filename,  
    tibems_int encoding );
```

**COBOL Call**

```
CALL "tibemsSSLParams_AddIssuerCert"  
    USING BY VALUE SSLParams,  
          BY REFERENCE data,  
          BY VALUE size,  
          BY REFERENCE encoding,  
          RETURNING tibems-status  
END-CALL.  
  
CALL "tibemsSSLParams_AddIssuerCertFile"  
    USING BY VALUE SSLParams,  
          BY REFERENCE filename,  
          BY VALUE encoding,  
          RETURNING tibems-status  
END-CALL.
```



SSLParams has usage pointer.  
COBOL does not support tibemsSSLParams\_AddIssuerCertFile.

**Parameters**

Parameter	Description
SSLParams	Add the certificates to this SSL parameter object.
data	Use the certificate data at this location.
size	Length of the certificate data (in bytes).
encoding	Interpret the certificate data using this encoding; for values, see <a href="#">Table 13, Certificate Encodings, on page 227</a> .
filename	Read the certificate data from this file.



**Remarks** Issuer certificates are certificates that authenticate the client's certificate; the certificate authority (CA) that issued the client's certificate supplies these. SSL clients must supply them during the SSL handshake, so your program must set them.

If the parameter object already has issuer certificates, this call adds to that set; it does not overwrite them.

# tibemsSSLParams\_AddTrustedCert

Function

**Purpose** Add one or more trusted certificates to the SSL parameter object.

**C Declaration**

```
tibems_status tibemsSSLParams_AddTrustedCert(  
    tibemsSSLParams SSLParams,  
    const void* data,  
    tibems_int size,  
    tibems_int encoding );  
  
tibems_status tibemsSSLParams_AddTrustedCertFile(  
    tibemsSSLParams SSLParams,  
    const char* filename,  
    tibems_int encoding );
```

**COBOL Call**

```
CALL "tibemsSSLParams_AddTrustedCert"  
    USING BY VALUE SSLParams,  
          BY REFERENCE data,  
          BY VALUE size,  
          BY VALUE encoding,  
          RETURNING tibems-status  
END-CALL.  
  
CALL "tibemsSSLParams_AddTrustedCertFile"  
    USING BY VALUE SSLParams,  
          BY REFERENCE filename,  
          BY VALUE encoding,  
          RETURNING tibems-status  
END-CALL.
```



SSLParams has usage pointer.  
COBOL does not support tibemsSSLParams\_AddTrustedCertFile.

**Parameters**

Parameter	Description
SSLParams	Add the certificates to this SSL parameter object.
data	Use the certificate data at this location.
size	Length of the certificate data (in bytes).
encoding	Interpret the certificate data using this encoding; for values, see <a href="#">Table 13, Certificate Encodings, on page 227</a> .
filename	Read the certificate data from this file.

**Remarks** Trusted certificates are certificates that authenticate the server's certificate; the certificate authority (CA) that issued the server's certificate supplies these. SSL clients may verify them during the SSL handshake; if your program verifies host certificates (see [tibemsSSLParams\\_SetVerifyHost on page 248](#)), then you must register trusted certificates as well.

If the parameter object already has trusted certificates, this call adds to that set; it does not overwrite them.

# tibemsSSLParams\_Create

---

Function

**Purpose** Create a new SSL parameter object.

**C Declaration** `tibemsSSLParams tibemsSSLParams_Create(void);`

**COBOL Call** CALL "tibemsSSLParams\_Create"  
RETURNING SSLParams  
END-CALL.



SSLParams has usage pointer.

# tibemsSSLParams\_Destroy

Function

**Purpose** Destroy an SSL parameter object.

**C Declaration** `void tibemsSSLParams_Destroy(  
tibemsSSLParams SSLParams );`

**COBOL Call** `CALL "tibemsSSLParams_Destroy"  
USING BY VALUE SSLParams  
END-CALL.`



SSLParams has usage pointer.

**Parameters**

Parameter	Description
SSLParams	Destroy this SSL parameter object.

# tibemsSSLParams\_GetIdentity

Function

**Purpose** Get the client identity that an SSL parameter object represents.

**C Declaration** `tibems_status tibemsSSLParams_GetIdentity(  
tibemsSSLParams SSLParams,  
const void** data,  
tibems_int* size,  
tibems_int* encoding );`

**COBOL Call** `CALL "tibemsSSLParams_GetIdentity"  
USING BY VALUE SSLParams,  
BY REFERENCE data,  
BY REFERENCE size,  
BY REFERENCE encoding,  
RETURNING tibems-status  
END-CALL.`



SSLParams and data have usage pointer.

**Parameters**

Parameter	Description
SSLParams	Get the identity from this SSL parameter object.
data	The function stores in this location a pointer to the identity data within the <code>tibemsSSLParams</code> object.
size	The function stores the length (in bytes) of the identity data in this location.
encoding	The function stores the encoding of the identity data in this location; for values, see <a href="#">Table 13, Certificate Encodings, on page 227</a> .

**Remarks** A client identity includes a certificate and private key; it may also include issuer certificates (optional).

# tibemsSSLParams\_GetPrivateKey

## Function

**Purpose** Get the private key from an SSL parameter object.

**C Declaration**

```
tibems_status tibemsSSLParams_GetPrivateKey(
    tibemsSSLParams SSLParams,
    const void** data,
    tibems_int* size,
    tibems_int* encoding );
```

**COBOL Call**

```
CALL "tibemsSSLParams_GetPrivateKey"
    USING BY VALUE SSLParams,
          BY REFERENCE data,
          BY REFERENCE size,
          BY REFERENCE encoding,
          RETURNING tibems-status
END-CALL.
```



SSLParams and data have usage pointer.

## Parameters

Parameter	Description
SSLParams	Get the private key from this SSL parameter object.
data	The function stores in this location a pointer to the key data within the <code>tibemsSSLParams</code> object.
size	The function stores the length (in bytes) of the key data in this location.
encoding	The function stores the encoding of the key data in this location; for values, see <a href="#">Table 13, Certificate Encodings, on page 227</a> .

# tibemsSSLParams\_SetAuthOnly

Function

**Purpose** Limit the use of SSL to improve performance.

**C Declaration** `tibems_status tibemsSSLParams_SetAuthOnly(  
tibemsSSLParams SSLParams,  
tibems_bool auth_only );`

**COBOL Call** `CALL "tibemsSSLParams_SetAuthOnly"  
USING BY VALUE SSLParams,  
BY VALUE auth_only,  
RETURNING tibems-status  
END-CALL.`



SSLParams has usage pointer.

**Parameters**

Parameter	Description
SSLParams	Set the value in this SSL parameter object.
auth_only	TIBEMS_TRUE instructs the SSL parameter object to request a connection that uses SSL only for authentication.  TIBEMS_FALSE instructs the SSL parameter object to request a connection that uses SSL to secure all data.

**Remarks** For background information, see [SSL Authentication Only on page 466](#) in *TIBCO Enterprise Message Service User's Guide*



## tibemsSSLParams\_SetCiphers

Function

**Purpose** Set the cipher suites for SSL connections.

**C Declaration** `tibems_status tibemsSSLParams_SetCiphers(  
tibemsSSLParams SSLParams,  
const char* ciphers );`

**COBOL Call** `CALL "tibemsSSLParams_SetCiphers"  
USING BY VALUE SSLParams,  
BY REFERENCE ciphers,  
RETURNING tibems-status  
END-CALL.`



SSLParams has usage pointer.

### Parameters

Parameter	Description
SSLParams	Set the value in this SSL parameter object.
ciphers	<p>Specify the cipher suites that the client can use.</p> <p>Supply a colon-separated list of cipher names. Names may be either OpenSSL names, or longer descriptive names.</p> <p>For a list of supported cipher suites, see <a href="#">Supported Cipher Suites on page 462</a> in <i>TIBCO Enterprise Message Service User's Guide</i>.</p>

# tibemsSSLParams\_SetExpectedHostName

Function

**Purpose** Set the expected host name.

**C Declaration** `tibems_status tibemsSSLParams_SetExpectedHostName(  
tibemsSSLParams SSLParams,  
const char* expected_hostname );`

**COBOL Call** `CALL "tibemsSSLParams_SetExpectedHostName"  
USING BY VALUE SSLParams,  
BY REFERENCE expected-hostname,  
RETURNING tibems-status  
END-CALL.`



SSLParams has usage pointer.

**Parameters**

Parameter	Description
SSLParams	Set the value in this SSL parameter object.
expected_hostname	Use this value.

**Remarks** This parameter applies when establishing an SSL connection to the EMS server. If host name verification is enabled, an application-specific verifier function checks that the actual host name where the server is running is the same as this expected host name.

**See Also** [tibemsSSLParams\\_SetHostNameVerifier on page 243](#)  
[tibemsSSLParams\\_SetVerifyHost on page 248](#)  
[tibemsSSLHostNameVerifier on page 250](#)

## tibemsSSLParams\_SetHostNameVerifier

Function

**Purpose** Set the host name verifier function.

**C Declaration** `tibems_status tibemsSSLParams_SetHostNameVerifier(  
tibemsSSLParams SSLParams,  
tibemsSSLHostNameVerifier verifier,  
const void* closure );`

**COBOL Call** `CALL "tibemsSSLParams_SetHostNameVerifier"  
USING BY VALUE SSLParams,  
BY VALUE verifier,  
BY REFERENCE closure,  
RETURNING tibems-status  
END-CALL.`



SSLParams and verifier have usage pointer.

### Parameters

Parameter	Description
SSLParams	Set the value in this SSL parameter object.
verifier	Use this verifier function.
closure	Supply application-specific data. Each call to the verifier function passes this data as an argument.

**Remarks** When creating a connection to the EMS server, an application-specific verifier function checks that the actual host name where the server is running is the same as this expected host name.

**See Also** [tibemsSSLParams\\_SetExpectedHostName on page 242](#)  
[tibemsSSLParams\\_SetVerifyHost on page 248](#)  
[tibemsSSLHostNameVerifier on page 250](#)

# tibemsSSLParams\_SetIdentity

Function

**Purpose** Set the identity of the client program.

**C Declaration**

```
tibems_status tibemsSSLParams_SetIdentity(  
    tibemsSSLParams SSLParams,  
    const void* data,  
    tibems_int size,  
    tibems_int encoding );  
  
tibems_status tibemsSSLParams_SetIdentityFile(  
    tibemsSSLParams SSLParams,  
    const char* filename,  
    tibems_int encoding );
```

**COBOL Call**

```
CALL "tibemsSSLParams_SetIdentity"  
    USING BY VALUE tibemsSSLParams,  
          BY REFERENCE data,  
          BY VALUE size,  
          BY VALUE encoding,  
          RETURNING tibems-status  
END-CALL.  
  
CALL "tibemsSSLParams_SetIdentityFile"  
    USING BY VALUE SSLParams,  
          BY REFERENCE filename,  
          BY VALUE encoding,  
          RETURNING tibems-status  
END-CALL.
```



SSLParams has usage pointer.  
COBOL does not support tibemsSSLParams\_SetIdentityFile.

**Parameters**

Parameter	Description
SSLParams	Set the value in this SSL parameter object.
data	Data must include the client’s certificate and private key. It may optionally include issuer certificates.
size	Supply the size (in bytes) of the data.
filename	Read identity data from this file.
encoding	Interpret the certificate data using this encoding; for values, see <a href="#">Table 13, Certificate Encodings, on page 227</a> .

# tibemsSSLParams\_SetPrivateKey

Function

**Purpose** Set the client’s private key.

**C Declaration**

```
tibems_status tibemsSSLParams_SetPrivateKey(  
    tibemsSSLParams SSLParams,  
    const void* data,  
    tibems_int size,  
    tibems_int encoding );  
  
tibems_status tibemsSSLParams_SetPrivateKeyFile(  
    tibemsSSLParams SSLParams,  
    const char* filename,  
    tibems_int encoding );
```

**COBOL Call**

```
CALL "tibemsSSLParams_SetPrivateKey"  
    USING BY VALUE SSLParams,  
          BY REFERENCE data,  
          BY VALUE size,  
          BY VALUE encoding,  
          RETURNING tibems-status  
END-CALL.  
  
CALL "tibemsSSLParams_SetPrivateKeyFile"  
    USING BY VALUE SSLParams,  
          BY REFERENCE filename,  
          BY VALUE encoding,  
          RETURNING tibems-status  
END-CALL.
```



SSLParams has usage pointer.  
COBOL does not support tibemsSSLParams\_SetPrivateKeyFile.

Parameters

Parameter	Description
SSLParams	Set the value in this SSL parameter object.
data	Private key data.
size	Supply the size (in bytes) of the data.
filename	Read private key data from this file.
encoding	Interpret the data using this encoding; for values, see <a href="#">Table 13, Certificate Encodings, on page 227</a> .

# tibemsSSLParams\_SetRandData

Function

**Purpose** Settings for generating random data.

**C Declaration**

```
tibems_status tibemsSSLParams_SetRandData(
    tibemsSSLParams SSLParams,
    const char* rand_data,
    tibems_int size );

tibems_status tibemsSSLParams_SetRandFile(
    tibemsSSLParams SSLParams,
    const char* rand_file );

tibems_status tibemsSSLParams_SetRandEGD(
    tibemsSSLParams SSLParams,
    const char* rand_egd_path );
```

**COBOL Call**

```
CALL "tibemsSSLParams_SetRandData"
    USING BY VALUE SSLParams,
          BY REFERENCE rand-data,
          BY VALUE size,
          RETURNING tibems-status
END-CALL.

CALL "tibemsSSLParams_SetRandFile"
    USING BY VALUE SSLParams,
          BY REFERENCE rand-file,
          RETURNING tibems-status
END-CALL.

CALL "tibemsSSLParams_SetRandEGD"
    USING BY VALUE SSLParams,
          BY REFERENCE rand-egd-path,
          RETURNING tibems-status
END-CALL.
```



SSLParams has usage pointer.  
COBOL does not support tibemsSSLParams\_SetRandFile.

Parameters

Parameter	Description
SSLParams	Set the value in this SSL parameter object.
rand_data	Supply random data as a character string.
size	Supply the length (in bytes) of the random data string.
rand_file	Read random data from this file.

Parameter	Description
rand_egd_path	Supply the file pathname of an entropy gathering daemon, which generates random data.

**Remarks** These three functions represent three ways to inject crucial random data into SSL computations. Every program must select one of these ways. If an entropy gathering daemon is available on the host computer, we recommend using it.

# tibemsSSLParams\_SetVerifyHost

Function

**Purpose** Sets flags that enable client verification of the host certificate or host name.

**C Declaration**

```
tibems_status tibemsSSLParams_SetVerifyHost(  
    tibemsSSLParams SSLParams,  
    tibems_bool verify );  
  
tibems_status tibemsSSLParams_SetVerifyHostName(  
    tibemsSSLParams params,  
    tibems_bool verify );
```

**COBOL Call**

```
CALL "tibemsSSLParams_SetVerifyHost"  
    USING BY VALUE SSLParams,  
          BY VALUE verify,  
          RETURNING tibems-status  
END-CALL.  
  
CALL "tibemsSSLParams_SetVerifyHostName"  
    USING BY VALUE SSLParams,  
          BY VALUE verify,  
          RETURNING tibems-status  
END-CALL.
```



SSLParams has usage pointer.

**Parameters**

Parameter	Description
SSLParams	Set the value in this SSL parameter object.
verify	TIBEMS_TRUE enables verification. TIBEMS_FALSE disables verification.

**Remarks** Both of verification actions are enabled by default (unless a program explicitly disables them).

tibemsSSLParams\_SetVerifyHost enables checking that the server host's certificate was signed by a trusted CA; see [tibemsSSLParams\\_AddTrustedCert on page 234](#)).

tibemsSSLParams\_SetVerifyHostName enables checking the server's actual host name against an expected server host name; see [tibemsSSLParams\\_SetExpectedHostName on page 242](#).



**See Also**    [tibemsSSLParams\\_SetHostNameVerifier on page 243](#)  
                 [tibemsSSLHostNameVerifier on page 250](#)

# tibemsSSLHostNameVerifier

Function Type

**Purpose** Programs define functions of this type to check server identity based on the server’s host name.

**C Declaration**

```
typedef tibems_status (*tibemsSSLHostNameVerifier) (  
    const char* connected_hostname,  
    const char* expected_hostname,  
    const char* certificate_name,  
    void* closure );
```

Parameters	Parameter	Description
	connected_hostname	This parameter receives the actual host name of the server to which the client program is attempting to connect.
	expected_hostname	This parameter receives the host name that the client expects the server to be running on.
	certificate_name	This parameter receives the host name in the server’s public certificate.
	closure	This parameter receives application-specific data.

- Remarks** SSL attempts to verify that the EMS server hostname (taken from the server’s certificate identity) matches the hostname in the server URL. Your program can use the default matching behavior, or customize it in different ways.
- The default behavior is a straightforward string comparison, matching the hostname from the server certificate against the hostname of the connected URL.
  - If you set an expected hostname, then the match compares the hostname from the server certificate against the expected hostname (instead of the URL hostname).
  - You may also define and set a hostname verifier function, which can override a string mismatch. If the string comparison fails, then SSL calls your verifier function to determine whether to accept the hostname anyway. Your function receives three hostnames—the connected name, the expected name, and the certificate hostname—and must return a status code indicating the final match result:
    - `TIBEMS_OK` indicates a successful check.
    - `TIBEMS_SECURITY_EXCEPTION` indicates a failed check.

**See Also**    [tibemsSSLParams\\_SetExpectedHostName on page 242](#)  
              [tibemsSSLParams\\_SetHostNameVerifier on page 243](#)  
              [tibemsSSLParams\\_SetVerifyHost on page 248](#)



## Chapter 8 **Connection Factory**

Connection factories let administrators preconfigure client connections to the EMS server.

### Topics

---

- [tibemsConnectionFactory](#), page 254

# tibemsConnectionFactory

Type

- Purpose

Administered object for creating server connections.
- Remarks

Connection factories are administered objects. They support concurrent use.  
  
Administrators define connection factories in a repository. Each connection factory has administrative parameters that guide the creation of server connections. Usage follows either of two models:
- EMS Server

You can use the EMS server as a name service provider—one `tibemspd` process provides both the name repository and the message service. Administrators define factories in the name repository. Client programs create connection factory objects with the URL of the repository, and call `tibemsConnectionFactory_CreateConnection`. This function automatically accesses the corresponding factory in the repository, and uses it to create a connection to the message service.

Function	Description	Page
<a href="#">tibemsConnectionFactory_Create</a>	Create a connection factory.	257
<a href="#">tibemsConnectionFactory_CreateConnection</a>	Create a connection object.	258
<a href="#">tibemsConnectionFactory_CreateXAConnection</a>	Create an XA connection object.	259
<a href="#">tibemsConnectionFactory_Destroy</a>	Destroy a connection factory object.	260
<a href="#">tibemsConnectionFactory_GetSSLProxyHost</a>	Get the SSL proxy host from a connection factory.	261
<a href="#">tibemsConnectionFactory_GetSSLProxyPort</a>	Get the SSL proxy port from a connection factory.	262
<a href="#">tibemsConnectionFactory_GetSSLProxyUser</a>	Get the SSL proxy username from a connection factory.	263
<a href="#">tibemsConnectionFactory_GetSSLProxyPassword</a>	Get the SSL proxy password from a connection factory.	264

Function	Description	Page
<a href="#">tibemsConnectionFactory_Print</a>	Print the parameters set in a connection factory object.	265
<a href="#">tibemsConnectionFactory_PrintToBuffer</a>	Print the parameters set in a connection factory object to a buffer.	266
<a href="#">tibemsConnectionFactory_SetClientID</a>	Set the client ID of a connection factory object.	267
<a href="#">tibemsConnectionFactory_SetConnectAttemptCount</a>	Modify the connection attempts setting.	268
<a href="#">tibemsConnectionFactory_SetConnectAttemptDelay</a>	Modify the connection delay setting.	269
<a href="#">tibemsConnectionFactory_SetConnectAttemptTimeout</a>	Modify the connection timeout setting.	270
<a href="#">tibemsConnectionFactory_SetMetric</a>	Modify the load balancing metric.	271
<a href="#">tibemsConnectionFactory_SetMulticastDaemon</a>	Sets the port on which the client will connect to the multicast daemon.	272
<a href="#">tibemsConnectionFactory_SetMulticastEnabled</a>	Set whether message consumers subscribed to multicast-enabled topics will receive messages over multicast.	273
<a href="#">tibemsConnectionFactory_SetPkPassword</a>	Set the SSL private key password for the connection factory.	274
<a href="#">tibemsConnectionFactory_SetReconnectAttemptCount</a>	Modify the reconnection attempts setting.	275
<a href="#">tibemsConnectionFactory_SetReconnectAttemptDelay</a>	Modify the reconnection delay setting.	276

Function	Description	Page
<a href="#">tibemsConnectionFactory_SetReconnectAttemptTimeout</a>	Modify the reconnection timeout setting.	277
<a href="#">tibemsConnectionFactory_SetServerURL</a>	Set the server URL.	278
<a href="#">tibemsConnectionFactory_SetSSLParams</a>	Set a connection factory's default SSL parameters.	279
<a href="#">tibemsConnectionFactory_SetSSLProxy</a>	Set a connection factory's parameters for connecting through an SSL proxy.	280
<a href="#">tibemsConnectionFactory_SetSSLProxyAuth</a>	Set a connection factory's username and password for connecting through an SSL proxy.	281
<a href="#">tibemsConnectionFactory_SetUserName</a>	Set a connection factory's username.	282
<a href="#">tibemsConnectionFactory_SetUserPassword</a>	Set the password used by the connection factory to authenticate itself with the EMS Server.	283

**Administered Objects** Administered objects let administrators configure EMS behavior at the enterprise level. Administrators define these objects, and client programs use them. This arrangement relieves program developers and end users of the responsibility for correct configuration.

**See Also** [tibemsLookupContext](#) on page 322



## tibemsConnectionFactory\_Create

---

*Function*

**Purpose** Create a connection factory.

**C Declaration** `tibemsConnectionFactory tibemsConnectionFactory_Create( void );`

**COBOL Call** CALL "tibemsConnectionFactory\_Create"  
RETURNING factory  
END-CALL.



factory has usage pointer.

**Remarks** The resulting connection factory object is empty. This call does not attempt to access the repository (see also [tibemsLookupContext on page 322](#)).

**See Also** [tibemsLookupContext on page 322](#)

# tibemsConnectionFactory\_CreateConnection

Function

**Purpose** Create a connection object.

**C Declaration** `tibems_status tibemsConnectionFactory_CreateConnection(  
tibemsConnectionFactory factory,  
tibemsConnection* connection,  
const char * username,  
const char * password );`

**COBOL Call** `CALL "tibemsConnectionFactory_CreateConnection"  
USING BY VALUE factory,  
BY REFERENCE connection,  
BY REFERENCE username,  
BY REFERENCE password,  
RETURNING tibems-status  
END-CALL.`



factory and connection have usage pointer.

**Parameters**

Parameter	Description
factory	Use this connection factory to create a connection.
connection	The function stores the new connection object in this location.
userName	The connection object presents this user identity to the server. Set to NULL if the server isn’t authenticating or authorizing users.
password	The connection object authenticates the user identity with this password. Set to NULL if the server isn’t authenticating or authorizing users.

**Remarks** When the identity parameters are null, the connection object presents a default user identity. If the server configuration permits that anonymous user, then the call succeeds.

**See Also** [tibemsConnection on page 202](#)

# tibemsConnectionFactory\_CreateXAConnection

Function

**Purpose** Create an XA connection object.

**C Declaration**

```
extern tibems_status
tibemsConnectionFactory_CreateXAConnection(
    tibemsConnectionFactory factory,
    tibemsConnection* connection,
    const char* username,
    const char* password);
```

**COBOL Call**

```
CALL "tibemsConnectionFactory_CreateXAConnection"
    USING BY VALUE factory,
          BY REFERENCE connection,
          BY REFERENCE username,
          BY REFERENCE password,
          RETURNING tibems-status
END-CALL.
```



factory and connection have usage pointer.

Parameters

Parameter	Description
factory	Use this connection factory to create a connection.
connection	The function stores the new connection object in this location.
userName	The connection object presents this user identity to the server. Set to NULL if the server isn't authenticating or authorizing users.
password	The connection object authenticates the user identity with this password. Set to NULL if the server isn't authenticating or authorizing users.

**Remarks** When the identity parameters are null, the connection object presents a default user identity. If the server configuration permits that anonymous user, then the call succeeds.

**See Also** [tibemsConnection on page 202](#)

# tibemsConnectionFactory\_Destroy

Function

**Purpose** Destroy a connection factory object.

**C Declaration** `tibems_status tibemsConnectionFactory_Destroy(  
tibemsConnectionFactory factory )`

**COBOL Call** `CALL "tibemsConnectionFactory_Destroy"  
USING BY VALUE factory,  
RETURNING tibems-status  
END-CALL.`



factory has usage pointer.

**Parameters**

Parameter	Description
factory	Destroy this connection factory.

**Remarks** This call destroys an object within the program. It does not affect objects in the repository.

# tibemsConnectionFactory\_GetSSLProxyHost

Function

**Purpose** Get the SSL proxy host from a connection factory.

**C Declaration** `tibems_status tibemsConnectionFactory_GetSSLProxyHost(  
tibemsConnectionFactory factory,  
const char** proxy_host);`

**COBOL Call** `CALL "tibemsConnectionFactory_GetSSLProxyHost"  
USING BY VALUE factory,  
BY REFERENCE proxy-host,  
RETURNING tibems-status  
END-CALL.`



factory and proxy-host have usage pointer.

**Parameters**

Parameter	Description
factory	Get the SSL proxy host from this connection factory.
proxy_host	The function stores the proxy host in this location.

**See Also** [tibemsConnectionFactory\\_SetSSLProxy on page 280](#)

# tibemsConnectionFactory\_GetSSLProxyPort

Function

**Purpose** Get the SSL proxy port from a connection factory.

**C Declaration** `tibems_status tibemsConnectionFactory_GetSSLProxyPort(  
tibemsConnectionFactory factory,  
tibems_int* proxy_port);`

**COBOL Call** `CALL "tibemsConnectionFactory_GetSSLProxyPort"  
USING BY VALUE factory,  
BY REFERENCE proxy-port,  
RETURNING tibems-status  
END-CALL.`



factory has usage pointer.

**Parameters**

Parameter	Description
factory	Get the SSL proxy port number from this connection factory.
proxy_port	The function stores the proxy port in this location.

**See Also** [tibemsConnectionFactory\\_SetSSLProxy](#) on page 280

## tibemsConnectionFactory\_GetSSLProxyUser

### Function

**Purpose** Get the SSL proxy username from a connection factory.

**C Declaration** `tibems_status tibemsConnectionFactory_GetSSLProxyUser(  
tibemsConnectionFactory factory,  
const char** proxy_user);`

**COBOL Call** `CALL "tibemsConnectionFactory_GetSSLProxyUser"  
USING BY VALUE factory,  
BY REFERENCE proxy-user,  
RETURNING tibems-status  
END-CALL.`



factory and proxy-user have usage pointer.

### Parameters

Parameter	Description
factory	Get the SSL proxy username from this connection factory.
proxy_user	The function stores the proxy user name in this location.

**See Also** [tibemsConnectionFactory\\_SetSSLProxyAuth on page 281](#)

# tibemsConnectionFactory\_GetSSLProxyPassword

Function

**Purpose** Get the SSL proxy password from a connection factory.

**C Declaration** `tibems_status tibemsConnectionFactory_GetSSLProxyPassword(  
tibemsConnectionFactory factory,  
const char** proxy_password);`

**COBOL Call** `CALL "tibemsConnectionFactory_GetSSLProxyPassword"  
USING BY VALUE factory,  
BY REFERENCE proxy-password,  
RETURNING tibems-status  
END-CALL.`



factory and proxy-password have usage pointer.

**Parameters**

Parameter	Description
factory	Get the SSL proxy password from this connection factory.
proxy_password	The function stores the proxy password in this location.

**See Also** [tibemsConnectionFactory\\_SetSSLProxyAuth on page 281](#)



# tibemsConnectionFactory\_Print

Function

**Purpose** Print the parameters set in a connection factory object.

**C Declaration** `tibems_status tibemsConnectionFactory_Print(  
tibemsConnectionFactory factory);`

**COBOL Call** `CALL "tibemsConnectionFactory_Print"  
USING BY VALUE factory,  
RETURNING tibems-status  
END-CALL.`



factory has usage pointer.

**Parameters**

Parameter	Description
factory	Print the parameters set in this connection factory.

**See Also** [tibemsConnectionFactory\\_PrintToBuffer on page 266](#)

# tibemsConnectionFactory\_PrintToBuffer

Function

**Purpose** Print the parameters set in a connection factory object to a buffer.

**C Declaration** `extern tibems_status tibemsConnectionFactory_PrintToBuffer(  
tibemsConnectionFactory factory,  
char* buffer,  
tibems_int maxlen);`

**COBOL Call** `CALL "tibemsConnectionFactory_PrintToBuffer"  
USING BY VALUE factory,  
BY REFERENCE buffer,  
BY VALUE maxlen  
RETURNING tibems-status  
END-CALL.`



factory has usage pointer.

**Parameters**

Parameter	Description
factory	Print the parameters set in this connection factory.
buffer	Location to store the string representation of the connection factory.
maxlen	The size of the buffer.

**See Also** [tibemsConnectionFactory\\_Print on page 265](#)

## tibemsConnectionFactory\_SetClientID

Function

**Purpose** Set the client ID of a connection factory object.

**C Declaration** `tibems_status tibemsConnectionFactory_SetClientID(  
tibemsConnectionFactory factory,  
const char* cid );`

**COBOL Call** `CALL "tibemsConnectionFactory_SetClientID"  
USING BY VALUE factory,  
BY REFERENCE cid,  
RETURNING tibems-status  
END-CALL.`



factory has usage pointer.

### Parameters

Parameter	Description
factory	Set the client ID of this connection factory.
type	Set the ID to this string.

**Remarks** A client ID string lets the server associate a client-specific factory with each client program. When such a factory already exists, the server supplies that factory to the client. If a factory does not yet exist for the client, the server creates one, and stores it for future use by that specific client.

# tibemsConnectionFactory\_SetConnectAttemptCount

Function

**Purpose** Modify the connection attempts setting.

**C Declaration** `tibems_status tibemsConnectionFactory_SetConnectAttemptCount(  
tibemsConnectionFactory factory,  
tibems_int connAttempts );`

**COBOL Call** `CALL "tibemsConnectionFactory_SetConnectAttemptCount"  
USING BY VALUE factory,  
BY VALUE connAttempts,  
RETURNING tibems-status  
END-CALL.`



factory has usage pointer.

Parameters

Parameter	Description
factory	Set the connection attempts parameter of this connection factory.
connAttempts	This value limits the number of times that a connection object attempts to establish a connection to the server. The minimum value is 1.  When this property is not set, the default value is 2.

**See Also** [tibemsConnectionFactory\\_SetConnectAttemptDelay on page 269](#)  
[tibemsConnectionFactory\\_SetConnectAttemptTimeout on page 270](#)  
[Setting Connection Attempts, Timeout and Delay Parameters](#) in the *TIBCO Enterprise Message Service User's Guide*

# tibemsConnectionFactory\_SetConnectAttemptDelay

Function

**Purpose** Modify the connection delay setting.

**C Declaration** `tibems_status tibemsConnectionFactory_SetConnectAttemptDelay(  
tibemsConnectionFactory factory,  
tibems_int delay );`

**COBOL Call** `CALL "tibemsConnectionFactory_SetConnectAttemptDelay"  
USING BY VALUE factory,  
BY VALUE delay,  
RETURNING tibems-status  
END-CALL.`



factory has usage pointer.

Parameters

Parameter	Description
factory	Set the connection delay parameter of this connection factory.
delay	This value determines the time (in milliseconds) between connection attempts. The minimum value is 250.  When this property is not set, the default value is 500.

**See Also** [tibemsConnectionFactory\\_SetConnectAttemptCount on page 268](#)  
[tibemsConnectionFactory\\_SetConnectAttemptTimeout on page 270](#)  
[Setting Connection Attempts, Timeout and Delay Parameters](#) in the *TIBCO Enterprise Message Service User's Guide*

# tibemsConnectionFactory\_SetConnectAttemptTimeout

Function

**Purpose** Modify the connection timeout setting.

**C Declaration** `tibems_status tibemsConnectionFactory_SetConnectAttemptTimeout(  
tibemsConnectionFactory factory,  
tibems_int timeout );`

**COBOL Call** `CALL "tibemsConnectionFactory_SetConnectAttemptTimeout"  
USING BY VALUE factory,  
BY VALUE timeout,  
RETURNING tibems-status  
END-CALL.`



factory has usage pointer.

Parameters

Parameter	Description
factory	Set the connection timeout parameter of this connection factory.
timeout	<p>This value determines the maximum time (in milliseconds) the client will wait for a connection to the server to be established.</p> <p>The minimum permitted timeout is 100 milliseconds. However, under stress conditions, this minimum may be too low to enable reliable connection creation. In such cases, a value of greater than 1000 is suggested. Zero is a special value, which specifies no timeout.</p> <p>When this property is not set, the default value is 0.</p>

**See Also** [tibemsConnectionFactory\\_SetConnectAttemptCount](#) on page 268  
[tibemsConnectionFactory\\_SetConnectAttemptDelay](#) on page 269  
[Setting Connection Attempts, Timeout and Delay Parameters](#) in the *TIBCO Enterprise Message Service User's Guide*

# tibemsConnectionFactory\_SetMetric

Function

**Purpose** Modify the load balancing metric.

**C Declaration** `tibems_status tibemsConnectionFactory_SetMetric(  
tibemsConnectionFactory factory,  
tibemsFactoryLoadBalanceMetric metric );`

**COBOL Call** `CALL "tibemsConnectionFactory_SetMetric"  
USING BY VALUE factory,  
BY VALUE metric,  
RETURNING tibems-status  
END-CALL.`



factory has usage pointer.

Parameters

Parameter	Description
factory	Set the load balancing metric of this connection factory.
metric	Use this metric.

**Remarks** When the connection factory balances the client load among several servers, it uses this metric to determine the least loaded server, so the connection factory can create a connection to it. For values, see [tibemsFactoryLoadBalanceMetric on page 284](#).

# tibemsConnectionFactory\_SetMulticastDaemon

Function

**Purpose** Sets the port on which the client will connect to the multicast daemon.

**C Declaration** `tibems_status tibemsConnectionFactory_SetMulticastDaemon(tibemsConnectionFactory factory, const char* multicastDaemon);`

Parameters	Parameter	Description
	factory	Set the multicast daemon for this connection factory.
	multicastDaemon	The port number for the multicast daemon that connections created using this factory will connect to.

**Remarks** A connection to the multicast daemon is required when multicast is enabled and a consumer is subscribed to a multicast-enabled topic. Setting the port with this method will override the default port supplied by the server.

**See Also** [tibemsConnectionFactory\\_SetMulticastEnabled on page 273](#)  
[tibems\\_SetMulticastDaemon on page 401](#)



# tibemsConnectionFactory\_SetMulticastEnabled

Function

**Purpose** Set whether message consumers subscribed to multicast-enabled topics will receive messages over multicast.

**C Declaration** `tibems_status tibemsConnectionFactory_SetMulticastEnabled(  
tibemsConnectionFactory factory,  
tibems_bool multicastEnabled);`

Parameters	Parameter	Description
	factory	Enable or disable multicast capabilities for connections created by this factory
	multicastEnabled	When true, multicast is enabled. When false, multicast is disabled.

**Remarks** When enabled, message consumers using a connection created by this factory, and which are subscribed to a multicast-enabled topic will receive messages over multicast. The default is enabled.

**See Also** [tibemsConnectionFactory\\_SetMulticastDaemon on page 272](#)  
[tibems\\_SetMulticastEnabled on page 402](#)  
[multicast](#) and [multicast\\_daemon\\_default](#) server parameters in the *TIBCO Enterprise Message Service User's Guide*

# tibemsConnectionFactory\_SetPkPassword

Function

**Purpose** Set the SSL private key password for the connection factory.

**C Declaration** extern `tibems_status` tibemsConnectionFactory\_SetPkPassword(  
tibemsConnectionFactory factory,  
const char\* pk\_password);

**COBOL Call** CALL "tibemsConnectionFactory\_SetPkPassword"  
USING BY VALUE factory,  
BY REFERENCE pk\_password,  
RETURNING tibems-status  
END-CALL.



factory has usage pointer.

**Parameters**

Parameter	Description
factory	Set the SSL password for this connection factory.
pk_password	Connections created by the connection factory decode their SSL private key using this password when establishing SSL communication.

**Remarks** It is an error to call this function on a connection factory for which an `tibemsSSLParams` struct is not yet set.

Notice that this SSL private key encryption password is distinct from the server authentication password, and from the proxy authentication password.

**See Also** [tibemsSSLParams on page 231](#)  
[tibemsConnectionFactory\\_SetSSLParams on page 279](#)

# tibemsConnectionFactory\_SetReconnectAttemptCount

Function

**Purpose** Modify the reconnection attempts setting.

**C Declaration** `tibems_status tibemsConnectionFactory_SetReconnectAttemptCount(  
tibemsConnectionFactory factory,  
tibems_int connAttempts );`

**COBOL Call** `CALL "tibemsConnectionFactory_SetReconnectAttemptCount"  
USING BY VALUE factory,  
BY VALUE connAttempts,  
RETURNING tibems-status  
END-CALL.`



factory has usage pointer.

Parameters

Parameter	Description
factory	Set the reconnection attempts parameter of this connection factory.
connAttempts	This value limits the number of times that a connection object attempts to reestablish a connection to the server. The minimum value is 1.  When this property is not set, the default value is 4.

**See Also** [tibemsConnectionFactory\\_SetReconnectAttemptDelay on page 276](#)  
[tibemsConnectionFactory\\_SetReconnectAttemptTimeout on page 277](#)

[Setting Reconnection Failure Parameters](#) in the *TIBCO Enterprise Message Service User's Guide*.

# tibemsConnectionFactory\_SetReconnectAttemptDelay

Function

**Purpose** Modify the reconnection delay setting.

**C Declaration** `tibems_status tibemsConnectionFactory_SetReconnectAttemptDelay(  
tibemsConnectionFactory factory,  
tibems_int delay );`

**COBOL Call** `CALL "tibemsConnectionFactory_SetReconnectAttemptDelay"  
USING BY VALUE factory,  
BY VALUE delay,  
RETURNING tibems-status  
END-CALL.`



factory has usage pointer.

**Parameters**

Parameter	Description
factory	Set the reconnection delay parameter of this connection factory.
delay	This value determines the time (in milliseconds) between reconnection attempts. The minimum value is 250.  When this property is not set, the default value is 500.

**See Also** [tibemsConnectionFactory\\_SetReconnectAttemptCount on page 275](#)  
[tibemsConnectionFactory\\_SetReconnectAttemptTimeout on page 277](#)

[Setting Reconnection Failure Parameters](#) in the *TIBCO Enterprise Message Service User's Guide*.

# tibemsConnectionFactory\_SetReconnectAttemptTimeout

Function

**Purpose** Modify the reconnection timeout setting.

**C Declaration** `tibems_status tibemsConnectionFactory_SetReconnectAttemptTimeout(  
tibemsConnectionFactory factory,  
tibems_int timeout );`

**COBOL Call** `CALL "tibemsConnectionFactory_SetReconnectAttemptTimeout"  
USING BY VALUE factory,  
BY VALUE timeout,  
RETURNING tibems-status  
END-CALL.`



factory has usage pointer.

**Parameters**

Parameter	Description
factory	Set the reconnection timeout parameter of this connection factory.
timeout	This value determines the maximum time (in milliseconds) a client will wait for the reconnection to be established. Zero is a special value, which specifies no timeout.  When this property is not set, the default value is 0.

**See Also** [tibemsConnectionFactory\\_SetReconnectAttemptCount on page 275](#)  
[tibemsConnectionFactory\\_SetReconnectAttemptDelay on page 276](#)

[Setting Reconnection Failure Parameters](#) in the *TIBCO Enterprise Message Service User's Guide*.

# tibemsConnectionFactory\_SetServerURL

Function

**Purpose** Set the server URL.

**C Declaration** `tibems_status tibemsConnectionFactory_SetServerURL(  
tibemsConnectionFactory factory,  
const char* url );`

**COBOL Call** `CALL "tibemsConnectionFactory_SetServerURL"  
USING BY VALUE factory,  
BY REFERENCE url,  
RETURNING tibems-status  
END-CALL.`



factory has usage pointer.

**Parameters**

Parameter	Description
factory	Set the server URL of this connection factory.
url	The factory object contacts the EMS server at this URL, to access a corresponding factory defined by the administrator.

**Reconnect and Fault Tolerance**

To enable reconnection behavior and fault tolerance, the connection factory’s server URL parameter must be a comma-separated list of two or more URLs. To enable client reconnection in a situation with only one server, you may supply two copies of that server’s URL (for example, `tcp://localhost:7222,tcp://localhost:7222`).

Note that `tibemsConnectionFactory_SetServerURL` can be used to set the server URL for a connection factory only once. If the URL has previously been set for the connection factory, `tibemsConnectionFactory_SetServerURL` returns the status code `TIBEMS_EXCEPTION`.

When specifying an IPv6 address, use square brackets around the address specification. For example, `tcp://[2001:cafe::107]:7222`.

# tibemsConnectionFactory\_SetSSLParams

Function

**Purpose** Set a connection factory’s default SSL parameters.

**C Declaration** `tibems_status tibemsConnectionFactory_SetSSLParams(  
tibemsConnectionFactory factory,  
tibemsSSLParams sslparams );`

**COBOL Call** `CALL "tibemsConnectionFactory_SetSSLParams"  
USING BY VALUE factory,  
BY VALUE sslparams,  
RETURNING tibems-status  
END-CALL.`



factory and sslparams have usage pointer.

**Parameters**

Parameter	Description
factory	Set the default SSL parameters of this connection factory.
sslParams	The connection establishes SSL communication using these parameters.

**See Also** [tibemsSSLParams on page 231](#)  
[tibemsConnectionFactory\\_CreateConnection on page 258](#)

# tibemsConnectionFactory\_SetSSLProxy

Function

**Purpose** Set a connection factory’s parameters for connecting through an SSL proxy.

**C Declaration** `tibems_status tibemsConnectionFactory_SetSSLProxy(  
tibemsConnectionFactory factory,  
const char* proxy_host,  
tibems_int proxy_port);`

**COBOL Call** `CALL "tibemsConnectionFactory_SetSSLProxy"  
USING BY VALUE factory,  
BY REFERENCE proxy-host,  
BY VALUE proxy-port,  
RETURNING tibems-status  
END-CALL.`



factory has usage pointer.

**Parameters**

Parameter	Description
factory	Set the SSL proxy host and port on this connection factory.
proxy_host	The connection factory establishes SSL communication through a web proxy at this host. Supply a simple hostname, a fully qualified hostname with domain name, or an IP address (dot notation).
proxy_port	The connection factory establishes SSL communication through a web proxy on this port.

**Remarks** An SSL proxy lets an EMS application create an SSL connection to an EMS server, even though a firewall separates the application from the server. The proxy usually runs within the firewall’s DMZ.

A connection factory contacts the SSL proxy, requesting an SSL connection to the server. The proxy authenticates the application program, and mediates the initial SSL negotiation between application and server. After the SSL connection is established, the application and server use it to communicate directly with one another.

**See Also** [tibemsConnectionFactory\\_GetSSLProxyHost on page 261](#)  
[tibemsConnectionFactory\\_GetSSLProxyPort on page 262](#)  
[tibemsConnectionFactory\\_SetSSLProxyAuth on page 281](#)




# tibemsConnectionFactory\_SetSSLProxyAuth

Function

**Purpose** Set a connection factory’s username and password for connecting through an SSL proxy.

**C Declaration** `tibems_status  
tibemsConnectionFactory_SetSSLProxyAuth(  
 tibemsConnectionFactory factory,  
 const char* proxy_user,  
 const char* proxy_password);`

**COBOL Call** `CALL "tibemsConnectionFactory_SetSSLProxy"  
 USING BY VALUE factory,  
 BY REFERENCE proxy-user,  
 BY REFERENCE proxy-password,  
 RETURNING tibems-status  
END-CALL.`



factory has usage pointer.

Parameters

Parameter	Description
factory	Set the username and password on this connection factory.
proxy_user	The connection factory authenticates itself to the SSL proxy using this username.
proxy_password	The connection factory authenticates itself to the SSL proxy using this password.

**Remarks** When a connection factory establishes an EMS server connection through an SSL proxy host, the proxy might first require authentication before facilitating a connection. When required, use this call to set that authentication data on the connection factory. Notice that this proxy authentication data is distinct from the server authentication data, and from the SSL private key encryption password.

**See Also** [tibemsConnectionFactory\\_GetSSLProxyUser on page 263](#)  
[tibemsConnectionFactory\\_GetSSLProxyPassword on page 264](#)  
[tibemsConnectionFactory\\_SetSSLProxy on page 280](#)

# tibemsConnectionFactory\_SetUserName

Function

**Purpose** Set a connection factory’s username.

**C Declaration** `tibems_status  
tibemsConnectionFactory_SetUserName(  
tibemsConnectionFactory factory,  
const char* username);`

**COBOL Call** `CALL "tibemsConnectionFactory_SetUserName"  
USING BY VALUE factory,  
BY REFERENCE username,  
RETURNING tibems-status  
END-CALL.`



factory has usage pointer.

**Parameters**

Parameter	Description
factory	Set the username on this connection factory.
username	The connection factory identifies itself using this username.

**Remarks** When a connection factory establishes an EMS server connection, the EMS server requests identification. Use this call to set the username that the connection factory uses to identify itself to the EMS server. Notice that this server authentication data is different from SSL authentication data.

**See Also** [tibemsConnectionFactory\\_SetUserPassword on page 283](#)

# tibemsConnectionFactory\_SetUserPassword

Function

**Purpose** Set the password used by the connection factory to authenticate itself with the EMS Server.

**C Declaration** `tibems_status  
tibemsConnectionFactory_SetUserPassword(  
 tibemsConnectionFactory factory,  
 const char* password);`

**COBOL Call** `CALL "tibemsConnectionFactory_SetUserPassword"  
 USING BY VALUE factory,  
 BY REFERENCE password,  
 RETURNING tibems-status  
END-CALL.`



factory has usage pointer.

Parameters

Parameter	Description
factory	Set the password on this connection factory.
password	The connection factory authenticates itself using this password.

**Remarks** When a connection factory establishes an EMS server connection, the EMS server requests authentication. Use this call to set the password that the connection factory uses to authenticate itself with the EMS server. Notice that this server authentication data is different from SSL authentication data.

**See Also** [tibemsConnectionFactory\\_SetUserName on page 282](#)

# tibemsFactoryLoadBalanceMetric

Type

- Purpose** Define enumerated load balancing constants.
- Remarks** When a connection factory balances the client load among several servers, it uses this metric to determine the least loaded server, so the connection factory can create a connection to it.

Constant	Description
TIBEMS_FACTORY_LOAD_BALANCE_METRIC_NONE	Indicates absence of any load balancing metric.
TIBEMS_FACTORY_LOAD_BALANCE_METRIC_CONNECTIONS	The connection factory balances the connection load among several servers by creating a connection to the server with the fewest number of connections.
TIBEMS_FACTORY_LOAD_BALANCE_METRIC_BYTE_RATE	The connection factory balances the connection load among several servers by creating a connection to the server with the lowest total byte rate (input and output).

```
COBOL      * NOTE:  LBM is an acronym for LOAD-BALANCE-METRIC
           01  TIBEMS-FACTORY-LBM-TYPES.
              05  tibemsFactoryLoadBalanceMetric      PIC S9(8) BINARY.
                  88  TIBEMS-FACTORY-LBM-NONE          VALUE      0.
                  88  TIBEMS-FACTORY-LBM-CONNECTIONS   VALUE      1.
                  88  TIBEMS-FACTORY-LBM-BYTE-RATE     VALUE      2.
```

**See Also**    [tibemsConnectionFactory on page 254](#)  
              [tibemsConnectionFactory\\_SetMetric on page 271](#)

## Chapter 9      **Session**

A session is a single-threaded context for producing and consuming messages.

### Topics

---

- [tibemsSession](#), page 286
- [tibemsAcknowledgeMode](#), page 312

# tibemsSession

Type

Purpose	Organizing context for message activity.
Remarks	<div>Sessions combine several roles:<ul style="list-style-type: none"><li>• Create message producers and consumers</li><li>• Create message objects</li><li>• Create temporary destinations</li><li>• Create dynamic destinations</li><li>• Create queue browsers</li><li>• Serialize for inbound and outbound messages</li><li>• Serialize for asynchronous message events (or message listeners) of its consumer objects</li><li>• Cache inbound messages (until the program acknowledges them).</li><li>• Transaction support (when enabled).</li></ul></div>
Single Thread	The JMS specification restricts programs to use each session within a single thread.
Associated Objects	The same single-thread restriction applies to objects associated with a session—namely, messages, message consumers, durable subscribers, message producers, queue browsers, and temporary destinations (however, static and dynamic destinations are exempt from this restriction).
Corollary	One consequence of this rule is that all the consumers of a session must deliver messages in the same mode—either synchronously or asynchronously.
Asynchronous	In asynchronous delivery, the program registers message handler events or message listeners with the session’s consumer objects. An internal dispatcher thread delivers messages to those event handlers or listeners (in all the session’s consumer objects). No other thread may use the session (nor objects created by the session).
Synchronous	In synchronous delivery, the program explicitly begins a thread for the session. That thread processes inbound messages and produces outbound messages, serializing this activity among the session’s producers and consumers. Functions that request the next message (such as <code>tibemsMsgConsumer_Receive</code> ) can organize the thread’s activity.

**Close** The only exception to the rule restricting session calls to a single thread is the function `tibemsSession_Close`; programs can call `Close` from any thread at any time.

**Transactions** A session has either transaction or non-transaction semantics. When a program specifies transaction semantics, the session object cooperates with the server, and all messages that flow through the session become part of a transaction.

- When the program calls `tibemsSession_Commit`, the session acknowledges all inbound messages in the current transaction, and the server delivers all outbound messages in the current transaction to their destinations.
- If the program calls `tibemsSession_Rollback`, the session recovers all inbound messages in the current transaction (so the program can consume them in a new transaction), and the server destroys all outbound messages in the current transaction.

After these actions, both `Commit` and `Rollback` immediately begin a new transaction.


Function	Description	Page
<b>Messages</b>		
<code>tibemsSession_CreateBytesMessage</code>	Create a byte array message.	292
<code>tibemsSession_CreateMapMessage</code>	Create a map message.	298
<code>tibemsSession_CreateStreamMessage</code>	Create a stream message.	301
<code>tibemsSession_CreateTextMessage</code>	Create a text message.	304
<b>Destinations</b>		
<code>tibemsSession_CreateBrowser</code>	Create a queue browser.	291
<code>tibemsSession_CreateTemporaryQueue</code>	Create a temporary queue.	302
<code>tibemsSession_CreateTemporaryTopic</code>	Create a temporary topic.	303
<b>Consumers &amp; Producers</b>		
<code>tibemsSession_CreateConsumer</code>	Create a message consumer.	293
<code>tibemsSession_CreateDurableSubscriber</code>	Create a durable topic subscriber.	295
<code>tibemsSession_CreateProducer</code>	Create a message producer.	300

Function	Description	Page
<code>tibemsSession_Unsubscribe</code>	Unsubscribe a durable topic subscription.	311
Transactions		
<code>tibemsSession_Commit</code>	Commit the open transaction.	290
<code>tibemsSession_Rollback</code>	Roll back messages in the current transaction.	310
Other		
<code>tibemsSession_Close</code>	Close a session; reclaim resources.	289
<code>tibemsSession_Recover</code>	Recover from undetermined state during message processing.	309



# tibemsSession\_Close

Function

Purpose	Close a session; reclaim resources.
C Declaration	<code>tibems_status tibemsSession_Close( tibemsSession session );</code>
COBOL Call	<code>CALL "tibemsSession_Close" USING BY VALUE session, RETURNING tibems-status END-CALL.</code>
	session has usage pointer.
Remarks	Closing a session automatically closes its consumers (except for durable subscribers), producers and browsers.
Blocking	If any message listener or receive call associated with the session is processing a message when the program calls this function, all facilities of the connection and its sessions remain available to those listeners until they return. In the meantime, this function blocks until that processing completes—that is, until all message listeners and receive calls have returned.
Transactions	Closing a session rolls back the open transaction in the session.

# tibemsSession\_Commit


Function

- Purpose

Commit the open transaction.
- C Declaration

`tibems_status tibemsSession_Commit(  
tibemsSession session );`
- COBOL Call

`CALL "tibemsSession_Commit"  
USING BY VALUE session,  
RETURNING tibems-status  
END-CALL.`



session has usage pointer.

Remarks

A session (with transaction semantics) always has exactly one open transaction. Message operations associated with the session become part of that transaction. This call commits all the messages within the transaction, and releases any locks. Then it opens a new transaction.

Status Code	Description
TIBEMS_OK	Successful commit.
TIBEMS_ILLEGAL_STATE	The session does not have transaction semantics.
TIBEMS_SECURITY_EXCEPTION	The client lacks permission to send one of messages in the transaction.
TIBEMS_TRANSACTION_FAILED	Commit failed and the server automatically rolled back the transaction.
TIBEMS_TRANSACTION_ROLLBACK	

## tibemsSession\_CreateBrowser

Function

**Purpose** Create a queue browser.

**C Declaration**

```
tibems_status tibemsSession_CreateBrowser(
    tibemsSession session,
    tibemsQueueBrowser* browser,
    tibemsQueue queue,
    const char* messageSelector );
```

**COBOL Call**

```
CALL "tibemsSession_CreateBrowser"
    USING BY VALUE session,
          BY REFERENCE browser,
          BY VALUE queue,
          BY REFERENCE messageSelector,
          RETURNING tibems-status
END-CALL.
```



session, browser and queue have usage pointer.

### Parameters

Parameter	Description
session	Create a browser in this session.
browser	The function stores the new browser object in this location.
queue	Browse this queue.
messageSelector	When non-null, the browser presents only messages that match this selector; see <a href="#">Message Selectors on page 17</a> .  When null, or the empty string, the browser views all messages in the queue.

**See Also** [tibemsQueue on page 150](#)  
[tibemsQueueBrowser on page 316](#)

# tibemsSession\_CreateBytesMessage

Function

**Purpose** Create a byte array message.

**C Declaration** `tibems_status tibemsSession_CreateBytesMessage(  
tibemsSession session,  
tibemsBytesMsg* bytesMsg );`

**COBOL Call** `CALL "tibemsSession_CreateBytesMessage"  
USING BY VALUE session,  
BY REFERENCE bytesMsg,  
RETURNING tibems-status  
END-CALL.`



session and bytesMsg have usage pointer.

**Parameters**

Parameter	Description
session	Create the message in this session.
bytesMsg	The function stores the new message object in this location.

**See Also** [tibemsBytesMsg on page 73](#)

## tibemsSession\_CreateConsumer

### Function

**Purpose** Create a message consumer.

**C Declaration**

```
tibems_status tibemsSession_CreateConsumer(
    tibemsSession session,
    tibemsMsgConsumer* consumer,
    tibemsDestination destination,
    const char* messageSelector,
    tibems_bool noLocal );
```

**COBOL Call**

```
CALL "tibemsSession_CreateConsumer"
    USING BY VALUE session,
          BY REFERENCE consumer,
          BY VALUE destination,
          BY REFERENCE messageSelector,
          BY VALUE noLocal,
          RETURNING tibems-status
END-CALL.
```



session, consumer and destination have usage pointer.

### Parameters

Parameter	Description
session	Create the consumer in this session.
consumer	The function stores the new consumer object in this location.
destination	Create a consumer for this destination. The argument may be any destination (queue or topic).
messageSelector	When non-null, the server filters messages using this selector, so the consumer receives only matching messages; see <a href="#">Message Selectors on page 17</a> .  When null, or the empty string, the consumer receives messages without filtering.
noLocal	When true, the server filters messages so the consumer does not receive messages that originate locally—that is, messages sent through the same connection.  When false, the consumer receives messages with local origin.

**See Also**    [tibemsDestination on page 144](#)  
                  [tibemsMsgConsumer on page 162](#)

# tibemsSession\_CreateDurableSubscriber

Function

**Purpose** Create a durable topic subscriber.

**C Declaration**

```
tibems_status tibemsSession_CreateDurableSubscriber(  
    tibemsSession session,  
    tibemsMsgConsumer* msgConsumer,  
    tibemsTopic topic,  
    const char* name,  
    const char* messageSelector,  
    tibems_bool noLocal );
```

**COBOL Call**

```
CALL "tibemsSession_CreateDurableSubscriber"  
  USING BY VALUE session,  
        BY REFERENCE msgConsumer,  
        BY VALUE topic,  
        BY REFERENCE name,  
        BY REFERENCE messageSelector,  
        BY VALUE noLocal,  
        RETURNING tibems-status  
END-CALL.
```



session, msgConsumer, and topic have usage pointer.

**Parameters**

Parameter	Description
session	Create the topic subscriber in this session.
msgConsumer	The function stores the new message consumer object in this location. Note that the message consumer must be a topic subscriber.
topic	Create a durable subscriber for this topic (which <i>cannot</i> be a <a href="#">tibemsTemporaryTopic</a> ).
name	This unique name lets the server associate the subscriber with a subscription.
messageSelector	When non-null, the server filters messages using this selector, so the subscriber receives only matching messages; see <a href="#">Message Selectors on page 17</a> .  When null, or the empty string, the subscriber receives messages without filtering.

Parameter	Description
<code>noLocal</code>	<p>When <code>true</code>, the server filters messages so the subscriber does not receive messages that originate locally—that is, messages sent through the same connection.</p> <p>When <code>false</code>, the consumer receives messages with local origin.</p>

**Remarks** The server associates a durable subscription with at most one subscriber object at a time. When a subscriber object exists, the subscription is *active*, and the server delivers messages to it; when no subscriber object exists, the subscription is *inactive*.

Durable subscriptions guarantee message delivery across periods during which the subscriber is inactive. The server retains unacknowledged messages until the subscriber acknowledges them, or until the messages expire.

**Subscription Continuity** Continuity across inactive periods uses two data items from the client:

- **Subscription Name** a parameter of this call
- **Client ID** an optional property of the `tibemsConnection` (used only when supplied)

The server uses one or both of these two items to match a subscriber object with its subscription. If a matching subscription exists, and it is inactive, then the server associates it with the subscriber (and the subscription becomes active). The server delivers unacknowledged messages to the subscriber.

If a matching subscription exists, but it is already active, this function fails with `TIBEMS_INVALID_CONSUMER`.

If a matching subscription to the topic does not yet exist, the server creates one.

**Matching Client ID**

- If the `tibemsConnection`'s client ID is non-null when a session creates a durable subscription, then only sessions of a connection with the same client ID can attach to that subscription.
- If the `tibemsConnection`'s client ID is null when a session creates a durable subscription, then any session can attach to that subscription (to receive its messages).



**Changing Topic  
or Selector**

Notice that the server does *not* use the topic and message selector arguments to match a subscriber to an existing subscription. As a result, client programs can *change* a subscription by altering either or both of these arguments. The effect is equivalent to deleting the existing subscription (from the server) and creating a new one (albeit with the same client ID and subscription name).

**See Also**

[tibemsTopic on page 156](#)  
[tibemsMsgConsumer on page 162](#)  
[tibemsConnection on page 202](#)

# tibemsSession\_CreateMapMessage

Function

- Purpose**
- Create a map message.
- C Declaration**
- `tibems_status tibemsSession_CreateMapMessage(  
tibemsSession session,  
tibemsMapMsg* mapMsg );`
- COBOL Call**
- `CALL "tibemsSession_CreateMapMessage"  
USING BY VALUE session,  
BY REFERENCE mapMsg,  
RETURNING tibems-status  
END-CALL.`



session and mapMsg have usage pointer.

Parameters

Parameter	Description
session	Create the message in this session.
mapMsg	The function stores the new message object in this location.

- Remarks**
- The JMS specification requires this call. It is equivalent to [tibemsMapMsg\\_Create on page 90](#).
- See Also**
- [tibemsMapMsg on page 89](#)

# tibemsSession\_CreateMessage

Function

**Purpose** Create a message.

**C Declaration** `tibems_status tibemsSession_CreateMessage(  
tibemsSession session,  
tibemsMsg* message );`

**COBOL Call** `CALL "tibemsSession_CreateMessage"  
USING BY VALUE session,  
BY REFERENCE message,  
RETURNING tibems-status  
END-CALL.`



session and message have usage pointer.

**Parameters**

Parameter	Description
session	Create the message in this session.
message	The function stores the new message object in this location.

**Remarks** The JMS specification requires this call. It is equivalent to [tibemsMsg\\_Create](#) on [page 28](#).

**See Also** [tibemsMsg](#) on [page 21](#)

# tibemsSession\_CreateProducer

Function

**Purpose** Create a message producer.

**C Declaration** `tibems_status tibemsSession_CreateProducer(  
tibemsSession session,  
tibemsMsgProducer* producer,  
tibemsDestination destination );`

**COBOL Call** `CALL "tibemsSession_CreateProducer"  
USING BY VALUE session,  
BY REFERENCE producer,  
BY VALUE destination,  
RETURNING tibems-status  
END-CALL.`



session, producer and destination have usage pointer.

**Parameters**

Parameter	Description
session	Create the producer in this session.
producer	The function stores the new producer object in this location.
destination	When non-null, the producer sends messages to this destination.  When null, the client program must specify the destination for each message individually.

**See Also** [tibemsDestination on page 144](#)  
[tibemsMsgProducer on page 174](#)

# tibemsSession\_CreateStreamMessage

Function

**Purpose** Create a stream message.

**C Declaration** `tibems_status tibemsSession_CreateStreamMessage(  
tibemsSession session,  
tibemsStreamMsg* streamMsg );`

**COBOL Call** `CALL "tibemsSession_CreateStreamMessage"  
USING BY VALUE session,  
BY REFERENCE streamMsg,  
RETURNING tibems-status  
END-CALL.`



session and streamMsg have usage pointer.

**Parameters**

Parameter	Description
session	Create the message in this session.
streamMsg	The function stores the new message object in this location.

**Remarks** The JMS specification requires this call. It is equivalent to [tibemsStreamMsg\\_Create on page 110](#).

**See Also** [tibemsStreamMsg on page 108](#)

# tibemsSession\_CreateTemporaryQueue

Function

**Purpose** Create a temporary queue.

**C Declaration** `tibems_status tibemsSession_CreateTemporaryQueue(  
tibemsSession session,  
tibemsTemporaryQueue* tmpQueue );`

**COBOL Call** `CALL "tibemsSession_CreateTemporaryQueue"  
USING BY VALUE session,  
BY REFERENCE tmpQueue,  
RETURNING tibems-status  
END-CALL.`



session and tmpQueue have usage pointer.

**Parameters**

Parameter	Description
session	Create the queue in this session.
tmpQueue	The function stores the new temporary queue object in this location.

**Remarks** A temporary queue lasts no longer than the connection. That is, when the connection is closed or broken, the server deletes temporary queues associated with the connection.

If the named queue already exists at the server, then this function returns that queue. (That queue can be either static or dynamic.)

If the named queue does not yet exist at the server, and the server allows dynamic queue, then this function creates a dynamic queue.

Dynamic destinations are provider-specific, so programs that use them might not be portable to other providers.

**See Also** [tibemsTemporaryQueue on page 154](#)

# tibemsSession\_CreateTemporaryTopic

Function

**Purpose** Create a temporary topic.

**C Declaration** `tibems_status tibemsSession_CreateTemporaryTopic(  
tibemsSession session,  
tibemsTemporaryTopic* tmpTopic );`

**COBOL Call** `CALL "tibemsSession_CreateTemporaryTopic"  
USING BY VALUE session,  
BY REFERENCE tmpTopic,  
RETURNING tibems-status  
END-CALL.`



session and tmpTopic have usage pointer.

**Parameters**

Parameter	Description
session	Create the topic in this session.
tmpTopic	The function stores the new temporary topic object in this location.

**Remarks** A temporary topic lasts no longer than the connection. That is, when the connection is closed or broken, the server deletes temporary topic associated with the connection.

If the named topic already exists at the server, then this function returns that topic. (That topic can be either static or dynamic.)

If the named topic does not yet exist at the server, and the server allows dynamic topics, then this function creates a dynamic topic.

Dynamic destinations are provider-specific, so programs that use them might not be portable to other providers.

**See Also** [tibemsTemporaryTopic on page 155](#)

# tibemsSession\_CreateTextMessage

Function

**Purpose** Create a text message.

**C Declaration**

```

tibems_status tibemsSession_CreateTextMessage(
    tibemsSession session,
    tibemsTextMsg* textMsg );

tibems_status tibemsSession_CreateTextMessageEx(
    tibemsSession session,
    tibemsTextMsg* textMsg
    const char* text );

```


**COBOL Call**

```

CALL "tibemsSession_CreateTextMessage"
    USING BY VALUE session,
          BY REFERENCE textMsg,
          RETURNING tibems-status
END-CALL.

CALL "tibemsSession_CreateTextMessageEx"
    USING BY VALUE session,
          BY REFERENCE textMsg,
          BY REFERENCE text,
          RETURNING tibems-status
END-CALL.

```


session and textMsg have usage pointer.

Parameters	Parameter	Description
	session	Create the message in this session.
	textMsg	The function stores the new message object in this location.
	text	Create a text message with this text as its body.

**Remarks** The JMS specification requires these calls. It is equivalent to [tibemsTextMsg\\_Create on page 124](#).

**See Also** [tibemsTextMsg on page 123](#)



## tibemsSession\_DeleteTemporaryQueue

Function

**Purpose** Delete a temporary queue.

**C Declaration** `tibems_status tibemsSession_DeleteTemporaryQueue(  
tibemsSession session,  
tibemsTemporaryQueue tmpQueue );`

**COBOL Call** `CALL "tibemsSession_DeleteTemporaryQueue"  
USING BY VALUE session,  
BY VALUE tmpQueue,  
RETURNING tibems-status  
END-CALL.`



session and tmpQueue have usage pointer.

**Parameters**

Parameter	Description
session	Delete a temporary queue from this session.
tmpQueue	Delete this temporary queue.

**Remarks** When a client deletes a temporary queue, the server deletes any unconsumed messages in the queue.

If the client still has listeners or receivers for the queue, then this delete call returns TIBEMS\_ILLEGAL\_STATE.

**See Also** [tibemsTemporaryQueue on page 154](#)

# tibemsSession\_DeleteTemporaryTopic

Function

**Purpose** Delete a temporary topic.

**C Declaration** `tibems_status tibemsSession_DeleteTemporaryTopic(  
tibemsSession session,  
tibemsTemporaryTopic tmpTopic );`

**COBOL Call** `CALL "tibemsSession_DeleteTemporaryTopic"  
USING BY VALUE session,  
BY VALUE tmpTopic,  
RETURNING tibems-status  
END-CALL.`



session and tmpTopic have usage pointer.

**Parameters**

Parameter	Description
session	Delete a temporary topic from this session.
tmpTopic	Delete this temporary topic.

**Remarks** When a client deletes a temporary topic, the server deletes any unconsumed messages in the topic.  
  
If the client still has listeners or receivers for the topic, then this delete call returns TIBEMS\_ILLEGAL\_STATE.

**See Also** [tibemsTemporaryTopic on page 155](#)

# tibemsSession\_GetAcknowledgeMode

Function

**Purpose** Get the acknowledge mode of a session.

**C Declaration** `tibems_status tibemsSession_GetAcknowledgeMode(  
tibemsSession session,  
tibemsAcknowledgeMode* acknowledgeMode );`

**COBOL Call** `CALL "tibemsSession_GetAcknowledgeMode"  
USING BY VALUE session,  
BY REFERENCE acknowledgeMode,  
RETURNING tibems-status  
END-CALL.`



session has usage pointer.

**Parameters**

Parameter	Description
session	Get the property from this session.
acknowledgeMode	The function stores the property value in this location.

**Remarks** This mode governs message acknowledgement and redelivery for consumers associated with the session. For values, see [tibemsAcknowledgeMode on page 312](#).  
  
This property is irrelevant when the session has transactional semantics.

# tibemsSession\_GetTransacted

Function

**Purpose** Get the transactional semantics property of a session.

**C Declaration** `tibems_status tibemsSession_GetTransacted(  
tibemsSession session,  
tibems_bool* isTransacted );`

**COBOL Call** `CALL "tibemsSession_GetTransacted"  
USING BY VALUE session,  
BY REFERENCE isTransacted,  
RETURNING tibems-status  
END-CALL.`



session has usage pointer.

**Parameters**

Parameter	Description
session	Get the property from this session.
isTransacted	The function stores the property value in this location.

**Remarks** When true, then the session has transaction semantics, and the session’s acknowledge mode is irrelevant.  
When false, it has non-transaction semantics.

# tibemsSession\_Recover

Function

**Purpose** Recover from undetermined state during message processing.

**C Declaration** `tibems_status tibemsSession_Recover(  
tibemsSession session );`

**COBOL Call** `CALL "tibemsSession_Recover"  
USING BY VALUE session,  
RETURNING tibems-status  
END-CALL.`



session has usage pointer.

**Parameters**

Parameter	Description
session	Recover this session.

**Remarks** Exceptions during message processing can sometimes leave a program in an ambiguous state. For example, some messages might be partially processed. This function lets a program return to an unambiguous state—the point within the message stream when the program last acknowledged the receipt of inbound messages. Programs can then review the messages delivered since that point (they are marked as *redelivered*), and resolve ambiguities about message processing. Programs can also use this function to resolve similar ambiguities after a [tibemsConnection](#) stops delivering messages, and then starts again.

**Operation** This function requests that the server do this sequence of actions:

1. Stop message delivery within the session.
2. Mark as *redelivered*, any messages that the server has attempted to deliver to the session, but for which it has not received acknowledgement (that is, messages for which processing state is ambiguous).  
  
According to the JMS specification, the server need not redeliver messages in the same order as it first delivered them.
3. Restart message delivery (including messages marked as *redelivered* in step 2).

**Transactions** Commit and rollback are more appropriate with transactions. When a session has transactional semantics, this call is illegal, and returns [TIBEMS\\_INVALID\\_SESSION](#).

**See Also** [tibemsMsg\\_Recover](#) on page 57

# tibemsSession\_Rollback

Function

**Purpose** Roll back messages in the current transaction.

**C Declaration** `tibems_status tibemsSession_Rollback(  
tibemsSession session );`

**COBOL Call** `CALL "tibemsSession_Rollback"  
USING BY VALUE session,  
RETURNING tibems-status  
END-CALL.`



session has usage pointer.

**Parameters**

Parameter	Description
session	Rollback the messages in this session.

**Remarks** When a session does not have transactional semantics, this function returns `TIBEMS_ILLEGAL_STATE`.

Messages sent to a queue with `prefetch=none` and `maxRedelivery=number` properties are not received *number* times by an EMS application that receives in a loop and does an XA rollback after the XA prepare phase.

# tibemsSession\_Unsubscribe

Function

**Purpose** Unsubscribe a durable topic subscription.

**C Declaration** `tibems_status tibemsSession_Unsubscribe(  
tibemsSession session  
const char* name );`

**COBOL Call** `CALL "tibemsSession_Unsubscribe"  
USING BY VALUE session,  
BY REFERENCE name,  
RETURNING tibems-status  
END-CALL.`



session has usage pointer.

**Parameters**

Parameter	Description
session	Delete a subscription in this session.
name	This name lets the server locate the subscription.

**Remarks** This function deletes the subscription from the server.



You must unsubscribe *before* closing the session.

It is illegal to delete an active subscription—that is, while a `tibemsMsgConsumer` exists.

It is illegal to delete a subscription while one of its messages is either unacknowledged, or uncommitted (in the current transaction). Attempting to do so results in a status of `TIBEMS_EXCEPTION`.

**See Also** [tibemsMsgConsumer on page 162](#)  
[tibemsTopic on page 156](#)  
[tibemsSession\\_CreateDurableSubscriber on page 295](#)

# tibemsAcknowledgeMode

Type

**Purpose** Define acknowledgement mode constants.

Constant	Description
TIBEMS_AUTO_ACKNOWLEDGE	<p>In this mode, the session automatically acknowledges a message when message processing is finished—that is, when either of these calls returns successfully:</p> <ul style="list-style-type: none"><li>• synchronous receive calls (such as <a href="#">tibemsMsgConsumer_Receive on page 168</a>)</li><li>• asynchronous listener callback (namely, <a href="#">tibemsMsgCallback on page 172</a>)</li></ul>
TIBEMS_CLIENT_ACKNOWLEDGE	<p>In this mode, the client program acknowledges receipt by calling <a href="#">tibemsMsg_Acknowledge on page 24</a>. Each call acknowledges all messages received so far.</p>
TIBEMS_DUPS_OK_ACKNOWLEDGE	<p>As with <a href="#">TIBEMS_AUTO_ACKNOWLEDGE</a>, the session automatically acknowledges messages. However, it may do so lazily.</p> <p><i>Lazy</i> means that the provider client library can delay transferring the acknowledgement to the server until a convenient time; meanwhile the server might redeliver the message. Lazy acknowledgement can reduce session overhead.</p>



Constant	Description
TIBEMS_EXPLICIT_CLIENT_ACKNOWLEDGE	<p>As with <a href="#">TIBEMS_CLIENT_ACKNOWLEDGE</a>, the client program acknowledges receipt by calling <a href="#">tibemsMsg_Acknowledge</a> on <a href="#">page 24</a>. However, each call acknowledges <i>only</i> the individual message. The client may acknowledge messages in any order.</p> <p>This mode and behavior are proprietary extensions, specific to TIBCO EMS.</p>
TIBEMS_EXPLICIT_CLIENT_DUPS_OK_ACKNOWLEDGE	<p>In this mode, the client program lazily acknowledges <i>only</i> the individual message, by calling <a href="#">tibemsMsg_Acknowledge</a> on <a href="#">page 24</a>. The client may acknowledge messages in any order.</p> <p><i>Lazy</i> means that the provider client library can delay transferring the acknowledgement to the server until a convenient time; meanwhile the server might redeliver the message.</p> <p>This mode and behavior are proprietary extensions, specific to TIBCO EMS.</p>
TIBEMS_NO_ACKNOWLEDGE	<p>In TIBEMS_NO_ACKNOWLEDGE mode, messages do not require acknowledgement (which reduces message overhead). The server never redelivers messages.</p> <p>This mode and behavior are proprietary extensions, specific to TIBCO EMS.</p>

COBOL	01	TIBEMS-ACKNOWLEDGE-MODES.				
	05	TIBEMS-AUTO-ACKNOWLEDGE	PIC	S9(8)	COMP	VALUE 1.
	05	TIBEMS-CLIENT-ACKNOWLEDGE	PIC	S9(8)	COMP	VALUE 2.
	05	TIBEMS-DUPS-OK-ACKNOWLEDGE	PIC	S9(8)	COMP	VALUE 3.
	05	TIBEMS-NO-ACKNOWLEDGE	PIC	S9(8)	COMP	VALUE 22.
	05	TIBEMS-EXPLICIT-CL-ACK	PIC	S9(8)	COMP	VALUE 23.
	05	TIBEMS-EXPLICIT-CL-DUPS-OK-ACK	PIC	S9(8)	COMP	VALUE 24.



## Chapter 10 **Queue Browser**

Queue browsers let client programs examine the messages on a queue without removing them from the queue.

### Topics

---

- [tibemsQueueBrowser](#), page 316

# tibemsQueueBrowser

Type

- Purpose**
- View the messages in a queue without consuming them.
- Remarks**
- A browser is a dynamic enumerator of the queue (not a static snapshot). The queue is at the server, and its contents change as message arrive and consumers remove them. Meanwhile, while the browser is at the client. The function `tibemsQueueBrowser_GetNext` gets the next message from the server.

The browser can enumerate messages in a queue, or a subset filtered by a message selector.



Sessions serve as factories for queue browsers; see `tibemsSession_CreateBrowser` on page 291.

Function	Description	Page
<code>tibemsQueueBrowser_Close</code>	Close the browser; reclaim resources.	317
<code>tibemsQueueBrowser_GetNext</code>	Get the next message from the browser.	319
<code>tibemsQueueBrowser_GetMsgSelector</code>	Get the selector string for the browser.	318
<code>tibemsQueueBrowser_GetQueue</code>	Get the queue that the browser examines.	320

**See Also** `tibemsSession_CreateBrowser` on page 291

# tibemsQueueBrowser\_Close

Function

**Purpose** Close the browser; reclaim resources.

**C Declaration** `tibems_status tibemsQueueBrowser_Close(  
tibemsQueueBrowser queueBrowser );`

**COBOL Call** `CALL "tibemsQueueBrowser_Close"  
USING BY VALUE queueBrowser,  
RETURNING tibems-status  
END-CALL.`



queueBrowser has usage pointer.

Parameters

Parameter	Description
queueBrowser	Close this queue browser.

# tibemsQueueBrowser\_GetMsgSelector

Function

**Purpose** Get the selector string for the browser.

**C Declaration** `tibems_status tibemsQueueBrowser_GetMsgSelector(  
tibemsQueueBrowser queueBrowser,  
const char** selector );`

**COBOL Call** `CALL "tibemsQueueBrowser_GetMsgSelector"  
USING BY VALUE queueBrowser,  
BY REFERENCE selector,  
RETURNING tibems-status  
END-CALL.`



queueBrowser and selector have usage pointer.

**Parameters**

Parameter	Description
queueBrowser	Get the selector from the queue of this browser.
selector	The function stores the selector string in this location.

**Remarks** When non-null, the browser presents only messages that match this selector; see [Message Selectors on page 17](#).  
When null, or the empty string, the browser views all messages in the queue.

## tibemsQueueBrowser\_GetNext

Function

**Purpose** Get the next message from the browser.

**C Declaration** `tibems_status tibemsQueueBrowser_GetNext(  
tibemsQueueBrowser queueBrowser,  
tibemsMsg* msg );`

**COBOL Call** `CALL "tibemsQueueBrowser_GetNext"  
USING BY VALUE queueBrowser,  
BY REFERENCE msg,  
RETURNING tibems-status  
END-CALL.`



queueBrowser and msg have usage pointer.

### Parameters

Parameter	Description
queueBrowser	Get the next message from the queue of this browser.
msg	The function stores the next message in this location.

### Remarks

A browser is a dynamic enumerator of the queue (not a static snapshot). The queue is at the server, and its contents change as message arrive and consumers remove them. Meanwhile, while the browser is at the client. This function gets the next message from the server.

If prior calls to this function have exhausted the messages in the queue, the function returns `TIBEMS_NOT_FOUND`.

# tibemsQueueBrowser\_GetQueue

Function

**Purpose** Get the queue that the browser examines.

**C Declaration** `tibems_status tibemsQueueBrowser_GetQueue(  
tibemsQueueBrowser queueBrowser,  
tibemsQueue* queue );`

**COBOL Call** `CALL "tibemsQueueBrowser_GetQueue"  
USING BY VALUE queueBrowser,  
BY REFERENCE queue,  
RETURNING tibems-status  
END-CALL.`



queueBrowser and queue have usage pointer.

**Parameters**

Parameter	Description
queueBrowser	Get the queue of this browser.
queue	The function stores the queue in this location.



## Chapter 11    **Name Server Lookup**

Lookup context objects find named objects (such as connection factories and destinations) in the name repository. (The EMS server, `tibemsd`, provides the name repository service).

### Topics

---

- [tibemsLookupContext](#), page 322
- [tibemsLookupParams](#), page 329

# tibemsLookupContext

Type

- Purpose**Retrieve objects from the server’s naming directory.
- Remarks**

The context object establishes communication with an EMS server or an LDAP server, authenticates the user, and submits name queries.

Name queries can retrieve connection factories and destinations.

Function	Description	Page
<a href="#">tibemsLookupContext_Create</a> <a href="#">tibemsLookupContext_CreateSSL</a>	Create a new EMS lookup context object.	323
<a href="#">tibemsLookupContext_CreateExternal</a>	Create a new LDAP lookup context object.	325
<a href="#">tibemsLookupContext_Destroy</a>	Destroy a lookup context and reclaim resources.	326
<a href="#">tibemsLookupContext_Lookup</a> <a href="#">tibemsLookupContext_LookupDestination</a> <a href="#">tibemsLookupContext_LookupConnectionFactory</a>	Lookup an object in the naming server.	327

# tibemsLookupContext\_Create

Function


**Purpose** Create a new EMS lookup context object.

**C Declaration**

```
tibems_status tibemsLookupContext_Create(  
    tibemsLookupContext* context,  
    const char* brokerURL,  
    const char* username,  
    const char* password );  
  
tibems_status tibemsLookupContext_CreateSSL(  
    tibemsLookupContext* context,  
    const char* brokerURL,  
    const char* username,  
    const char* password,  
    tibemsSSLParams sslParams,  
    const char* pk_password );
```

**COBOL Call**

```
CALL "tibemsLookupContext_Create"  
    USING BY REFERENCE context,  
          BY REFERENCE brokerURL,  
          BY REFERENCE username,  
          BY REFERENCE password,  
          RETURNING tibems-status  
END-CALL.  
  
CALL "tibemsLookupContext_CreateSSL"  
    USING BY REFERENCE context,  
          BY REFERENCE brokerURL,  
          BY REFERENCE username,  
          BY REFERENCE password,  
          BY VALUE sslParams,  
          BY REFERENCE pk-password,  
          RETURNING tibems-status  
END-CALL.
```



context and sslParams have usage pointer.

Parameters	Parameter	Description
	context	The function stores the new lookup context object in this location.
	brokerURL	The context object connects to the EMS server at this URL. If configuring a fault-tolerant client, enter two or more URLs, as described in <a href="#">Configuring C and COBOL Clients for Fault-Tolerant Connections</a> on page 5.

Parameter	Description
username	The context object identifies itself to the server with this user name.
password	The context object identifies itself to the server with this password.
sslParams	The context object uses this data to create an SSL connection to the EMS server.
pk_password	The context object uses this password to decrypt its SSL private key.

**Remarks**      The first call produces a lookup context that communicates with server without encryption. The second call produces a lookup context that communicates using an SSL connection.

                     If the server permits anonymous lookup, you may supply null values for the username and password parameters.

**See Also**      [tibemsLookupContext\\_CreateExternal on page 325](#)

## tibemsLookupContext\_CreateExternal

Function

**Purpose** Create a new LDAP lookup context object.

**C Declaration** `tibems_status tibemsLookupContext_CreateExternal(  
tibemsLookupContext* context,  
tibemsLookupParams lookupParams );`

**COBOL Call** `CALL "tibemsLookupContext_CreateExternal"  
USING BY REFERENCE context,  
BY VALUE lookupParams,  
RETURNING tibems-status  
END-CALL.`



context and lookupParams have usage pointer.

### Parameters

Parameter	Description
context	The function stores the new lookup context object in this location.
lookupParams	The context object uses these parameters to connect to an LDAP server.  After the function returns successfully, the calling program may delete this struct.

**See Also** [tibemsLookupContext\\_Create on page 323](#)  
[tibemsLookupParams on page 329](#)  
[tibemsLookupParams\\_Create on page 330](#)  
[tibemsLookupParams\\_Destroy on page 331](#)

# tibemsLookupContext\_Destroy

Function

**Purpose** Destroy a lookup context and reclaim resources.

**C Declaration** `tibems_status tibemsLookupContext_Destroy(  
tibemsLookupContext context );`

**COBOL Call** `CALL "tibemsLookupContext_Destroy"  
USING BY VALUE context,  
RETURNING tibems-status  
END-CALL.`



context has usage pointer.

**Parameters**

Parameter	Description
context	Destroy this lookup context object.

# tibemsLookupContext\_Lookup

Function

**Purpose**      Lookup an object in the naming server.

**C Declaration**

```
tibems_status tibemsLookupContext_Lookup(
    tibemsLookupContext context,
    const char* name,
    void** object);

tibems_status tibemsLookupContext_LookupDestination(
    tibemsLookupContext context,
    const char* name,
    tibemsDestination* destination);

tibems_status tibemsLookupContext_LookupConnectionFactory(
    tibemsLookupContext context,
    const char* name,
    tibemsConnectionFactory* factory);
```

**COBOL Call**

```
CALL "tibemsLookupContext_Lookup"
    USING BY VALUE context,
          BY REFERENCE name,
          BY REFERENCE object,
          RETURNING tibems-status
END-CALL.

CALL "tibemsLookupContext_LookupDestination"
    USING BY VALUE context,
          BY REFERENCE name,
          BY REFERENCE destination,
          RETURNING tibems-status
END-CALL.

CALL "tibemsLookupContext_LookupConnectionFactory"
    USING BY VALUE context,
          BY REFERENCE name,
          BY REFERENCE factory,
          RETURNING tibems-status
END-CALL.
```



context, object, destination and factory have usage pointer.

**Parameters**

Parameter	Description
context	Destroy this lookup context object.
name	Lookup this name.

Parameter	Description
object	The function stores the results of the lookup operation in this location.
destination	
factory	

**Remarks** These calls look up names in either the name server portion of an EMS server, or in an LDAP server.

The first call looks up a generic object; the calling program must cast the result to the expect type. The other calls restrict lookup to either destinations or connection factories.

If the server does not find the name, this call returns `TIBEMS_NOT_FOUND`.

If the server finds both a topic and a queue with the same name, this call returns `TIBEMS_ILLEGAL_STATE`.

The calling program must destroy the resulting object when it is no longer needed.



## tibemsLookupParams

*Type*

**Purpose**     Encapsulate parameters for LDAP lookup.

Function	Description	Page
<a href="#">tibemsLookupParams_Create</a>	Create a new LDAP lookup context object.	330
<a href="#">tibemsLookupParams_Destroy</a>	Destroy a lookup parameters object.	331
<a href="#">tibemsLookupParams_GetLdapServerUrl</a>	Get the LDAP server URL.	332
<a href="#">tibemsLookupParams_SetLdapBaseDN</a>	Set the LDAP base distinguished name.	333
<a href="#">tibemsLookupParams_SetLdapCAFile</a>	Set the LDAP CA certificate file.	334
<a href="#">tibemsLookupParams_SetLdapCAPath</a>	Set the LDAP CA certificate directory pathname.	335
<a href="#">tibemsLookupParams_SetLdapCertFile</a>	Set the LDAP client certificate file.	336
<a href="#">tibemsLookupParams_SetLdapCiphers</a>	Set SSL ciphers.	337
<a href="#">tibemsLookupParams_SetLdapConnType</a>	Set the LDAP connection type.	338
<a href="#">tibemsLookupParams_SetLdapCredential</a>	Set the LDAP credential (password).	339
<a href="#">tibemsLookupParams_SetLdapKeyFile</a>	Set the LDAP client key file.	340
<a href="#">tibemsLookupParams_SetLdapPrincipal</a>	Set the LDAP principal (user name).	341
<a href="#">tibemsLookupParams_SetLdapRandFile</a>	Set a randomization data file.	342
<a href="#">tibemsLookupParams_SetLdapSearchScope</a>	Set the LDAP search scope.	343
<a href="#">tibemsLookupParams_SetLdapServerUrl</a>	Set the LDAP server URL.	344

# tibemsLookupParams\_Create

---

Function

**Purpose** Create a new lookup parameters object.

**C Declaration** [tibemsLookupParams](#)  
tibemsLookupParams\_Create(void);

**COBOL Call** CALL "tibemsLookupParams\_Create"  
RETURNING lparams  
END-CALL.



lparams has usage pointer.

**See Also** [tibemsLookupContext\\_CreateExternal](#) on page 325

# tibemsLookupParams\_Destroy

Function

**Purpose** Destroy a lookup parameters object.

**C Declaration** `void tibemsLookupParams_Destroy(  
tibemsLookupParams lparams );`

**COBOL Call** `CALL "tibemsLookupParams_Destroy"  
USING BY VALUE lparams  
END-CALL.`



lparams has usage pointer.

**Parameters**

Parameter	Description
lparams	The function stores the new lookup context object in this location.

# tibemsLookupParams\_GetLdapServerUrl

Function

**Purpose** Get the LDAP server URL.

**C Declaration** `char* tibemsLookupParams_GetLdapServerUrl(  
tibemsLookupParams lparams);`

**COBOL Call** `CALL "tibemsLookupParams_GetLdapServerUrl"  
USING BY VALUE lparams  
END-CALL.`



lparams has usage pointer.

**Parameters**

Parameter	Description
lparams	Get the LDAP server URL from this external lookup context object.

# tibemsLookupParams\_SetLdapBaseDN

Function

**Purpose** Set the LDAP base distinguished name.

**C Declaration** `tibems_status tibemsLookupParams_SetLdapBaseDN(  
tibemsLookupParams lparams,  
const char* basedn );`

**COBOL Call** `CALL "tibemsLookupParams_SetLdapBaseDN"  
USING BY VALUE lparams,  
BY REFERENCE basedn,  
RETURNING tibems-status  
END-CALL.`



lparams has usage pointer.

**Parameters**

Parameter	Description
lparams	Set the property in this parameter object.
basedn	Set the property to this distinguished name.

**Remarks** This parameter is required for all LDAP lookup operations.

# tibemsLookupParams\_SetLdapCAFile

Function

**Purpose** Set the LDAP CA certificate file.

**C Declaration** `tibems_status tibemsLookupParams_SetLdapCAFile(  
tibemsLookupParams lparams,  
const char* file );`

**COBOL Call** `CALL "tibemsLookupParams_SetLdapCAFile"  
USING BY VALUE lparams,  
BY REFERENCE file,  
RETURNING tibems-status  
END-CALL.`



lparams has usage pointer.

**Parameters**

Parameter	Description
lparams	Set the property in this parameter object.
path	Set the property to this filename.

**Remarks** The client program reads the CA certificate from this file.

# tibemsLookupParams\_SetLdapCAPath

Function

**Purpose** Set the LDAP CA certificate directory pathname.

**C Declaration** `tibems_status tibemsLookupParams_SetLdapCAPath(  
tibemsLookupParams lparams,  
const char* path );`

**COBOL Call** `CALL "tibemsLookupParams_SetLdapCAPath"  
USING BY VALUE lparams,  
BY REFERENCE path,  
RETURNING tibems-status  
END-CALL.`



lparams has usage pointer.

**Parameters**

Parameter	Description
lparams	Set the property in this parameter object.
path	Set the property to this directory pathname.

**Remarks** Set this parameter when several certificate files are grouped in one directory. This parameter specifies that directory. The client program reads certificate files from this directory.

# tibemsLookupParams\_SetLdapCertFile

Function

**Purpose** Set the LDAP client certificate file.

**C Declaration** `tibems_status tibemsLookupParams_SetLdapCertFile(  
tibemsLookupParams lparams,  
const char* file );`

**COBOL Call** `CALL "tibemsLookupParams_SetLdapCertFile"  
USING BY VALUE lparams,  
BY REFERENCE file,  
RETURNING tibems-status  
END-CALL.`



lparams has usage pointer.

**Parameters**

Parameter	Description
lparams	Set the property in this parameter object.
file	Set the property to this filename.

**Remarks** The client program reads the client certificate from this file.  
Set this parameter when the LDAP server requires clients to present certificates as identification.



# tibemsLookupParams\_SetLdapCiphers

Function

**Purpose** Set SSL ciphers.

**C Declaration** `tibems_status tibemsLookupParams_SetLdapCiphers(  
tibemsLookupParams lparams,  
const char* ciphers );`

**COBOL Call** `CALL "tibemsLookupParams_SetLdapCiphers"  
USING BY VALUE lparams,  
BY REFERENCE ciphers,  
RETURNING tibems-status  
END-CALL.`



lparams has usage pointer.

Parameters

Parameter	Description
lparams	Set the property in this parameter object.
ciphers	Set the property to specify these ciphers (as a colon-separated list).  For example: "EDH-RSA-DES-CBC3-SHA:EDH-DSS-DES-CBC3-SHA:DES-CBC3-SHA:DES-CBC3-MD5:DHE-DSS-RC4-SHA:IDEA-CBC-SHA:RC4-SHA:RC4-MD5:IDEA-CBC-MD5:RC2-CBC-MD5:RC4-MD5:RC4-64-MD5:EXP1024-DHE-DSS-RC4-SHA:EXP1024-RC4-SHA:EXP1024-DHE-DSS-DES-CBC-SHA:EXP1024-DES-CBC-SHA:EXP1024-RC2-CBC-MD5:EXP1024-RC4-MD5:EDH-RSA-DES-CBC-SHA:EDH-DSS-DES-CBC-SHA:DES-CBC-SHA:DES-CBC-MD5:EXP-EDH-RSA-DES-CBC-SHA:EXP-EDH-DSS-DES-CBC-SHA:EXP-DES-CBC-SHA:EXP-RC2-CBC-MD5:EXP-RC4-MD5:EXP-RC2-CBC-MD5:EXP-RC4-MD5"

**Remarks** Set this parameter when using secure LDAP connections.

The LDAP server configures a similar list of ciphers. SSL communication uses the strongest ciphers in the intersection of the server and client cipher lists.

# tibemsLookupParams\_SetLdapConnType

Function

**Purpose** Set the LDAP connection type.

**C Declaration** `tibems_status tibemsLookupParams_SetLdapConnType(  
tibemsLookupParams lparams,  
const char* type );`

**COBOL Call** `CALL "tibemsLookupParams_SetLdapConnType"  
USING BY VALUE lparams,  
BY REFERENCE type,  
RETURNING tibems-status  
END-CALL.`



lparams has usage pointer.

**Parameters**

Parameter	Description
lparams	Set the property in this parameter object.
type	Set the property to this type.  When this value is not set, it specifies a simple (non-secure) connection.  Either "ldaps" or "startTLS" specify secure connections.

# tibemsLookupParams\_SetLdapCredential

Function

**Purpose** Set the LDAP credential (password).

**C Declaration** `tibems_status tibemsLookupParams_SetLdapCredential(  
tibemsLookupParams lparams,  
const char* credential );`

**COBOL Call** `CALL "tibemsLookupParams_SetLdapCredential"  
USING BY VALUE lparams,  
BY REFERENCE credential,  
RETURNING tibems-status  
END-CALL.`



lparams has usage pointer.

**Parameters**

Parameter	Description
lparams	Set the property in this parameter object.
credential	Set the property to this credential (password).

# tibemsLookupParams\_SetLdapKeyFile

Function

**Purpose** Set the LDAP client key file.

**C Declaration** `tibems_status tibemsLookupParams_SetLdapKeyFile(  
tibemsLookupParams lparams,  
const char* file );`

**COBOL Call** `CALL "tibemsLookupParams_SetLdapKeyFile"  
USING BY VALUE lparams,  
BY REFERENCE file,  
RETURNING tibems-status  
END-CALL.`



lparams has usage pointer.

**Parameters**

Parameter	Description
lparams	Set the property in this parameter object.
file	Set the property to this filename.

**Remarks** The client program reads the private key for the client certificate from this (encrypted) file.  
  
Set this parameter when the LDAP server requires clients to present certificates as identification.

# tibemsLookupParams\_SetLdapPrincipal

Function

**Purpose** Set the LDAP principal (user name).

**C Declaration** `tibems_status tibemsLookupParams_SetLdapPrincipal(  
tibemsLookupParams lparams,  
const char* principal );`

**COBOL Call** `CALL "tibemsLookupParams_SetLdapPrincipal"  
USING BY VALUE lparams,  
BY REFERENCE principal,  
RETURNING tibems-status  
END-CALL.`



lparams has usage pointer.

**Parameters**

Parameter	Description
lparams	Set the property in this parameter object.
principal	Set the property to this principal (user name).

**Remarks** This parameter is required for all LDAP lookup operations.

# tibemsLookupParams\_SetLdapRandFile

Function

**Purpose** Set a randomization data file.

**C Declaration** `tibems_status tibemsLookupParams_SetLdapRandFile(  
tibemsLookupParams lparams,  
const char* file );`

**COBOL Call** `CALL "tibemsLookupParams_SetLdapRandFile"  
USING BY VALUE lparams,  
BY REFERENCE file,  
RETURNING tibems-status  
END-CALL.`



lparams has usage pointer.

**Parameters**

Parameter	Description
lparams	Set the property in this parameter object.
file	Set the property to this filename.

**Remarks** The client program reads random data for security computations from this file.  
Set this parameter when the operating system does not provide a random data service.

# tibemsLookupParams\_SetLdapSearchScope

Function

**Purpose** Set the LDAP search scope.

**C Declaration** `tibems_status tibemsLookupParams_SetLdapSearchScope(  
tibemsLookupParams lparams,  
const char* scope );`

**COBOL Call** `CALL "tibemsLookupParams_SetLdapSearchScope"  
USING BY VALUE lparams,  
BY REFERENCE scope,  
RETURNING tibems-status  
END-CALL.`



lparams has usage pointer.

**Parameters**

Parameter	Description
lparams	Set the property in this parameter object.
scope	Set the property to this search scope.

**Remarks** This parameter is required for all LDAP lookup operations.

# tibemsLookupParams\_SetLdapServerUrl

Function

**Purpose** Set the LDAP server URL.

**C Declaration** `tibems_status tibemsLookupParams_SetLdapServerUrl(  
tibemsLookupParams lparams,  
const char* url);`

**COBOL Call** `CALL "tibemsLookupParams_SetLdapServerUrl"  
USING BY VALUE lparams,  
BY REFERENCE url,  
RETURNING tibems-status  
END-CALL.`



lparams has usage pointer.

**Parameters**

Parameter	Description
lparams	Set the property in this parameter object.
url	Set the property to this URL.

**Remarks** This parameter is required for all LDAP lookup operations.



## Chapter 12    **XA—External Transaction Manager**

This chapter describes the EMS XA API. This API lets you code your own transaction manager (TM) that can interact with the EMS server as a transactional resource.

### Topics

---

- [tibemsXAConnection\\_Close, page 347](#)
- [tibemsXAConnection\\_Create, page 349](#)
- [tibemsXAConnection\\_CreateXASession, page 351](#)
- [tibemsXAConnection\\_Get, page 352](#)
- [tibemsXAConnection\\_GetXASession, page 353](#)
- [XID, page 354](#)
- [tibemsXAResource, page 355](#)
- [tibemsXASession, page 369](#)

## **tibemsXAConnection**

---

This implicit type is not defined; instead it is identical to [tibemsConnection on page 202](#). The functions we present on the following pages apply only to connection objects used with XA.

# tibemsXAConnection\_Close

Function

**Purpose** Close the connection; reclaim resources.

**C Declaration** `tibems_status tibemsXAConnection_Close(  
tibemsConnection connection );`

**COBOL Call** `CALL "tibemsXAConnection_Close"  
USING BY VALUE connection,  
RETURNING tibems-status  
END-CALL.`



connection has usage pointer.

**Parameters**

Parameter	Description
connection	Close this connection.

**Remarks** Closing an XA connection reclaims all XA resources associated with the connection or its sessions.

Closing the connection is not sufficient to reclaim all of its resources; your program must explicitly close the sessions, producers, and consumers associated with the connection.

Closing a connection deletes all temporary destinations associated with the connection.

**Blocking** If any message listener or receive call associated with the connection is processing a message when the program calls this function, all facilities of the connection and its sessions remain available to those listeners until they return. In the meantime, this function blocks until that processing completes—that is, until all message listeners and receive calls have returned.

**Acknowledge** Closing a connection does *not* force acknowledgment in client-acknowledged sessions. When the program still has a message that it received from a connection that has since closed, `tibemsMsg_Acknowledge` returns the status code `TIBEMS_ILLEGAL_STATE`.

**Transactions** Closing a connection rolls back all open transactions in all sessions associated with the connection.

**See Also**    [tibemsMsg\\_Acknowledge on page 24](#)  
                 [tibemsMsgConsumer on page 162](#)  
                 [tibemsMsgProducer on page 174](#)  
                 [tibemsDestination on page 144](#)  
                 [tibemsSession on page 286](#)

## tibemsXAConnection\_Create

### Function

**Purpose** Create a new XA connection to an EMS server; use XA for transactions.

**C Declarations**

```

tibems_status tibemsXAConnection_Create(
    tibemsConnection* connection,
    const char* brokerURL,
    const char* clientId,
    const char* username,
    const char* password );

tibems_status tibemsXAConnection_CreateSSL(
    tibemsConnection* connection,
    const char* brokerURL,
    const char* clientId,
    const char* username,
    const char* password,
    tibemsSSLParams sslParams,
    const char* pk_password );
  
```

**COBOL Call**

```

CALL "tibemsXAConnection_Create"
  USING BY REFERENCE connection,
        BY REFERENCE brokerURL,
        BY REFERENCE clientId,
        BY REFERENCE username,
        BY REFERENCE password,
        RETURNING tibems-status
END-CALL.

CALL "tibemsXAConnection_CreateSSL"
  USING BY REFERENCE connection,
        BY REFERENCE brokerURL,
        BY REFERENCE clientId,
        BY REFERENCE username,
        BY REFERENCE password,
        BY VALUE sslParams,
        BY REFERENCE pk-password,
        RETURNING tibems-status
END-CALL.
  
```



connection and sslParams have usage pointer.

Parameters

Parameter	Description
connection	The function stores the new connection in this location.
brokerURL	Find the EMS server at this URL. If configuring a fault-tolerant client, enter two or more URLs, as described in <a href="#">Configuring C and COBOL Clients for Fault-Tolerant Connections on page 5</a> .
clientId	Identify the client program to the server with this unique ID.
username	Identify the client program to the server with this user name.
password	Authenticate the client program to the server with this password.
sslParams	Establish SSL communication using these parameters.
pk_password	Private key password for SSL.

Status Code	Description
TIBEMS_OK	The call succeeded.
TIBEMS_SERVER_NOT_CONNECTED	<ul style="list-style-type: none"><li>No server is running at the specified URL.</li><li>The call could not communicate with a server because of mismatched SSL and TCP protocols.</li><li>Other error situations are possible.</li></ul>
TIBEMS_SECURITY_EXCEPTION	<ul style="list-style-type: none"><li>The server rejected the connection because the username or password was invalid.</li><li>SSL setup is incorrect.</li></ul>
TIBEMS_INVALID_CLIENT_ID	The client ID is not unique; that is, another client already uses the ID.

**See Also**    [tibemsConnection\\_Create on page 206](#)

## tibemsXAConnection\_CreateXASession

Function

**Purpose** Create an XA session object.

**C Declaration** `tibems_status tibemsXAConnection_CreateXASession(  
tibemsConnection connection,  
tibemsSession* session );`

**COBOL Call** `CALL "tibemsXAConnection_CreateXASession"  
USING BY VALUE connection,  
BY REFERENCE session,  
RETURNING tibems-status  
END-CALL.`



connection and session have usage pointer.

**Parameters**

Parameter	Description
connection	Create a session on this connection.
session	The function stores the new session in this location.

**Remarks** The new session has transactional semantics with an external transaction manager, and uses the connection for all server communications.



XA sessions do not support routed queues.

**See Also** [tibemsSession on page 286](#)

# tibemsXAConnection\_Get

Function

**Purpose** Find the XA connection object for a server URL.

**C Declaration** `tibems_status tibemsXAConnection_Get(  
tibemsConnection* connection,  
const char* brokerURL );`

**COBOL Call** `CALL "tibemsXAConnection_Get"  
USING BY REFERENCE connection,  
BY REFERENCE brokerURL,  
RETURNING tibems-status  
END-CALL.`



connection has usage pointer.

**Parameters**

Parameter	Description
connection	The function stores the connection object in this location.
brokerURL	Find the connection the EMS server at this URL. If configuring a fault-tolerant client, enter two or more URLs, as described in <a href="#">Configuring C and COBOL Clients for Fault-Tolerant Connections on page 5</a> .

**Remarks** If the TM has implicitly created a connection by calling `xa_open`, then the TM can get that connection object with this call.



# tibemsXAConnection\_GetXASession

Function

**Purpose** Get the XA session object from an XA connection.

**C Declaration** `tibems_status tibemsXAConnection_GetXASession(  
tibemsConnection* connection,  
tibemsSession* xaSession );`

**COBOL Call** `CALL "tibemsXAConnection_GetXASession"  
USING BY VALUE connection,  
BY REFERENCE xaSession,  
RETURNING tibems-status  
END-CALL.`



connection and xaSession have usage pointer.

**Parameters**

Parameter	Description
connection	Get the XA session object from this XA connection.
xaSession	The function stores the XA session object in this location.

**Remarks** If the TM has implicitly created a session by calling xa\_open, then the TM can get that session object with this call.

# XID

---

Type

**Purpose**     Represent a transaction ID.

## tibemsXAResource

*Type*

**Purpose** Coordinate XA transactions.

**Remarks** Each `tibemsXAResource` instance can coordinate a series of transactions, but only one transaction at a time. A program that keeps  $n$  transactions open simultaneously must create  $n$  instances of this type.

The transaction manager assigns each resource instance a unique RMID, which it uses to bind together a thread, a resource and a transaction.

Function	Description	Page
<code>tibemsXAResource_Commit</code>	Commit a transaction.	356
<code>tibemsXAResource_End</code>	Disassociate a transaction from the resource.	357
<code>tibemsXAResource_Forget</code>	Unimplemented.	358
<code>tibemsXAResource_GetRMID</code>	Get the RMID of the resource.	359
<code>tibemsXAResource_GetTransactionTimeout</code>	Get the timeout limit.	360
<code>tibemsXAResource_isSameRM</code>	Determine whether two resource objects originate from the same connection to an EMS server.	361
<code>tibemsXAResource_Prepare</code>	Prepare a transaction for commit.	362
<code>tibemsXAResource_Recover</code>	Get a list of prepared transactions.	363
<code>tibemsXAResource_SetRMID</code>	Assign an RMID to a resource.	366
<code>tibemsXAResource_SetTransactionTimeout</code>	Set the timeout limit.	367
<code>tibemsXAResource_Start</code>	Associate a transaction with a resource.	368

# tibemsXAResource\_Commit

Function

**Purpose** Commit a transaction.

**C Declaration** `tibems_status tibemsXAResource_Commit(  
tibemsXAResource xaResource,  
XID* xid,  
tibems_bool onePhase );`

**COBOL Call** `CALL "tibemsXAResource_Commit"  
USING BY VALUE xaResource,  
BY REFERENCE xid,  
BY VALUE onePhase,  
RETURNING tibems-status  
END-CALL.`



xaResource and xid have usage pointer.

**Parameters**

Parameter	Description
xaResource	Commit the transaction in this resource.
xid	Commit this transaction.
onePhase	TIBEMS_TRUE requests a <i>one-phase commit</i> . TIBEMS_FALSE requests a <i>two-phase commit</i> .

# tibemsXAResource\_End

Function

**Purpose** Disassociate a transaction from the resource.

**C Declaration** `tibems_status tibemsXAResource_End(  
tibemsXAResource xaResource,  
XID* xid,  
int flags );`

**COBOL Call** `CALL "tibemsXAResource_End"  
USING BY VALUE xaResource,  
BY REFERENCE xid,  
BY VALUE flags,  
RETURNING tibems-status  
END-CALL.`



xaResource and xid have usage pointer.

**Parameters**

Parameter	Description
xaResource	Disassociate the transaction from this resource.
xid	Disassociate this transaction from the resource.
flags	TMSUCCESS—Completely end the transaction.  TMSUSPEND—Temporarily disassociate the transaction from this resource.

# tibemsXAResource\_Forget

Function

**Purpose** Unimplemented.

**C Declaration** `tibems_status tibemsXAResource_Forget(  
tibemsXAResource xaResource,  
XID* xid );`

**COBOL Call** `CALL "tibemsXAResource_Forget"  
USING BY VALUE xaResource,  
BY REFERENCE xid,  
RETURNING tibems-status  
END-CALL.`



xaResource and xid have usage pointer.

**Parameters**

Parameter	Description
xaResource	Forget the transaction in this resource.
xid	Forget this transaction.

**Remarks** In the XA interface, the transaction manager can instruct a resource to forget a transaction.  
However, this call is not implemented in EMS; it is present for completeness only.

# tibemsXAResource\_GetRMID

Function

**Purpose** Get the RMID of the resource.

**C Declaration** `tibems_status tibemsXAResource_GetRMID(  
tibemsXAResource xaResource,  
tibems_int* rmid );`

**COBOL Call** `CALL "tibemsXAResource_GetRMID"  
USING BY VALUE xaResource,  
BY REFERENCE rmid,  
RETURNING tibems-status  
END-CALL.`



xaResource has usage pointer.

**Parameters**

Parameter	Description
xaResource	Get the RMID of this resource.
rmid	The function stores the RMID in this location.

**Remarks** The transaction manager assigns a unique RMID to each resource instance, which it uses to bind together a thread, a resource and a transaction.

# tibemsXAResource\_GetTransactionTimeout

Function

**Purpose** Get the timeout limit.

**C Declaration** `tibems_status tibemsXAResource_GetTransactionTimeout(  
tibemsXAResource xaResource,  
tibems_int* seconds );`

**COBOL Call** `CALL "tibemsXAResource_GetTransactionTimeout"  
USING BY VALUE xaResource,  
BY REFERENCE seconds,  
RETURNING tibems-status  
END-CALL.`



xaResource has usage pointer.

**Parameters**

Parameter	Description
xaResource	Get the transaction timeout of this resource.
seconds	The function stores the transaction timeout (in seconds) in this location.

**Remarks** If an open, unprepared transaction does not log any activity on the server for this length of time, then the server automatically rolls back the transaction.

**See Also** [tibemsXAResource\\_SetTransactionTimeout on page 367](#)



# tibemsXAResource\_isSameRM

Function

**Purpose** Determine whether two resource objects originate from the same connection to an EMS server.

**C Declaration** `tibems_status tibemsXAResource_isSameRM(  
tibemsXAResource xaResource,  
tibemsXAResource xaResource2,  
tibems_bool* result );`

**COBOL Call** `CALL "tibemsXAResource_isSameRM"  
USING BY VALUE xaResource,  
BY VALUE xaResource2,  
BY REFERENCE result,  
RETURNING tibems-status  
END-CALL.`



xaResource and xaResource2 have usage pointer.

**Parameters**

Parameter	Description
xaResource	First XA resource.
xaResource2	Second XA resource.
result	The function stores the result in this location:

# tibemsXAResource\_Prepere

Function

**Purpose** Prepare a transaction for commit.

**C Declaration** `tibems_status tibemsXAResource_Prepere(  
tibemsXAResource xaResource,  
XID* xid );`

**COBOL Call** `CALL "tibemsXAResource_Prepere"  
USING BY VALUE xaResource,  
BY REFERENCE xid,  
RETURNING tibems-status  
END-CALL.`



xaResource and xid have usage pointer.

**Parameters**

Parameter	Description
xaResource	Prepare the transaction in this resource.
xid	Prepare this transaction.

# tibemsXAResource\_Recover

Function

**Purpose** Get a list of prepared transactions.

**C Declaration** `tibems_status tibemsXAResource_Recover(  
tibemsXAResource xaResource,  
XID* xids,  
tibems_int desiredCount,  
tibems_int* returnedCount,  
tibems_int flag );`

**COBOL Call** `CALL "tibemsXAResource_Recover"  
USING BY VALUE xaResource,  
BY REFERENCE xids,  
BY VALUE desiredCount,  
BY REFERENCE returnedCount,  
BY VALUE flag,  
RETURNING tibems-status  
END-CALL.`



xaResource and xids have usage pointer.

**Parameters**

Parameter	Description
xaResource	List the prepared transactions of this resource.
xids	The function stores the list of transaction IDs in the array in this location.
desiredCount	Size of the array (number of XIDs).
returnedCount	The function stores the actual number of transaction IDs in this location.
flag	TMSTARTRSCAN—Start a new list of XIDs; the EMS server generates a complete list, and sends the first batch.  TMNOFLAGS—Continue the list of XIDs; the EMS server sends the next batch.  TMENDRSCAN—The EMS server discards its list of prepared transactions, and reclaims storage.

**Remarks** When this call returns, if `returnedCount`  $\neq$  `desiredCount`, then more prepared transactions might exist. To get the next batch of XIDs, call this function again with `TMNOFLAGS` flag until `returnedCount`  $<$  `desiredCount`.

# tibemsXAResource\_Rollback

## Function

- Purpose

Roll back a transaction.
- C Declaration

```
tibems_status tibemsXAResource_Rollback(  
    tibemsXAResource xaResource,  
    XID* xid );
```
- COBOL Call

```
CALL "tibemsXAResource_Rollback"  
    USING BY VALUE xaResource,  
          BY REFERENCE xid,  
          RETURNING tibems-status  
END-CALL.
```



xaResource and xid have usage pointer.

### Parameters

Parameter	Description
xaResource	Roll back in this resource.
xid	Roll back this transaction.

Remarks

Messages sent to a queue with prefetch=none and maxRedelivery=*number* properties are not received *number* times by an EMS application that receives in a loop and does an XA rollback after the XA prepare phase.

# tibemsXAResource\_SetRMID

Function

**Purpose** Assign an RMID to a resource.

**C Declaration** `tibems_status tibemsXAResource_SetRMID(  
tibemsXAResource xaResource,  
tibems_int rmid );`

**COBOL Call** `CALL "tibemsXAResource_SetRMID"  
USING BY VALUE xaResource,  
BY VALUE rmid,  
RETURNING tibems-status  
END-CALL.`



xaResource has usage pointer.

**Parameters**

Parameter	Description
xaResource	Set the RMID of this resource.
rmid	Use this RMID.

# tibemsXAResource\_SetTransactionTimeout

Function

**Purpose** Set the timeout limit.

**C Declaration** `tibems_status tibemsXAResource_SetTransactionTimeout(  
tibemsXAResource xaResource,  
tibems_int seconds );`

**COBOL Call** `CALL "tibemsXAResource_SetTransactionTimeout"  
USING BY VALUE xaResource,  
BY VALUE seconds,  
RETURNING tibems-status  
END-CALL.`



xaResource has usage pointer.

**Parameters**

Parameter	Description
xaResource	Set the transaction timeout of this resource.
seconds	Use this transaction timeout (in seconds).

**Remarks** If an unprepared transaction does not log any activity on the server for this length of time, then the server automatically rolls back the transaction.

**See Also** [tibemsXAResource\\_GetTransactionTimeout on page 360](#)

# tibemsXAResource\_Start

Function

**Purpose** Associate a transaction with a resource.

**C Declaration** `tibems_status tibemsXAResource_Start(  
tibemsXAResource xaResource,  
XID* xid,  
tibems_int flags );`

**COBOL Call** `CALL "tibemsXAResource_Start"  
USING BY VALUE xaResource,  
BY REFERENCE xid,  
BY VALUE flags,  
RETURNING tibems-status  
END-CALL.`



xaResource and xid have usage pointer.

Parameters

Parameter	Description
xaResource	Associate a transaction with this resource.
xid	Associate this transaction with a resource.
flags	TMNOFLAGS—This is a new transaction, which was not previously associated with the resource.  TMRESUME—This transaction was previously associated with the resource.



## tibemsXASession

*Type*

**Purpose** A session with an XA resource.

Function	Description	Page
<a href="#">tibemsXASession_Close</a>	Close an XA session.	370
<a href="#">tibemsXASession_GetSession</a>	Get the EMS session from an XA session.	371
<a href="#">tibemsXASession_GetXAResource</a>	Get the XA resource of an XA session.	372



XA sessions do not support routed queues.

**See Also** [tibemsSession on page 286](#)

# tibemsXASession\_Close

Function

**Purpose** Close an XA session.

**C Declaration** `tibems_status tibemsXASession_Close(  
tibemsSession session );`

**COBOL Call** `CALL "tibemsXASession_Close"  
USING BY VALUE session,  
RETURNING tibems-status  
END-CALL.`



session has usage pointer.

**Parameters**

Parameter	Description
session	Close this session.

# tibemsXASession\_GetSession

Function

**Purpose** Get the EMS session from an XA session.

**C Declaration** `tibems_status tibemsXASession_GetSession(  
tibemsSession xaSession,  
tibemsSession* session );`

**COBOL Call** `CALL "tibemsXASession_GetSession"  
USING BY VALUE xaSession,  
BY REFERENCE session,  
RETURNING tibems-status  
END-CALL.`



xaSession and session have usage pointer.

**Parameters**

Parameter	Description
xaSession	Get the EMS session from this XA session.
session	The function stores the EMS session in this location.

## tibemsXASession\_GetXAResource

Function

**Purpose** Get the XA resource of an XA session.

**C Declaration** `tibems_status tibemsXASession_GetXAResource(  
tibemsSession session,  
tibemsXAResource* xaResource );`

**COBOL Call** `CALL "tibemsXASession_GetXAResource"  
USING BY VALUE session,  
BY REFERENCE xaResource,  
RETURNING tibems-status  
END-CALL.`



session and xaResource have usage pointer.

**Parameters**

Parameter	Description
session	Get the XA resource from this session.
xaResource	The function stores the resource in this location.

## Chapter 13 **Types**

This chapter presents types in general use.

### Topics

---

- [Uniform Types, page 374](#)

# Uniform Types

**Purpose** Standard datatypes.

**C Declarations**

```
typedef char tibems_byte;
typedef short tibems_short;
typedef unsigned short tibems_wchar;
typedef int tibems_int;
typedef TIBX_I64 tibems_long;

typedef float tibems_float;
typedef double tibems_double;

typedef unsigned int tibems_uint;

typedef enum {
    TIBEMS_FALSE = 0,
    TIBEMS_TRUE = 1
} tibems_bool;
```

Table 14 EMS Types

Type	
tibems_byte	
tibems_short	
tibems_wchar	wide character; 2 bytes
tibems_int	
tibems_long	
tibems_float	
tibems_double	
tibems_uint	
tibems_bool	TIBEMS_FALSE, TIBEMS_TRUE

## Chapter 14    **Utilities**

This chapter presents utility functions.

### Topics

---

- [Utility Functions, page 376](#)

## Utility Functions

The following functions are not related to a specific data type.

Function	Description	Page
<code>tibems_Close</code>	Deallocate the memory used by the EMS internal global data structures.	379
<code>tibems_GetAllowCloseInCallback</code>	Gets whether the client application is allowed to call close functions inside message listener callbacks.	380
<code>tibems_GetConnectAttemptCount</code>	Return the connection attempts limit.	381
<code>tibems_GetConnectAttemptDelay</code>	Return the connection delay.	382
<code>tibems_GetConnectAttemptTimeout</code>	Return the connection timeout.	383
<code>tibems_GetExceptionOnFTEvents</code>	Detects whether exception listener is called on any of the following fault-tolerant events: disconnected, each reconnect attempt, reconnected.	384
<code>tibems_GetExceptionOnFTSwitch</code>	Detects whether exception listener is called on a fault-tolerant switchover.	385
<code>tibems_GetMulticastDaemon</code>	Gets the port of the multicast daemon that this application connects to.	386
<code>tibems_GetMulticastEnabled</code>	Gets whether message consumers subscribed to multicast-enabled topics in EMS client applications can receive messages over multicast.	387
<code>tibems_GetReconnectAttemptCount</code>	Return the reconnection attempts limit.	388
<code>tibems_GetReconnectAttemptDelay</code>	Return the reconnection delay.	389
<code>tibems_GetReconnectAttemptTimeout</code>	Return the reconnection timeout.	390
<code>tibems_GetSocketReceiveBufferSize</code>	Return the size of socket receive buffers.	391
<code>tibems_GetSocketSendBufferSize</code>	Return the size of socket send buffers.	392



Function	Description	Page
<code>tibems_IsConsumerMulticast</code>	Checks if a consumer can receive messages over multicast.	393
<code>tibems_Open</code>	Allocate the global memory for the EMS library.	394
<code>tibems_SetAllowCloseInCallback</code>	Sets whether client applications can close message consumers, sessions, or connections inside message listener callbacks.	395
<code>tibems_SetConnectAttemptCount</code>	Modify the connection attempt limit.	396
<code>tibems_SetConnectAttemptDelay</code>	Modify the connection delay.	397
<code>tibems_SetConnectAttemptTimeout</code>	Modify the connection timeout.	398
<code>tibems_SetExceptionOnFTEvents</code>	Sets whether exception listener is called each step of the fault-tolerant switchover process.	399
<code>tibems_setExceptionOnFTSwitch</code>	Sets whether exception listener is called on fault-tolerant switchover.	400
<code>tibems_SetMulticastDaemon</code>	Sets the port on which the EMS client will connect to the multicast daemon.	401
<code>tibems_SetMulticastEnabled</code>	Set whether message consumers subscribed to multicast-enabled topics in the EMS client application will receive messages over multicast.	402
<code>tibems_SetMulticastExceptionListener</code>	Sets the multicast exception listener for an application.	403
<code>tibems_SetReconnectAttemptCount</code>	Modify the reconnection attempts limit.	404
<code>tibems_SetReconnectAttemptDelay</code>	Modify the reconnection delay.	405
<code>tibems_SetReconnectAttemptTimeout</code>	Modify the reconnection timeout.	406
<code>tibems_SetSocketReceiveBufferSize</code>	Set the size of socket receive buffers.	407
<code>tibems_SetSocketSendBufferSize</code>	Set the size of socket send buffers.	408

Function	Description	Page
<code>tibems_SetTraceFile</code>	Start or stop directing client trace information to a file.	409
<code>tibems_Sleep</code>	Sleep thread.	410
<code>tibems_Version</code>	Return the EMS library version number.	411

## tibems\_Close

---

### Function

<b>Purpose</b>	Deallocate the memory used by the EMS internal global data structures.
<b>C Declaration</b>	<code>void tibems_close(void);</code>
<b>COBOL Call</b>	<pre>CALL "tibems_close"     RETURNING tibems-Return-Value END-CALL.</pre>
<b>Remarks</b>	<p>Before unloading the EMS library, you must call this function to clean up. Windows platforms allow selective unloading of DLLs.</p> <p>Applications that call <a href="#">tibems_Open</a> and <code>tibems_Close</code> one or more times will allocate and deallocate correctly as long as the close calls match the open calls.</p>
<b>See Also</b>	<a href="#">tibems_Open on page 394</a>

# tibems\_GetAllowCloseInCallback

Function

**Purpose** Gets whether the client application is allowed to call close functions inside message listener callbacks.

**C Declaration** `tibems_status tibems_GetAllowCloseInCallback(tibems_bool *isAllowed);`

**COBOL Call** `CALL "tibems_GetAllowCloseInCallback"  
USING BY REFERENCE isAllowed,  
RETURNING tibems-status  
END-CALL.`

Parameters	Parameter Description	
	Parameter	Description
	isAllowed	Returns true when the client application does not wait for the message callback to return before closing a message consumer, session, or connection. Returns false if the application waits for the callback to return.

**See Also** [tibems\\_SetAllowCloseInCallback on page 395](#)

## tibems\_GetConnectAttemptCount

---

*Function*

**Purpose** Return the connection attempts limit.

**C Declaration** `tibems_int tibems_GetConnectAttemptCount(void);`

**COBOL Call** CALL "tibems\_GetConnectAttemptCount"  
RETURNING tibems-Return-Value  
END-CALL.

**Remarks** This setting governs all client [tibemsConnection](#) objects, limiting the number of times that connection objects attempt to establish a connection to the server. The default value is 2. The minimum value is 1.

**See Also** [tibems\\_SetConnectAttemptCount](#) on page 396

[Setting Connection Attempts, Timeout and Delay Parameters](#) in the *TIBCO Enterprise Message Service User's Guide*

# tibems\_GetConnectAttemptDelay

---

Function

Purpose	Return the connection delay.
C Declaration	<code>tibems_int tibems_GetConnectAttemptDelay(void);</code>
COBOL Call	<code>CALL "tibems_GetConnectAttemptDelay" RETURNING tibems-Return-Value END-CALL.</code>
Remarks	This setting governs all client <code>tibemsConnection</code> objects. It determines the delay time between successive attempt to establish a connection to the server. Its value is the time (in milliseconds) between connection attempts. The default value is 500. The minimum value is 250.
See Also	<a href="#">tibems_SetConnectAttemptDelay</a> on page 397 <a href="#">Setting Connection Attempts, Timeout and Delay Parameters</a> in the <i>TIBCO Enterprise Message Service User's Guide</i>

## tibems\_GetConnectAttemptTimeout

---

*Function*

**Purpose** Return the connection timeout.

**C Declaration** `tibems_int tibems_GetConnectAttemptTimeout(void);`

**COBOL Call** CALL "tibems\_GetConnectAttemptTimeout"  
RETURNING tibems-Return-Value  
END-CALL.

**Remarks** This setting governs all client [tibemsConnection](#) objects. It determines the maximum time (in milliseconds) the client allows to establish a connection to the server. The default value is 500.

**See Also** [tibems\\_SetConnectAttemptTimeout on page 398](#)  
[Setting Connection Attempts, Timeout and Delay Parameters](#) in the *TIBCO Enterprise Message Service User's Guide*

# tibems\_GetExceptionOnFTEvents

Function

**Purpose** Detects whether exception listener is called on any of the following fault-tolerant events: disconnected, each reconnect attempt, reconnected.

**C Declaration** `tibems_status tibems_GetExceptionOnFTEvents(  
tibems_bool* isSet);`

**COBOL Call** `CALL "tibems_GetExceptionOnFTEvents"  
USING BY REFERENCE isSet,  
RETURNING tibems-status  
END-CALL.`

Parameters	Parameter	Description
	isSet	Returns true if the exception listener is to be called on any of the following fault-tolerant events: disconnected, each reconnect attempt, reconnected. Returns false if it is not to be called. Default is false.

**See Also** [tibems\\_SetExceptionOnFTEvents on page 399](#)  
[Setting an Exception Listener](#) in the *TIBCO Enterprise Message Service User's Guide*



## tibems\_GetExceptionOnFTSwitch

---

*Function*

**Purpose** Detects whether exception listener is called on a fault-tolerant switchover.

**C Declaration** `tibems_status tibems_GetExceptionOnFTSwitch(  
tibems_bool* isSet);`

**COBOL Call** `CALL "tibems_GetExceptionOnFTSwitch"  
USING BY REFERENCE isSet,  
RETURNING tibems-status  
END-CALL.`

**Parameters**

Parameter	Description
isSet	Returns true if the exception listener is to be called on a fault-tolerant switchover and false if it is not to be called. Default is false.

---

**See Also** [tibems\\_setExceptionOnFTSwitch on page 400](#)  
[Setting an Exception Listener](#) in the *TIBCO Enterprise Message Service User's Guide*

# tibems\_GetMulticastDaemon

---

Function

**Purpose** Gets the port of the multicast daemon that this application connects to.

**C Declaration** `const char* tibems_GetMulticastDaemon(void);`

**Remarks** Gets the port of the multicast daemon that this application connects to.

**See Also** [tibems\\_SetMulticastDaemon on page 401](#)  
[Chapter 13, Using Multicast](#), in the *TIBCO Enterprise Message Service User's Guide*

## tibems\_GetMulticastEnabled

---

*Function*

**Purpose** Gets whether message consumers subscribed to multicast-enabled topics in EMS client applications can receive messages over multicast.

**C Declaration** `tibems_bool tibems_GetMulticastEnabled(void);`

**Remarks** Gets whether message consumers subscribed to multicast-enabled topics in EMS client applications can receive messages over multicast.

See [Chapter 13, Using Multicast](#), in the *TIBCO Enterprise Message Service User's Guide*, for more information.

**See Also** [tibems\\_SetMulticastEnabled on page 402](#)  
[tibemsConnectionFactory\\_SetMulticastEnabled on page 273](#)

# tibems\_GetReconnectAttemptCount

---

Function

**Purpose** Return the reconnection attempts limit.

**C Declaration** `tibems_int tibems_GetReconnectAttemptCount(void);`

**COBOL Call** CALL "tibems\_GetReconnectAttemptCount"  
RETURNING tibems-Return-Value  
END-CALL.

**Remarks** This setting governs all client `tibemsConnection` objects limiting the number of times that they attempt to reconnect to the server after a network disconnect. The default value is 4. The minimum value is 1.

**See Also** [tibems\\_GetConnectAttemptCount on page 381](#)  
[tibems\\_SetReconnectAttemptCount on page 404](#)  
[Setting Reconnection Failure Parameters](#) in the *TIBCO Enterprise Message Service User's Guide*.

## tibems\_GetReconnectAttemptDelay

---

*Function*

**Purpose** Return the reconnection delay.

**C Declaration** `tibems_int tibems_GetReconnectAttemptDelay(void);`

**COBOL Call** CALL "tibems\_GetReconnectAttemptDelay"  
RETURNING tibems-Return-Value  
END-CALL.

**Remarks** This setting governs all client [tibemsConnection](#) objects. It determines the delay time between successive attempt to establish a connection to the server. Its value is the time (in milliseconds) between connection attempts. The default value is 500. The minimum value is 250.

**See Also** [tibems\\_GetConnectAttemptDelay](#) on page 382  
[tibems\\_SetReconnectAttemptDelay](#) on page 405

[Setting Reconnection Failure Parameters](#) in the *TIBCO Enterprise Message Service User's Guide*.

# tibems\_GetReconnectAttemptTimeout

---

Function

Purpose	Return the reconnection timeout.
C Declaration	<code>tibems_int tibems_GetReconnectAttemptTimeout(void);</code>
COBOL Call	<code>CALL "tibems_GetReconnectAttemptTimeout" RETURNING tibems-Return-Value END-CALL.</code>
Remarks	This setting governs all client <a href="#">tibemsConnection</a> objects. It determines the maximum time (in milliseconds) to client will allow to reestablish a connection to the server. The default value is 500. The minimum value is 250.
See Also	<a href="#">tibems_SetReconnectAttemptTimeout</a> on page 406 <a href="#">Setting Reconnection Failure Parameters</a> in the <i>TIBCO Enterprise Message Service User's Guide</i> .

## tibems\_GetSocketReceiveBufferSize

---

*Function*

**Purpose** Return the size of socket receive buffers.

**C Declaration** `tibems_int tibems_GetSocketReceiveBufferSize(void);`

**COBOL Call** CALL "tibems\_GetSocketReceiveBufferSize"  
RETURNING tibems-Return-Value  
END-CALL.

**Remarks** When set, this value overrides the operating system's default for the size of receive buffers associated with sockets that the client uses for connections to the server. (Some operating systems do not allow you to override the default size.)

**See Also** [tibems\\_SetSocketReceiveBufferSize on page 407](#)

# tibems\_GetSocketSendBufferSize

---

Function

Purpose	Return the size of socket send buffers.
C Declaration	<code>tibems_int tibems_GetSocketSendBufferSize(void);</code>
COBOL Call	<code>CALL "tibems_GetSocketSendBufferSize" RETURNING tibems-Return-Value END-CALL.</code>
Remarks	When set, this value overrides the operating system's default for the size of send buffers associated with sockets that the client uses for connections to the server. (Some operating systems do not allow you to override the default size.)
See Also	<a href="#">tibems_SetSocketSendBufferSize on page 408</a>



## tibems\_IsConsumerMulticast

---

*Function*

**Purpose** Checks if a consumer can receive messages over multicast.

**C Declaration** `tibems_bool tibems_IsConsumerMulticast(  
 tibemsMsgConsumer consumer,  
 tibems_bool *isMulticast);`

**Remarks** It is possible for a consumer to be a multicast consumer yet only receive messages over TCP. This may happen when the consumer is created on a wildcard destination that includes both unicast and multicast topics.

**See Also** [tibems\\_SetSocketSendBufferSize on page 408](#)

# tibems\_Open

Function

Purpose	Allocate the global memory for the EMS library.
C Declaration	<code>void tibems_Open(void);</code>
COBOL Call	<code>CALL "tibems_Open"</code> <code>RETURNING tibems-Return-Value</code> <code>END-CALL.</code>
Remarks	<p>Applications that do not call <code>tibems_Open</code> will work as expected because the EMS internal global data structures are allocated when any public EMS function is called. However, the EMS data structures will not be deallocated until the application calls the <a href="#">tibems_Close</a> function or exits.</p> <p>Existing Windows applications that only call the <a href="#">tibems_Close</a> function will work as expected.</p> <p>Applications that call <code>tibems_Open</code> and <a href="#">tibems_Close</a> one or more times will allocate and deallocate correctly as long as the close calls match the open calls.</p>
See Also	<a href="#">tibems_Close on page 379</a>

# tibems\_SetAllowCloseInCallback

Function

**Purpose** Sets whether client applications can close message consumers, sessions, or connections inside message listener callbacks.

**C Declaration** `tibems_status tibems_SetAllowCloseInCallback(tibems_bool allow);`

**COBOL Call** `CALL "tibems_SetAllowCloseInCallback",  
USING BY VALUE isAllowed,  
RETURNING tibems-status  
END-CALL.`

Parameters	Parameter	Description
	allow	When true, the application will not wait for the message callbacks to return before closing a message consumer, session, or connection. When false, the application waits for the callback to return.  By default, the application behavior is to wait for callbacks.

**Remarks** This function can be used to change the default EMS client behavior, and set whether the client application can call `tibemsMsgConsumer_Close`, `tibemsSession_Close`, or `tibemsConnection_Close` functions from the `tibemsMsgCallback`.

The default behavior is to wait for callbacks and parallel the behavior specified in the JMS specification, which the EMS client API adheres to. However, this function allows applications to override the default behavior and close EMS objects inside message callbacks.

Normally, the C client API will wait for the `tibemsMsgCallback` callback to return before the close functions can return to the calling application. Consequently, if these close functions are called inside the callback it causes a deadlock. If calling close functions inside the callback is allowed, then the close function will not wait for the `tibemsMsgCallback` to return. This prevents the deadlock.

**See Also** [tibemsMsgCallback on page 172](#)  
[tibemsMsgConsumer\\_Close on page 163](#)  
[tibemsConnection\\_Close on page 204](#)  
[tibemsSession\\_Close on page 289](#)  
[tibems\\_GetAllowCloseInCallback on page 380](#)

# tibems\_SetConnectAttemptCount

Function

**Purpose** Modify the connection attempt limit.

**C Declaration** `tibems_status tibems_SetConnectAttemptCount(  
tibems_int count);`

**COBOL Call** `CALL "tibems_SetConnectAttemptCount"  
USING BY VALUE count,  
RETURNING tibems-status  
END-CALL.`

**Remarks** This setting governs all client `tibemsConnection` objects, limiting the number of times that connection objects attempt to establish a connection to the server.

Parameters	Parameter	Description
	count	Set the connect attempt limit to this value.  The default value is 2. The minimum value is 1.

**See Also** [tibems\\_GetConnectAttemptCount on page 381](#)  
[Setting Connection Attempts, Timeout and Delay Parameters](#) in the *TIBCO Enterprise Message Service User's Guide*

# tibems\_SetConnectAttemptDelay

Function

**Purpose** Modify the connection delay.

**C Declaration** `tibems_status tibems_SetConnectAttemptDelay(  
tibems_int delay);`

**COBOL Call** `CALL "tibems_SetConnectAttemptDelay"  
USING BY VALUE delay,  
RETURNING tibems-status  
END-CALL.`

**Remarks** This setting governs all client `tibemsConnection` objects. It determines the delay time between successive attempt to establish a connection to the server. Its value is the time (in milliseconds) between connection attempts.

Parameters	Parameter	Description
	delay	Set the connect attempt delay to this time (in milliseconds).  The default value is 500. The minimum value is 250.

**See Also** [tibems\\_GetConnectAttemptDelay on page 382](#)  
[Setting Connection Attempts, Timeout and Delay Parameters](#) in the *TIBCO Enterprise Message Service User's Guide*

# tibems\_SetConnectAttemptTimeout

Function

**Purpose** Modify the connection timeout.

**C Declaration** `tibems_status tibems_SetConnectAttemptTimeout(  
tibems_int timeout);`

**COBOL Call** `CALL "tibems_SetConnectAttemptTimeout"  
USING BY VALUE timeout,  
RETURNING tibems-status  
END-CALL.`

**Remarks** This setting governs all client `tibemsConnection` objects. It determines the maximum time (in milliseconds) the client allows to establish a connection to the server.

Parameters	Parameter	Description
	timeout	Set the connect attempt timeout to this time (in milliseconds). Zero is a special value, which specifies no timeout.  The default value is 0.

**See Also** [tibems\\_GetConnectAttemptTimeout on page 383](#)  
[Setting Connection Attempts, Timeout and Delay Parameters](#) in the *TIBCO Enterprise Message Service User's Guide*

## tibems\_SetExceptionOnFTEvents

### Function

**Purpose** Sets whether exception listener is called each step of the fault-tolerant switchover process.

**C Declaration** `tibems_status tibems_SetExceptionOnFTEvents(  
tibems_bool* callExceptionListener);`

**COBOL Call** `CALL "tibems_SetExceptionOnFTEvents"  
USING BY VALUE callExceptionListener,  
RETURNING tibems-status  
END-CALL.`

**Remarks** This setting determines exception behavior when the fault-tolerant client goes through phases in the failover process. If an exception listener is set on the connection, the callback is invoked when the client detects:

- Disconnection, or TIBEMS\_SERVER\_DISCONNECTED.
- Each reconnect attempt, or TIBEMS\_SERVER\_RECONNECTING.
- Reconnection to the server, or TIBEMS\_SERVER\_RECONNECTED.

This call reports on all events during the failover process. To report only the successful reconnection event, use the [tibems\\_setExceptionOnFTSwitch](#) method instead.

### Parameters

Parameter	Description
<code>callExceptionListener</code>	<p>When true, the connection's <code>ExceptionHandler</code> catches an exception, which contains a status code indicating the state of the fault-tolerant failover: TIBEMS_SERVER_DISCONNECTED, TIBEMS_SERVER_RECONNECTING, or TIBEMS_SERVER_RECONNECTED</p> <p>When false, fault-tolerant failover does not trigger an exception in the client.</p>

**See Also** [tibems\\_GetExceptionOnFTEvents on page 384](#)  
[tibems\\_setExceptionOnFTSwitch on page 400](#)

[Setting an Exception Listener](#) in the *TIBCO Enterprise Message Service User's Guide*

# tibems\_setExceptionOnFTSwitch

Function

**Purpose** Sets whether exception listener is called on fault-tolerant switchover.

**C Declaration** `tibems_status tibems_setExceptionOnFTSwitch(  
tibems_bool callExceptionListener);`

**COBOL Call** `CALL "tibems_setExceptionOnFTSwitch"  
USING BY VALUE callExceptionListener,  
RETURNING tibems-status  
END-CALL.`

**Remarks** This setting determines exception behavior when the client successfully switches to a different server (fault-tolerant failover).

Parameters	Parameter	Description
	callExceptionListener	When true, the connection's ExceptionListener catches an exception, which contains the name of the new server.  When false, fault-tolerant failover does not trigger an exception in the client.

**See Also** [tibems\\_GetExceptionOnFTSwitch on page 385](#)  
[tibems\\_GetExceptionOnFTEvents on page 384](#)  
[Setting an Exception Listener](#) in the *TIBCO Enterprise Message Service User's Guide*



# tibems\_SetMulticastDaemon

Function

**Purpose** Sets the port on which the EMS client will connect to the multicast daemon.

**C Declaration** `tibems_status tibems_SetMulticastDaemon(  
const char* port);`

Parameters	Parameter	Description
	port	The multicast daemon port that connections created in this application will connect to.

**Remarks** A connection to the multicast daemon is required when multicast is enabled and a consumer is subscribed to a multicast-enabled topic. Setting the port with this method will override the default port supplied by the server and any port specified in a connection factory for all connections in the application.

**See Also** [tibemsConnectionFactory\\_SetMulticastDaemon on page 272](#)  
[tibems\\_SetMulticastEnabled on page 402](#)  
[Chapter 13, Using Multicast](#), in the *TIBCO Enterprise Message Service User's Guide*

# tibems\_SetMulticastEnabled

Function

**Purpose** Set whether message consumers subscribed to multicast-enabled topics in the EMS client application will receive messages over multicast.

**C Declaration** `tibems_status tibems_SetMulticastEnabled(  
tibems_bool enabled);`

Parameters	Parameter	Description
	enabled	When true, multicast is enabled for the client.  When false, multicast is disabled and the client application will receive all messages over TCP.

**Remarks** When enabled, message consumers subscribed to a multicast-enabled topic will receive messages over multicast. By default, multicast is enabled.  
  
tibems\_SetMulticastEnabled overrides both the EMS server and factory settings that enable multicast.

**See Also** [tibemsConnectionFactory\\_SetMulticastDaemon on page 272](#)  
  
[multicast](#) and [multicast\\_daemon\\_default](#) server parameters in the *TIBCO Enterprise Message Service User's Guide*

## tibems\_SetMulticastExceptionListener

---

Function

**Purpose** Sets the multicast exception listener for an application.

**C Declaration** `tibems_status tibems_SetMulticastExceptionListener(  
 tibemsMulticastExceptionCallback listener,  
 void* closure);`

**Parameters**

Parameter	Description
listener	Register this multicast exception listener callback.
closure	This parameter receives the closure data in this location, which the program supplied in the call that registered the callback. This is a way to pass application related data to the multicast exception listener callback.

**See Also** [tibemsMulticastExceptionCallback on page 226](#)  
[Chapter 13, Using Multicast](#), in the *TIBCO Enterprise Message Service User's Guide*

# tibems\_SetReconnectAttemptCount

Function

**Purpose** Modify the reconnection attempts limit.

**C Declaration** `tibems_status tibems_SetReconnectAttemptCount(  
tibems_int count);`

**COBOL Call** `CALL "tibems_SetReconnectAttemptCount"  
USING BY VALUE count,  
RETURNING tibems-status  
END-CALL.`

**Remarks** This setting governs all client `tibemsConnection` objects as they attempt to reconnect to the server after a network disconnect.

Parameters	Parameter	Description
	count	Set the reconnect limit to this value.  The default value is 4. The minimum value is 1.

**See Also** [tibems\\_GetReconnectAttemptCount on page 388](#)  
[Setting Reconnection Failure Parameters](#) in the *TIBCO Enterprise Message Service User's Guide*.

## tibems\_SetReconnectAttemptDelay

---

Function

**Purpose** Modify the reconnection delay.

**C Declaration** `tibems_status tibems_SetReconnectAttemptDelay(  
tibems_int delay);`

**COBOL Call** `CALL "tibems_SetReconnectAttemptDelay"  
USING BY VALUE delay,  
RETURNING tibems-status  
END-CALL.`

**Remarks** This setting governs all client [tibemsConnection](#) objects. It determines the delay time between successive attempt to establish a connection to the server. Its value is the time (in milliseconds) between connection attempts.

**Parameters**

Parameter	Description
delay	Set the reconnect delay to this value.  The default value is 500. The minimum value is 250.

**See Also** [tibems\\_GetReconnectAttemptDelay on page 389](#)  
[Setting Reconnection Failure Parameters](#) in the *TIBCO Enterprise Message Service User's Guide*.

# tibems\_SetReconnectAttemptTimeout

Function

**Purpose** Modify the reconnection timeout.

**C Declaration** `tibems_status tibems_SetReconnectAttemptTimeout(  
tibems_int timeout);`

**COBOL Call** `CALL "tibems_SetReconnectAttemptTimeout"  
USING BY VALUE timeout,  
RETURNING tibems-status  
END-CALL.`

**Remarks** This setting governs all client `tibemsConnection` objects. It determines the maximum time (in milliseconds) to client will allow to reestablish a connection to the server.

Parameters	Parameter	Description
	timeout	Set the reconnect timeout to this value. Zero is a special value, which specifies no timeout.  The default value is 0.

**See Also** [tibems\\_GetReconnectAttemptTimeout on page 390](#)  
[Setting Reconnection Failure Parameters](#) in the *TIBCO Enterprise Message Service User's Guide*.

# tibems\_SetSocketReceiveBufferSize

Function

**Purpose** Set the size of socket receive buffers.

**C Declaration** `tibems_status tibems_SetSocketReceiveBufferSize(  
tibems_int size);`

**COBOL Call** `CALL "tibems_SetSocketReceiveBufferSize"  
USING BY VALUE size,  
RETURNING tibems-status  
END-CALL.`

**Remarks** This value overrides the operating system’s default for the size of receive buffers associated with sockets that the client uses for connections to the server.

Use this call before creating server connections. This call sets an override buffer size for new socket buffers; it does not change the size of existing socket buffers.

Parameters	Parameter	Description
	size	Sockets use receive buffers of this size (in kilobytes).

**See Also** [tibems\\_GetSocketReceiveBufferSize on page 391](#)

# tibems\_SetSocketSendBufferSize

Function

**Purpose** Set the size of socket send buffers.

**C Declaration** `tibems_status tibems_SetSocketSendBufferSize(  
tibems_int size);`

**COBOL Call** `CALL "tibems_SetSocketSendBufferSize"  
USING BY VALUE size,  
RETURNING tibems-status  
END-CALL.`

**Remarks** This value overrides the operating system’s default for the size of send buffers associated with sockets that the client uses for connections to the server.

Use this call before creating server connections. This call sets an override buffer size for new socket buffers; it does not change the size of existing socket buffers.

Parameters	Parameter	Description
	size	Sockets use send buffers of this size (in kilobytes).

**See Also** [tibems\\_GetSocketSendBufferSize on page 392](#)



## tibems\_SetTraceFile

### Function

**Purpose** Start or stop directing client trace information to a file.

**C Declaration**

```
tibems_status tibems_SetTraceFile(
    const char* fileName);
```

**COBOL Call**

```
CALL "tibems_SetTraceFile"
    USING BY REFERENCE fileName,
    RETURNING tibems-status
END-CALL.
```

Parameters	Parameter	Description
	fileName	The name of the file to which tracing information should be directed, or NULL to stop directing tracing to a file.

**Remarks** This call directs client tracing information to the file specified by the `fileName` argument. This function does not generate tracing; tracing must be enabled separately. Tracing can be enabled using the `set server client_trace` command in the administration tool, or, for SSL tracing, using the [tibemsSSL\\_SetTrace](#) or `tibemsSSL_SetDebugTrace` function. See the *TIBCO Enterprise Message Service User's Guide* for more information about the administration tool.

To stop sending tracing information to the file and resume regular tracing to `stderr` or `stdout`, call `tibems_SetTraceFile`, passing NULL for `fileName` parameter.

Status Code	Description
TIBEMS_ILLEGAL_STATE	Tracing information is already being directed to a file, and the <code>fileName</code> argument was not NULL.
TIBEMS_IO_FAILED	The file specified by <code>fileName</code> could not be opened in append mode.

# tibems\_Sleep

Function

**Purpose** Sleep thread.

**C Declaration** `void tibems_Sleep(  
tibems_long milliseconds);`

**COBOL Call** `CALL "tibems_Sleep"  
USING BY VALUE milliseconds  
END-CALL.`



COBOL usage of milliseconds is COMP-2.

**Parameters**

Parameter	Description
milliseconds	Sleep for this interval (in milliseconds).

**Remarks** This call instructs its calling thread to sleep for a fixed interval (in milliseconds).

## tibems\_Version

---

### Function

**Purpose** Return the EMS library version number.

**C Declaration** `const char* tibems_Version(void);`

**COBOL Call** `CALL "tibems_Version"  
RETURNING tibems-Pointer  
END-CALL.`



tibems-Pointer has usage pointer.

After this COBOL call, store the tibems-Pointer data item to tibems-Cobol-Char, using the following SET statement:

`SET ADDRESS OF tibems-Cobol-Char TO tibems-Pointer.`

**Remarks** This string represents the three-part version number of the release (*major.minor.update*).



## Chapter 15 Administration

This chapter documents the C Admin API functions that can be used to query the runtime state of EMS messaging applications.

### Topics

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- [tibemsAdmin](#), page 415
- [tibemsCollection](#), page 436
- [tibemsConsumerInfo](#), page 441
- [tibemsDetailedDestStat](#), page 462
- [tibemsProducerInfo](#), page 466
- [tibemsQueueInfo](#), page 474
- [tibemsServerInfo](#), page 491
- [tibemsStatData](#), page 497
- [tibemsTopicInfo](#), page 502

# Administration Overview

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TIBCO Enterprise Message Service C Admin API provides a C program with the ability to query the `tibemsd` server and obtain information regarding the state of the `tibemsd`, message consumers, producers, topics and queues at runtime. TIBCO Enterprise Message Service C Admin API closely mimics a subset of the Java Admin API query functionality. It does not provide configuration capability.

Including the Administration Library	The C Admin API is provided as a separate library. For information about including the C Admin API, see the <a href="#">C Programmer’s Checklist on page 311</a> of the <i>TIBCO Enterprise Message Service User’s Guide</i> .
--	--

## tibemsAdmin

### Type

**Purpose** Represent an administrative connection to the server.

**Remarks** `tibemsAdmin` provides an administrative connection to the server. To use these functions, first create an administrative connection to the server with `tibemsAdmin_Create`. With that connection you can retrieve information about the server and its components at runtime.

Function	Description	Page
<code>tibemsAdmin_Close</code>	Close the administrative connection to the server.	417
<code>tibemsAdmin_Create</code>	Create an administration connection to a server.	418
<code>tibemsAdmin_GetCommandTimeout</code>	Get the command timeout.	420
<code>tibemsAdmin_GetConsumer</code>	Get consumer with specified ID.	421
<code>tibemsAdmin_GetConsumers</code>	Returns consumers matching specified filters.	422
<code>tibemsAdmin_GetInfo</code>	Get the current set of server metrics.	425
<code>tibemsAdmin_GetProducerStatistics</code>	Returns statistical information about producers that match the specified parameters.	426
<code>tibemsAdmin_GetQueue</code>	Get information about a queue of the given queue name.	428
<code>tibemsAdmin_GetQueues</code>	Get the queues that match the given pattern and the given permanence type.	429
<code>tibemsAdmin_GetTopic</code>	Get the topic for the given topic name.	431
<code>tibemsAdmin_GetTopics</code>	Get the topics that match the given pattern and the given permanence type.	432
<code>tibemsAdmin_SetCommandTimeout</code>	Sets the command timeout.	434

Function	Description	Page
<code>tibemsAdmin_SetExceptionHandler</code>	Set an exception listener for the connection used by the administration API to communicate with the EMS server.	434

**Related Types**

- `tibemsCollection` on page 436
- `tibemsConsumerInfo` on page 441
- `tibemsProducerInfo` on page 466
- `tibemsQueueInfo` on page 474
- `tibemsTopicInfo` on page 502



# tibemsAdmin\_Close

Function

**Purpose** Close the administrative connection to the server.

**C Declaration** `tibems_status tibemsAdmin_Close(  
tibemsAdmin admin);`

**COBOL Call** `CALL "tibemsAdmin_Close"  
USING BY VALUE admin,  
RETURNING tibems-status  
END-CALL.`

Parameters	Parameter	Description
	admin	The administrative connection to be closed.

**See Also** [tibemsAdmin\\_Create on page 418](#)

# tibemsAdmin\_Create

Function

**Purpose** Create an administration connection to a server.

**C Declaration** `tibems_status tibemsAdmin_Create(  
tibemsAdmin* admin,  
const char* url,  
const char* userName,  
const char* password,  
tibemsSSLParams sslparams);`

**COBOL Call** `CALL "tibemsAdmin_Create"  
USING BY REFERENCE admin,  
BY REFERENCE url,  
BY REFERENCE userName,  
BY REFERENCE password,  
BY VALUE sslParams,  
RETURNING tibems-status  
END-CALL.`



sslParams has usage pointer.

**Parameters**

Parameter	Description
admin	Store the new administrative connection in this location.
url	Find the EMS server at this URL.
userName	Authenticate the client program to the server with this username.
password	Authenticate the client program to the server with this password.
sslparams	Establish SSL communication using these parameters. See the section on SSL server parameters in the <i>TIBCO Enterprise Message Service User's Guide</i> for more information.

**Status Codes**

Status Code	Description
<a href="#">TIBEMS_SERVER_NOT_CONNECTED</a>	<ul style="list-style-type: none"><li>• No server is running at the specified URL.</li><li>• The call could not communicate with a server because of mismatched SSL and TCP protocols.</li><li>• Other error situations are possible.</li></ul>
<a href="#">TIBEMS_SECURITY_EXCEPTION</a>	<ul style="list-style-type: none"><li>• The server rejected the connection because the username or password was invalid.</li><li>• SSL setup is incorrect.</li></ul>

# tibemsAdmin\_GetCommandTimeout

Function

**Purpose** Get the command timeout.

**C Declaration** `tibems_status tibemsAdmin_GetCommandTimeout(  
tibemsAdmin admin,  
tibems_long* timeout);`

**COBOL Call** `CALL "tibemsAdmin_GetCommandTimeout"  
USING BY VALUE admin,  
BY REFERENCE timeout,  
RETURNING tibems-status  
END-CALL.`

**Parameters**

Parameter	Description
admin	Get the command timeout of this administrative connection.
timeout	The function stores the timeout in this location.

**Remarks** Gets the command timeout in milliseconds. The command timeout determines how long to wait for the server to respond to a command. If the server does not respond within the timeout limit, the command throws an exception. The default timeout is 60000 (60 seconds).

**See Also** [tibemsAdmin\\_SetCommandTimeout on page 434](#)

# tibemsAdmin\_GetConsumer

Function

**Purpose** Get consumer with specified ID.

**C Declaration** `tibems_status tibemsAdmin_GetConsumer(  
tibemsAdmin admin,  
tibemsConsumerInfo* consumerInfo,  
tibems_long ID);`

**COBOL Call** `CALL "tibemsAdmin_GetConsumer"  
USING BY VALUE admin,  
BY REFERENCE consumerInfo,  
BY VALUE consumerID,  
RETURNING tibems-status  
END-CALL.`

Parameters	Parameter	Description
	admin	Get a consumer using this administrative connection.
	consumerInfo	The functions stores information about the consumer in this location.
	ID	The consumer ID for which the function will retrieve information.

**Remarks** Returns the consumer object with specified ID. The returned consumer object contains information about consumer known to server, including details, available statistics. If a consumer with the specified ID does not exist, the function returns NULL.

Status Codes	Status Code	Description
	TIBEMS_TIMEOUT	The administrative query timed out while waiting for a server response.
	TIBEMS_NOT_FOUND	No consumer found matching the requested ID.

**See Also** [tibemsConsumerInfo on page 441](#)

# tibemsAdmin\_GetConsumers

Function

**Purpose** Returns consumers matching specified filters.

**C Declaration** `tibems_status tibemsAdmin_GetConsumers(  
tibemsAdmin admin,  
tibemsCollection* collection,  
tibems_long connectionID,  
const char* username,  
tibemsDestinationInfo destination,  
tibems_bool durable,  
tibems_int dataFlags)`

**COBOL Call** `CALL "tibemsAdmin_GetConsumers"  
USING BY VALUE admin,  
BY REFERENCE collection,  
BY VALUE connectionID,  
BY REFERENCE username,  
BY VALUE destination,  
BY VALUE durable,  
BY VALUE dataFlags,  
RETURNING tibems-status  
END-CALL.`



collection has usage pointer.

**Parameters**

Parameter	Description
admin	Get consumers using this administrative connection.
collection	The function stores the returned consumer data in the location specified here, as a collection of tibemsConsumerInfo objects.
connectionID	connectionID is reserved for future use and must be set to zero.
username	If specified, only consumers for connections that use the specified user name will be returned. Specify NULL if all consumers should be returned.

Parameter	Description
destination	<p>If specified, only consumers on destinations of the same type and matching this destination name will be returned. destination can be:</p> <ul style="list-style-type: none"> <li>• A <code>tibemsQueueInfo</code> or <code>tibemsTopicInfo</code> object.</li> <li>• <code>TIBEMS_INVALID_ADMIN_ID</code> to return all consumers.</li> </ul> <p>The destination name may include wildcards.</p>
durable	<p>When <code>TRUE</code>, this parameter specifies that only durable topic subscribers should be returned.</p> <p>This parameter is applied only to topic subscribers, and when included prevents the function from returning non-durable topic consumers. However, it does not affect which queue consumers are returned.</p>
dataFlags	<p>Specifies what information will be returned for each consumer that matches the filter criteria. Possible values for this parameter are:</p> <ul style="list-style-type: none"> <li>• <code>GET_STAT</code>—gets a <code>tibemsStatData</code> for each consumer.</li> <li>• <code>GET_DETAILED_STAT</code>—gets a <code>tibemsCollection</code> of <code>tibemsDetailedDestStat</code> objects for each consumer</li> </ul> <p>When no flag is specified, the returned information does not include statistics.</p> <p>If statistics are disabled in the server, no statistics will be returned regardless of the flag specified in this parameter.</p>

**Remarks** Returns a list of consumers matching the specified filters. The consumers are returned in a `tibemsCollection`; if no consumers matching the filter criteria exist in the server, then no `tibemsCollection` will be returned.

The returned consumers are not sorted and are placed in the `tibemsCollection` object in any order. Your application may need to sort the consumers into a specific order if required.

**Example 1** For example, this call returns all consumers known to the server, but does not include statistical information for each consumer:

```
tibemsAdmin      admin;
tibemsCollection consumerInfoCollection;
tibems_status    status;
status = tibemsAdmin_GetConsumers(admin, &consumerInfoCollection,
0L, NULL, TIBEMS_ADMIN_INVALID_ID, TIBEMS_FALSE, 0);
```

**Example 2** This call returns all queue consumers and all durable topic consumers:

```
tibemsAdmin      admin;
tibemsCollection consumerInfoCollection;
tibems_status    status;
status = tibemsAdmin_GetConsumers(admin, &consumerInfoCollection,
OL, NULL, TIBEMS_ADMIN_INVALID_ID, TIBEMS_TRUE, 0);
```

**Example 3** This call returns all durable topic consumers that subscribe to any topic matching topic news.\*. If statistics are enabled in the server, the returned tibemsConsumerInfo objects will include detailed statistics about the consumers.

```
tibemsAdmin      admin;
tibemsCollection consumerInfoCollection;
tibems_status    status;
tibemsTopicInfo  topicInfo;

status = tibemsTopicInfoCreate(&topicInfo, "news.*");
status = tibemsAdmin_GetConsumers(admin, &consumerInfoCollection,
OL, NULL, topicInfo, TIBEMS_TRUE, TIBEMS_GET_DETAILED_STAT);
```

**Example 4** This call returns all queue consumers created by user OrderProcessor and receiving messages from all queues matching name purchase.order.>. Each tibemsConsumerInfo object will include the full statistics available for the consumer.

```
tibemsAdmin      admin;
tibemsCollection consumerInfoCollection;
tibems_status    status;
tibemsQueueInfo  queueInfo;

status = tibemsQueueInfoCreate(&queueInfo, "purchase.order.>");
status = tibemsAdmin_GetConsumers(admin, &consumerInfoCollection,
OL, "OrderProcessor", queueInfo, TIBEMS_FALSE,
TIBEMS_GET_DETAILED_STAT);
```

**Status Codes**

Status Code	Description
TIBEMS_TIMEOUT	The administrative query timed out while waiting for a server response.
TIBEMS_NOT_FOUND	No consumers found matching the specified filters.

**See Also** [tibemsStatData on page 497](#)  
[tibemsDetailedDestStat on page 462](#)



# tibemsAdmin\_GetInfo

Function

**Purpose** Get the current set of server metrics.

**C Declaration** `tibems_status tibemsAdmin_GetInfo(  
tibemsAdmin admin,  
tibemsServerInfo* serverInfo);`

**COBOL Call** `CALL "tibemsAdmin_GetInfo"  
USING BY VALUE admin,  
BY REFERENCE serverInfo,  
RETURNING tibems-status  
END-CALL.`

Parameters

Parameter	Description
admin	Get server metrics using this administrative connection.
serverInfo	The function stores the server metrics in this location.

Status Codes

Status Code	Description
TIBEMS_TIMEOUT	The administrative query timed out while waiting for a server response.

# tibemsAdmin\_GetProducerStatistics

Function

**Purpose** Returns statistical information about producers that match the specified parameters.

**C Declaration** `tibems_status tibemsAdmin_GetProducerStatistics(  
tibemsAdmin admin,  
tibemsCollection* collection,  
tibems_long connectionID,  
const char* username,  
tibemsDestinationInfo destination);`

**COBOL Call** `CALL "tibemsAdmin_GetProducerStatistics"  
USING BY VALUE admin,  
BY REFERENCE prodInfos,  
BY REFERENCE username,  
BY VALUE connectionID,  
BY VALUE destination,  
RETURNING tibems-status  
END-CALL.`



prodInfos has usage pointer.

Parameters

Parameter	Description
admin	Get the producer statistics using this administrative connection.
collection	The function stores the returned producer data in the location specified here, as a collection of tibemsProducerInfo objects.
connectionID	Must be set to zero. This parameter is reserved for future use.
username	If specified, only producers for connections that use the specified user name will be returned. Specify NULL if all producers should be returned.

Parameter	Description
destination	<p>If specified, only producers on destinations of the same type and matching this destination name will be returned. destination can be:</p> <ul style="list-style-type: none"><li>• A <a href="#">tibemsQueueInfo</a> or <a href="#">tibemsTopicInfo</a> object.</li><li>• TIBEMS_INVALID_ADMIN_ID to return all producers.</li></ul> <p>The destination name may include wildcards.</p>

**Remarks** Returns information about message producers, including the statistical information about producers with specified parameters.

Status Codes	Status Code	Description
	TIBEMS_TIMEOUT	The administrative query timed out while waiting for a server response.
	TIBEMS_NOT_FOUND	No producers found matching the specified parameters.

**See Also** [tibemsStatData on page 497](#)  
[tibemsDetailedDestStat on page 462](#)

# tibemsAdmin\_GetQueue

Function

**Purpose** Get information about a queue of the given queue name.

**C Declaration** `tibems_status tibemsAdmin_GetQueue(  
tibemsAdmin admin,  
tibemsQueueInfo* queueInfo,  
const char* queueName);`

**COBOL Call** `CALL "tibemsAdmin_GetQueue"  
USING BY VALUE admin,  
BY REFERENCE queueInfo,  
BY REFERENCE name,  
RETURNING tibems-status  
END-CALL.`

Parameters	Parameter	Description
	admin	Get information about a queue using this administrative connection.
	queueInfo	The function will store information about the specified queue in this location.
	queueName	The name of the queue for which information will be retrieved.

**Remarks** This function gets a `tibemsQueueInfo` object for the specified queue name. If the `queueName` does not exist, the function returns `TIBEMS_NOT_FOUND`.

Status Codes	Status Code	Description
	TIBEMS_TIMEOUT	The administrative query timed out while waiting for a server response.
	TIBEMS_NOT_FOUND	No queue found matching the specified <code>queueName</code> .

**See Also** [tibemsQueueInfo on page 474](#)

# tibemsAdmin\_GetQueues

Function

**Purpose** Get the queues that match the given pattern and the given permanence type.

**C Declaration**

```
tibems_status tibemsAdmin_GetQueues(  
    tibemsAdmin admin,  
    tibemsCollection* collection,  
    const char* pattern,  
    tibems_int permType);
```

**COBOL Call**

```
CALL "tibemsAdmin_GetQueues"  
  USING BY VALUE admin,  
        BY REFERENCE collection,  
        BY REFERENCE pattern,  
        BY VALUE permType,  
        RETURNING tibems-status  
END-CALL.
```



collection has usage pointer.

Parameters

Parameter	Description
admin	Get information about queues using this administration connection.
collection	The function stores the returned queue data in the location specified here, as a collection of tibemsQueueInfo objects.
pattern	<p>The queue name pattern that must be matched.</p> <p>The pattern may contain the wildcards * and &gt;. A pattern of &gt; or NULL will return all queues that exist in the server. See the <i>TIBCO Enterprise Message Service User's Guide</i> for information about working with wildcards in queues.</p>

Parameter	Description
permType	<p>The permanence type of the queue must match the type given here. Possible permanence types are:</p> <ul style="list-style-type: none"><li>TIBEMS_DEST_GET_ALL – Return all queues that match the pattern.</li><li>TIBEMS_DEST_GET_STATIC – Return only static queues that match the pattern.</li><li>TIBEMS_DEST_GET_DYNAMIC – Return only dynamic queues that match the pattern.</li><li>TIBEMS_DEST_GET_NOTEMP – Do not return any temporary queues.</li></ul> <p>A NULL value matches all queues.</p>

Status Codes

Status Code	Description
TIBEMS_TIMEOUT	The administrative query timed out while waiting for a server response.
TIBEMS_NOT_FOUND	No queues found matching the specified pattern and performance type.

**See Also** [tibemsQueueInfo on page 474](#)

# tibemsAdmin\_GetTopic

Function

**Purpose** Get the topic for the given topic name.

**C Declaration** `tibems_status tibemsAdmin_GetTopic(  
tibemsAdmin admin,  
tibemsTopicInfo* topicInfo,  
const char* topicName);`

**COBOL Call** `CALL "tibemsAdmin_GetTopic"  
USING BY VALUE admin,  
BY REFERENCE topicInfo,  
BY REFERENCE name,  
RETURNING tibems-status  
END-CALL.`

Parameters	Parameter	Description
	admin	Get information about a topic using this administrative connection.
	topicInfo	The function stores information about the topic in this location.
	topicName	The name of the topic for which information will be retrieved.

**Remarks** This function gets a `tibemsTopicInfo` object for the specified topic name. If the `topicName` does not exist, the function returns `TIBEMS_NOT_FOUND`.

Status Codes	Status Code	Description
	TIBEMS_TIMEOUT	The administrative query timed out while waiting for a server response.
	TIBEMS_NOT_FOUND	No topic found matching the specified <code>topicName</code> .

**See Also** [tibemsTopicInfo on page 502](#)

# tibemsAdmin\_GetTopics

Function

**Purpose** Get the topics that match the given pattern and the given permanence type.

**C Declaration** `tibems_status tibemsAdmin_GetTopics(  
tibemsAdmin admin,  
tibemsCollection* collection,  
const char* pattern,  
tibems_int permType);`

**COBOL Call** `CALL "tibemsAdmin_GetTopics"  
USING BY VALUE admin,  
BY REFERENCE collection,  
BY REFERENCE pattern,  
BY VALUE permType,  
RETURNING tibems-status  
END-CALL.`



collection has usage pointer.

**Parameters**

Parameter	Description
admin	Get information about topics using this administrative connection.
collection	The function stores the returned topic data in the location specified here, as a collection of tibemsTopicInfo objects.
pattern	The topic name pattern that must be matched.  The pattern may contain the wildcards * and >. A pattern of > or NULL will return all topics. See the <i>TIBCO Enterprise Message Service User's Guide</i> for information about working with wildcards in topics.



Parameter	Description
permType	<p>The permanence type of the topic must match the type given here. Possible permanence types are:</p> <ul style="list-style-type: none"><li>• TIBEMS_DEST_GET_ALL – Return all topics that match the pattern.</li><li>• TIBEMS_DEST_GET_STATIC – Return only static topics that match the pattern.</li><li>• TIBEMS_DEST_GET_DYNAMIC – Return only dynamic topics that match the pattern.</li><li>• TIBEMS_DEST_GET_NOTEMP – Do not return any temporary topics.</li></ul> <p>A NULL value matches all topics.</p>

Status Codes

Status Code	Description
TIBEMS_TIMEOUT	The administrative query timed out while waiting for a server response.
TIBEMS_NOT_FOUND	No topics found matching the specified pattern and performance type.

See Also [tibemsTopicInfo on page 502](#)

# tibemsAdmin\_SetCommandTimeout

Function

**Purpose** Sets the command timeout.

**C Declaration** `tibems_status tibemsAdmin_SetCommandTimeout(  
tibemsAdmin admin,  
tibems_long timeout);`

**COBOL Call** `CALL "tibemsAdmin_SetCommandTimeout"  
USING BY VALUE admin,  
BY VALUE timeout,  
RETURNING tibems-status  
END-CALL.`

**Parameters**

Parameter	Description
admin	Set the command timeout on this administrative connection.
timeout	The length of time, in milliseconds, to wait for the server to respond to a command. When not specified, the default command timeout is 60000 (60 seconds).

**Remarks** Sets the command timeout. The command timeout determines how long, in milliseconds, the command waits for the server to respond. If the server does not respond within the timeout limit, the command throws an exception. The default timeout is 60000 (60 seconds).

**See Also** [tibemsAdmin\\_GetCommandTimeout on page 420](#)

## tibemsAdmin\_SetExceptionListener

### Function

**Purpose** Set an exception listener for the connection used by the administration API to communicate with the EMS server.

**C Declaration** `tibems_status tibemsAdmin_SetExceptionListener(  
tibemsAdmin admin,  
tibemsExceptionCallback listener,  
const void* closure);`

**COBOL Call** `CALL "tibemsAdmin_SetExceptionListener_STL"  
USING BY VALUE admin,  
BY REFERENCE tibems-AdminException-Status,  
BY VALUE TIBEMS-NULLPTR,  
RETURNING tibems-status  
END-CALL.`

### Parameters

Parameter	Description
admin	Resister the exception listener callback on this administration connection.
listener	Register this exception listener callback.  For more information about exception listeners, see the <i>TIBCO Enterprise Message Service User's Guide</i> .
closure	Register this closure argument.


**Remarks** This is an alternate pathway for alerting a client program of connection problems. The program defines an exception listener callback function, and calls this function to register the callback and a closure argument. When the client library detects a connection problem, it calls the callback with a status code that identifies the problem.

**See Also** [tibemsConnection\\_SetExceptionListener on page 215](#)  
[Asynchronous Errors on page 202](#).  
[tibemsExceptionCallback on page 225](#)

# tibemsCollection

Type

- Purpose**Represent a collection of administrative objects.
- Remarks**Collections provide an array-like set of administrative objects for use by the calling program. Administrative objects include [tibemsQueueInfo](#), [tibemsTopicInfo](#), [tibemsConsumerInfo](#), [tibemsProducerInfo](#), and [tibemsDetailedDestStat](#) objects.



Collections are not thread-safe and should only be operated on by a single application thread.

Function	Description	Page
<a href="#">tibemsCollection_Destroy</a>	Destroy a collection.	437
<a href="#">tibemsCollection_GetCount</a>	Get the count of objects in a collection.	438
<a href="#">tibemsCollection_GetFirst</a>	Get the first object in a collection.	439
<a href="#">tibemsCollection_GetNext</a>	Get the next object in a collection.	440

- See Also**[tibemsAdmin\\_GetQueues](#) on page 429
- [tibemsAdmin\\_GetTopics](#) on page 432
- [tibemsAdmin\\_GetConsumers](#) on page 422
- [tibemsAdmin\\_GetProducerStatistics](#) on page 426
- [tibemsConsumerInfo\\_GetDetailedStatistics](#) on page 449
- [tibemsProducerInfo\\_GetDetailedStatistics](#) on page 471

# tibemsCollection\_Destroy

Function

**Purpose** Destroy a collection.

**C Declaration** `tibems_status tibemsCollection_Destroy(  
tibemsCollection collection);`

**COBOL Call** `CALL "tibemsCollection_Destroy"  
USING BY VALUE collection,  
RETURNING tibems-status  
END-CALL.`



collection has usage pointer.

**Parameters**

Parameter	Description
collection	The collection object to be destroyed.

**Remarks**

Collections are created internally by the EMS library. Use `tibemsCollection_Destroy` to remove collections of `tibemsQueueInfo`, `tibemsTopicInfo`, `tibemsConsumerInfo`, and `tibemsProducerInfo` objects. Collections of `tibemsDetailedDestStat` objects cannot be directly destroyed by the user application. Attempting to destroy a `tibemsDetailedDestStat` object returns `TIBEMS_NOT_PERMITTED`.

**Status Codes**

Status Code	Description
TIBEMS_NOT_PERMITTED	The collection may not be directly destroyed by the application.

# tibemsCollection\_GetCount

Function

**Purpose** Get the count of objects in a collection.

**C Declaration** `tibems_status tibemsCollection_GetCount(  
tibemsCollection collection,  
tibems_int* count);`

**COBOL Call** `CALL "tibemsCollection_GetCount"  
USING BY VALUE collection,  
BY REFERENCE count,  
RETURNING tibems-status  
END-CALL.`



collection has usage pointer.

**Parameters**

Parameter	Description
collection	Get the number of objects in this collection.
count	The function stores the count of objects in the collection in this location.

# tibemsCollection\_GetFirst

Function

**Purpose** Get the first object in a collection.

**C Declaration** `tibems_status tibemsCollection_GetFirst(  
tibemsCollection collection,  
collectionObj* object);`

**COBOL Call** `CALL "tibemsCollection_GetFirst"  
USING BY VALUE collection,  
BY REFERENCE obj,  
RETURNING tibems-status  
END-CALL.`



collection has usage pointer.

**Parameters**

Parameter	Description
collection	Get the first object in this collection.
object	The function stores the first object in the collection in this location.

**Remarks** This function must be called before any calls to tibemsCollection\_GetNext.

# tibemsCollection\_GetNext

Function

**Purpose** Get the next object in a collection.

**C Declaration** `tibems_status tibemsCollection_GetNext(  
tibemsCollection collection,  
collectionObj* object);`

**COBOL Call** `CALL "tibemsCollection_GetNext"  
USING BY VALUE collection,  
BY REFERENCE obj,  
RETURNING tibems-status  
END-CALL.`



collection has usage pointer.

**Parameters**

Parameter	Description
collection	Get the next object in this collection.
object	The function stores the next object in the collection in this location.

**Remarks** This function gets the next object in a collection. If there are no more objects in the collection, `tibemsCollection_GetNext` returns `TIBEMS_NOT_FOUND`.  
  
The function `tibemsCollection_GetFirst` must be called before `tibemsCollection_GetNext` is called for the first time.

**Status Codes**

Status Code	Description
TIBEMS_NOT_INITIALIZED	The collection has not been initialized with a call to <code>tibemsCollection_GetFirst</code> .
TIBEMS_NOT_FOUND	There are no more objects in the collection.



## tibemsConsumerInfo

*Type*

**Purpose** Represent a message consumer in the server.

Function	Description	Page
<a href="#">tibemsConsumerInfo_Destroy</a>	Destroy a consumerInfo object.	443
<a href="#">tibemsConsumerInfo_GetCreateTime</a>	Get a consumer's creation time in milliseconds.	444
<a href="#">tibemsConsumerInfo_GetCurrentMsgCountSentByServer</a>	Get the number of messages sent to consumer and not yet acknowledged by consumer's session.	445
<a href="#">tibemsConsumerInfo_GetCurrentMsgSizeSentByServer</a>	Get the combined size of messages sent to consumer and not yet acknowledged by consumer's session.	446
<a href="#">tibemsConsumerInfo_GetDestinationName</a>	Get the consumer's destination name.	447
<a href="#">tibemsConsumerInfo_GetDestinationType</a>	Get consumer's destination type.	448
<a href="#">tibemsConsumerInfo_GetDetailedStatistics</a>	Get detailed statistics for a wildcarded consumer.	449
<a href="#">tibemsConsumerInfo_GetDurableName</a>	Get the name of the consumer's durable subscription.	450
<a href="#">tibemsConsumerInfo_GetElapsedSinceLastAcknowledged</a>	Get the approximate number of milliseconds elapsed since the last time a message sent to this consumer was acknowledged by the consumer's session.	451

Function	Description	Page
<a href="#">tibemsConsumerInfo_GetElapsedSinceLastSent</a>	Get the approximate number of milliseconds elapsed since last time the server sent a message to this consumer.	452
<a href="#">tibemsConsumerInfo_GetID</a>	Get the consumer's unique ID.	453
<a href="#">tibemsConsumerInfo_GetPendingMessageCount</a>	Get the number of pending messages for a topic consumer.	454
<a href="#">tibemsConsumerInfo_GetPendingMessageSize</a>	Get the combined size of pending messages for a topic consumer.	455
<a href="#">tibemsConsumerInfo_GetStatistics</a>	Get total statistics for a consumer.	456
<a href="#">tibemsConsumerInfo_GetTotalAcknowledgedCount</a>	Get the total number of messages which were delivered to this consumer and have been acknowledged by the consumer's session.	457
<a href="#">tibemsConsumerInfo_GetTotalMsgCountSentByServer</a>	Get the total number of messages the server sent to this consumer since the consumer was created.	458
<a href="#">tibemsConsumerInfo_IsActive</a>	Get the active status of the consumer.	459
<a href="#">tibemsConsumerInfo_IsConnected</a>	Get the connection status of the consumer.	460
<a href="#">tibemsConsumerInfo_IsConnected</a>	Get whether this is connection consumer.	460

**Related Types**    [tibemsStatData](#) on page 497  
                          [tibemsDetailedDestStat](#) on page 462

# tibemsConsumerInfo\_Destroy

Function

**Purpose** Destroy a consumerInfo object.

**C Declaration** `tibems_status tibemsConsumerInfo_Destroy(  
tibemsConsumerInfo consumerInfo);`

**COBOL Call** `CALL "tibemsConsumerInfo_Destroy"  
USING BY VALUE consumerInfo,  
RETURNING tibems-status  
END-CALL.`

Parameters	Parameter	Description
	consumerInfo	The consumerInfo object to be destroyed.

# tibemsConsumerInfo\_GetCreateTime

Function

**Purpose** Get a consumer's creation time in milliseconds.

**C Declaration** `tibems_status tibemsConsumerInfo_GetCreateTime(  
tibemsConsumerInfo consumerInfo,  
tibems_long* ctime);`

**COBOL Call** `CALL "tibemsConsumerInfo_GetCreateTime"  
USING BY VALUE consumerInfo,  
BY REFERENCE created,  
RETURNING tibems-status  
END-CALL.`

**Parameters**

Parameter	Description
consumerInfo	Get the creation time of this consumer.
ctime	The function stores the create time in this location.

## tibemsConsumerInfo\_GetCurrentMsgCountSentByServer

---

### Function

**Purpose** Get the number of messages sent to consumer and not yet acknowledged by consumer's session.

**C Declaration** `tibems_status tibemsConsumerInfo_GetCurrentMsgCountSentByServer(  
tibemsConsumerInfo consumerInfo,  
tibems_long* count);`

**COBOL Call** `CALL "tibemsConsumerInfo_GetCurrentMsgCountSentByServer"  
USING BY VALUE consumerInfo,  
BY REFERENCE count,  
RETURNING tibems-status  
END-CALL.`

**Parameters**

Parameter	Description
consumerInfo	Get the number of messages sent to this consumer.
count	The function stores the number of messages in this location.

**Remarks** This function gets the number of messages sent to but not yet acknowledged by the consumer. For topic consumers, this number is included in the number of pending messages returned by `tibemsConsumerInfo_GetPendingMessageCount`.

**See Also** [tibemsConsumerInfo\\_GetPendingMessageCount on page 454](#)

# tibemsConsumerInfo\_GetCurrentMsgSizeSentByServer

Function

**Purpose** Get the combined size of messages sent to consumer and not yet acknowledged by consumer's session.

**C Declaration** `tibems_status tibemsConsumerInfo_GetCurrentMsgSizeSentByServer(tibemsConsumerInfo consumerInfo, tibems_long* size);`

**COBOL Call** `CALL "tibemsConsumerInfo_GetCurrentMsgSizeSentByServer"  
USING BY VALUE consumerInfo,  
BY REFERENCE size,  
RETURNING tibems-status  
END-CALL.`

**Parameters**

Parameter	Description
consumerInfo	Get the unacknowledged message size for this consumer.
size	The function stores the total size of sent messages in this location.

**Remarks** This function gets the combined size of messages sent to consumer and not yet acknowledged by consumer's session. For topic consumers this size is included into the combined size of pending messages returned by `tibemsConsumerInfo_GetPendingMessageSize`.

**See Also** [tibemsConsumerInfo\\_GetPendingMessageSize on page 455](#)

# tibemsConsumerInfo\_GetDestinationName

Function

**Purpose** Get the consumer's destination name.

**C Declaration** `tibems_status tibemsConsumerInfo_GetDestinationName(  
tibemsConsumerInfo consumerInfo,  
char* name,  
tibems_int name_len);`

**COBOL Call** `CALL "tibemsConsumerInfo_GetDestinationName"  
USING BY VALUE consumerInfo,  
BY REFERENCE destName,  
BY VALUE name_len,  
RETURNING tibems-status  
END-CALL.`

Parameters

Parameter	Description
consumerInfo	Get the destination name of this consumer.
name	The function stores the destination name in this location.
name_len	Length of the name buffer.

# tibemsConsumerInfo\_GetDestinationType

Function

**Purpose** Get consumer's destination type.

**C Declaration** `tibems_status tibemsConsumerInfo_GetDestinationType(  
tibemsConsumerInfo consumerInfo,  
tibemsDestinationType* type);`

**COBOL Call** `CALL "tibemsConsumerInfo_GetDestinationType"  
USING BY VALUE consumerInfo,  
BY REFERENCE destType,  
RETURNING tibems-status  
END-CALL.`

Parameters	Parameter	Description
	consumerInfo	Get the destination type of this consumer.
	type	The function stores the destination type in this location.

**See Also** [tibemsDestinationType on page 143](#)



## tibemsConsumerInfo\_GetDetailedStatistics

Function

**Purpose** Get detailed statistics for a wildcarded consumer.

**C Declaration** `tibems_status tibemsConsumerInfo_GetDetailedStatistics(  
tibemsConsumerInfo consumerInfo,  
tibemsCollection* collection);`

**COBOL Call** `CALL "tibemsConsumerInfo_GetDetailedStatistics"  
USING BY VALUE consumerInfo,  
BY REFERENCE collection,  
RETURNING tibems-status  
END-CALL.`



collection has usage pointer.

### Parameters

Parameter	Description
consumerInfo	Get statistics for this consumer.
collection	The function stores the collection of tibemsDetailedDestStat objects in this location.

**Remarks** Returns detailed statistics for the consumer, giving a breakdown of the consumer's aggregate statistics across all destinations that it has received messages on.

This function returns NULL when there are no detailed statistics available for the consumer. This can happen for any of the following reasons:

- The consumer is not a wildcarded consumer.
- Detailed statistics are disabled in the server.
- Detailed statistics were not included into this consumerInfo object by the function `tibemsAdmin_GetConsumers` that was used to obtain the object.

**See Also** [tibemsAdmin\\_GetConsumers on page 422](#)  
[tibemsCollection on page 436](#)

# tibemsConsumerInfo\_GetDurableName

Function

**Purpose** Get the name of the consumer's durable subscription.

**C Declaration** `tibems_status tibemsConsumerInfo_GetDurableName(  
tibemsConsumerInfo consumerInfo,  
char* name,  
tibems_int name_len);`

**COBOL Call** `CALL "tibemsConsumerInfo_GetDurableName"  
USING BY VALUE consumerInfo,  
BY REFERENCE durableName,  
BY VALUE name_len,  
RETURNING tibems-status  
END-CALL.`

Parameters	Parameter	Description
	consumerInfo	Get the subscription of this consumer.
	name	The function stores to the durable name in this location.
	name_len	The length of the name buffer.

**Remarks** This function returns the name of the consumer's durable subscription. Only durable topic consumers have a durable name. The function returns NULL if the consumer is a non-durable topic subscriber or a queue receiver.

## tibemsConsumerInfo\_GetElapsedSinceLastAcknowledged

Function

**Purpose** Get the approximate number of milliseconds elapsed since the last time a message sent to this consumer was acknowledged by the consumer's session.

**C Declaration** `tibems_status tibemsConsumerInfo_GetElapsedSinceLastAcknowledged(tibemsConsumerInfo consumerInfo, tibems_long* time);`

**COBOL Call** `CALL "tibemsConsumerInfo_GetElapsedSinceLastAcknowledged"  
USING BY VALUE consumerInfo,  
BY REFERENCE time,  
RETURNING tibems-status  
END-CALL.`

Parameters	Parameter	Description
	consumerInfo	Get the milliseconds elapsed for this consumer.
	time	The function stores the elapsed time in this location.

**Remarks** This function gets the approximate number of milliseconds that have elapsed since last time a message sent to this consumer was acknowledged by consumer's session. This value, while returned in milliseconds, has a precision of 1 second. This value should be used for informational purposes only. For example, it can be used to identify consumers which receive messages but do not acknowledge them for some reason.

# tibemsConsumerInfo\_GetElapsedSinceLastSent

Function

**Purpose** Get the approximate number of milliseconds elapsed since last time the server sent a message to this consumer.

**C Declaration** `tibems_status tibemsConsumerInfo_GetElapsedSinceLastSent(  
tibemsConsumerInfo consumerInfo,  
tibems_long* time);`

**COBOL Call** `CALL "tibemsConsumerInfo_GetElapsedSinceLastSent"  
USING BY VALUE consumerInfo,  
BY REFERENCE time,  
RETURNING tibems-status  
END-CALL.`

**Parameters**

Parameter	Description
consumerInfo	Get the milliseconds elapsed for this consumer.
time	The function stores the elapsed milliseconds in this location.

**Remarks** This function gets the approximate number of milliseconds that have elapsed since last time the server sent a message to this consumer. The value returned, while given in milliseconds, has a precision of 1 second. It should be used for informational purposes only.

## tibemsConsumerInfo\_GetID

---

### Function

**Purpose** Get the consumer's unique ID.

**C Declaration** `tibems_status tibemsConsumerInfo_GetID(  
tibemsConsumerInfo consumerInfo,  
tibems_long* cid);`

**COBOL Call** `CALL "tibemsConsumerInfo_GetID"  
USING BY VALUE consumerInfo,  
BY REFERENCE id,  
RETURNING tibems-status  
END-CALL.`

**Parameters**

Parameter	Description
consumerInfo	Get the unique ID of this consumer.
cid	The function stores the consumer ID in this location.

# tibemsConsumerInfo\_GetPendingMessageCount

Function

**Purpose** Get the number of pending messages for a topic consumer.

**C Declaration** `tibems_status tibemsConsumerInfo_GetPendingMessageCount(  
tibemsConsumerInfo consumerInfo,  
tibems_long* count);`

**COBOL Call** `CALL "tibemsConsumerInfo_GetPendingMessageCount"  
USING BY VALUE consumerInfo,  
BY REFERENCE count,  
RETURNING tibems-status  
END-CALL.`

**Parameters**

Parameter	Description
consumerInfo	Get the number of pending messages for this consumer.
count	The function stores the number of pending messages in this location.

**Remarks** This function can be used to retrieve the number of pending messages for a topic consumer only. For queue consumers, the number of pending messages in the corresponding queue must be obtained from the queue. If the consumer is a queue consumer, the function returns 0 (zero).

**See Also** [tibemsQueueInfo\\_GetPendingMessageCount on page 486](#)

# tibemsConsumerInfo\_GetPendingMessageSize

Function

**Purpose** Get the combined size of pending messages for a topic consumer.

**C Declaration** `tibems_status tibemsConsumerInfo_GetPendingMessageSize(  
tibemsConsumerInfo consumerInfo,  
tibems_long* size);`

**COBOL Call** `CALL "tibemsConsumerInfo_GetPendingMessageSize"  
USING BY VALUE consumerInfo,  
BY REFERENCE size,  
RETURNING tibems-status  
END-CALL.`

Parameters	Parameter	Description
	consumerInfo	Get the size for this consumer.
	size	The function stores the size of pending messages in this location.

**Remarks** This function can be used to retrieve the combined size of the pending messages for a topic consumer. If the consumer is a queue consumer, the function returns 0 (zero).

**See Also** [tibemsQueueInfo\\_GetPendingMessageSize on page 487](#)

# tibemsConsumerInfo\_GetStatistics

Function

**Purpose** Get total statistics for a consumer.

**C Declaration** `tibems_status tibemsConsumerInfo_GetStatistics(  
tibemsConsumerInfo consumerInfo,  
tibemsStatData* statData);`

**COBOL Call** `CALL "tibemsConsumerInfo_GetStatistics"  
USING BY VALUE consumerInfo,  
BY REFERENCE stat,  
RETURNING tibems-status  
END-CALL.`

**Parameters**

Parameter	Description
consumerInfo	Get statistics for this consumer.
statData	The function stores the statistics in this location.

**Remarks** This function returns NULL when there are no statistics available for the consumer. This can happen for any of the following reasons:

- Statistics are disabled in the server.
- Statistics were not included into this consumerInfo object by the function tibemsAdmin\_GetConsumers that was used to obtain the object.

**See Also** [tibemsAdmin\\_GetConsumers on page 422](#)  
[tibemsStatData on page 497](#)



## tibemsConsumerInfo\_GetTotalAcknowledgedCount

Function

**Purpose** Get the total number of messages which were delivered to this consumer and have been acknowledged by the consumer's session.

**C Declaration** `tibems_status tibemsConsumerInfo_GetTotalAcknowledgedCount(  
tibemsConsumerInfo consumerInfo,  
tibems_long* count);`

**COBOL Call** `CALL "tibemsConsumerInfo_GetTotalAcknowledgedCount"  
USING BY VALUE consumerInfo,  
BY REFERENCE count,  
RETURNING tibems-status  
END-CALL.`

**Parameters**

Parameter	Description
consumerInfo	Get the number of messages for this consumer.
count	The function stores the message count in this location.

# tibemsConsumerInfo\_GetTotalMsgCountSentByServer

Function

**Purpose** Get the total number of messages the server sent to this consumer since the consumer was created.

**C Declaration** `tibems_status tibemsConsumerInfo_GetTotalMsgCountSentByServer(tibemsConsumerInfo consumerInfo, tibems_long* count);`

**COBOL Call** `CALL "tibemsConsumerInfo_GetTotalMsgCountSentByServer"  
USING BY VALUE consumerInfo,  
BY REFERENCE count,  
RETURNING tibems-status  
END-CALL.`

**Parameters**

Parameter	Description
consumerInfo	Get the number of messages for this consumer.
count	The function stores the message count in this location.

**Remarks** This function returns total number of messages the server sent to this consumer since consumer was created. This value include duplicates of messages that were resent after a consumer's session recovery or rollback. Therefore, the count may not represent true number of unique messages received by this consumer and should be used only for statistical and informational purposes.

# tibemsConsumerInfo\_IsActive

Function

**Purpose** Get the active status of the consumer.

**C Declaration** `tibems_status tibemsConsumerInfo_IsActive(  
tibemsConsumerInfo consumerInfo,  
tibems_bool* active);`

**COBOL Call** `CALL "tibemsConsumerInfo_IsActive"  
USING BY VALUE consumerInfo,  
BY REFERENCE active,  
RETURNING tibems-status  
END-CALL.`

Parameters	Parameter	Description
	consumerInfo	Get the status of this consumer.
	active	The function stores the status of the consumer in this location.

**Remarks** If the consumer is active, the active status is TRUE. Otherwise, active is FALSE. A consumer is active if the server can send messages to it. Only queue consumers which have never called a receive function remain in inactive state.

Queue consumers which called have called [tibemsMsgConsumer\\_Receive](#), [tibemsMsgConsumer\\_ReceiveNoWait](#), or [tibemsMsgConsumer\\_ReceiveTimeout](#) at least once or are configured with a message callback, and all topic consumers are always active. This function can identify inactive queue consumers which have never called a receive function which and have never received any messages from the server, even when pending messages exist in the corresponding queue.

**See Also** [tibemsMsgConsumer\\_Receive on page 168](#)  
[tibemsMsgConsumer\\_ReceiveNoWait on page 169](#)  
[tibemsMsgConsumer\\_ReceiveTimeout on page 170](#)

# tibemsConsumerInfo\_IsConnected

Function

**Purpose** Get the connection status of the consumer.

**C Declaration** `tibems_status tibemsConsumerInfo_IsConnected(  
tibemsConsumerInfo consumerInfo,  
tibems_bool* connected);`

**COBOL Call** `CALL "tibemsConsumerInfo_IsConnected"  
USING BY VALUE consumerInfo,  
BY REFERENCE connected,  
RETURNING tibems-status  
END-CALL.`

**Parameters**

Parameter	Description
consumerInfo	Get the status of this consumer.
connected	The function stores the connection status in this location.

**Remarks** The connection status will be set to TRUE if this consumer is connected to the server, and FALSE otherwise. Only durable topic subscribers may be in a disconnected state. This function always sets the connection status to TRUE for queue receivers and non-durable topic consumers.

## tibemsConsumerInfo\_IsConnectionConsumer

---

### Function

**Purpose** Get whether this is connection consumer.

**C Declaration** `tibems_status tibemsConsumerInfo_IsConnectionConsumer(  
tibemsConsumerInfo consumerInfo,  
tibems_bool* connectionConsumer);`

**COBOL Call** `CALL "tibemsConsumerInfo_IsConnectionConsumer"  
USING BY VALUE consumerInfo,  
BY REFERENCE connectionConsumer,  
RETURNING tibems-status  
END-CALL.`

### Parameters

Parameter	Description
consumerInfo	Get whether this consumer is a connection consumer.
connectionConsumer	The function stores consumer connection status in this location. TRUE indicates that the consumer is a connection consumer.

**Remarks** Sets the connection status to TRUE if the consumer is a connection consumer, and FALSE otherwise. Notice that for disconnected durable topic subscribers the function returns FALSE even if the durable was created as connection consumer.

# tibemsDetailedDestStat

Type

- Purpose** Represents detailed destination statistics about objects such as topics, message consumers, or message producers.
- Remarks** Detailed statistics are optionally collected by the server for wildcarded consumers, unidentified producers and routes.

Function	Description	Page
<a href="#">tibemsDetailedDestStat_GetDestinationName</a>	Get the name of the destination.	463
<a href="#">tibemsDetailedDestStat_GetDestinationType</a>	Get the type of the destination.	464
<a href="#">tibemsDetailedDestStat_GetDestinationType</a>	Get statistics for a unidirectional destination.	464

- Related Types** [tibemsStatData](#) on page 497
- See Also** [tibemsMsg\\_GetDestination](#) on page 40

# tibemsDetailedDestStat\_GetDestinationName

Function

**Purpose** Get the name of the destination.

**C Declaration** `tibems_status tibemsDetailedDestStat_GetDestinationName(  
tibemsDetailedDestStat detailedDestStat,  
char* name,  
tibems_int name_len);`

**COBOL Call** `CALL "tibemsDetailedDestStat_GetDestinationName"  
USING BY VALUE detailedDestStat,  
BY REFERENCE destName,  
BY VALUE name_len,  
RETURNING tibems-status  
END-CALL.`

Parameters	Parameter	Description
	detailedDestStat	Get the name of this destination.
	name	The function stores the destination name in this location.
	name_len	Length of the name buffer.

**See Also** [tibemsDestinationType on page 143](#)

# tibemsDetailedDestStat\_GetDestinationType

Function

**Purpose** Get the type of the destination.

**C Declaration** `tibems_status tibemsDetailedDestStat_GetDestinationType(  
tibemsDetailedDestStat detailedDestStat,  
tibemsDestinationType* destType);`

**COBOL Call** `CALL "tibemsDetailedDestStat_GetDestinationType"  
USING BY VALUE detailedDestStat,  
BY REFERENCE destType,  
RETURNING tibems-status  
END-CALL.`

Parameters	Parameter	Description
	detailedDestStat	Get the type of this destination.
	destType	The function stores the destination type in this location.

**See Also** [tibemsDestinationType on page 143](#)



# tibemsDetailedDestStat\_GetStatData

Function

**Purpose** Get statistics for a unidirectional destination.

**C Declaration** `tibems_status tibemsDetailedDestStat_GetStatData(  
tibemsDetailedDestStat detailDestStat,  
tibemsStatData* statData);`

**COBOL Call** `CALL "tibemsDetailedDestStat_GetStatData"  
USING BY VALUE detailedDestStat,  
BY REFERENCE stat,  
RETURNING tibems-status  
END-CALL.`

Parameters	Parameter	Description
	detailedDestStat	Get statistics for this destination.
	statData	The function stores the statistics in this location.

**Remarks** This function retrieves unidirectional destination statistics. Unidirectional destinations statistics are collected for both producers and consumers.

# tibemsProducerInfo

Type

**Purpose**      Represent a message producer.

Function	Description	Page
<a href="#">tibemsProducerInfo_Destroy</a>	Destroy a producerInfo object.	467
<a href="#">tibemsProducerInfo_GetCreateTime</a>	Get the producer create time in milliseconds.	468
<a href="#">tibemsProducerInfo_GetDestinationName</a>	Get the producer's destination name.	469
<a href="#">tibemsProducerInfo_GetDestinationType</a>	Get the producer's destination type.	470
<a href="#">tibemsProducerInfo_GetDetailedStatistics</a>	Get detailed statistics for an unidentified producer.	471
<a href="#">tibemsProducerInfo_GetID</a>	Get the producer's ID.	472
<a href="#">tibemsProducerInfo_GetStatistics</a>	Get total statistics for a producer.	473

**Related Types**      [tibemsDetailedDestStat](#) on page 462  
                             [tibemsStatData](#) on page 497

# tibemsProducerInfo\_Destroy

Function

- Purpose

Destroy a producerInfo object.
- C Declaration

`tibems_status tibemsProducerInfo_Destroy(  
 tibemsProducerInfo producerInfo);`
- COBOL Call

`CALL "tibemsProducerInfo_Destroy"  
 USING BY VALUE producerInfo,  
 RETURNING tibems-status  
 END-CALL.`

Parameters

Parameter	Description
producerInfo	The <a href="#">tibemsProducerInfo</a> object to destroy.

# tibemsProducerInfo\_GetCreateTime

Function

**Purpose** Get the producer create time in milliseconds.

**C Declaration** `tibems_status tibemsProducerInfo_GetCreateTime(  
tibemsProducerInfo producerInfo,  
tibems_long* created);`

**COBOL Call** `CALL "tibemsProducerInfo_GetCreateTime"  
USING BY VALUE producerInfo,  
BY REFERENCE created,  
RETURNING tibems-status  
END-CALL.`

**Parameters**

Parameter	Description
producerInfo	Get the create time for this producer.
created	The function stores the create time in this location.

# tibemsProducerInfo\_GetDestinationName

Function

**Purpose** Get the producer's destination name.

**C Declaration** `tibems_status tibemsProducerInfo_GetDestinationName(  
tibemsProducerInfo producerInfo,  
char* name  
tibems_int name_len);`

**COBOL Call** `CALL "tibemsProducerInfo_GetDestinationName"  
USING BY VALUE producerInfo,  
BY REFERENCE destName,  
BY VALUE name_len,  
RETURNING tibems-status  
END-CALL.`

**Parameters**

Parameter	Description
producerInfo	Get the destination name of this producer.
name	The function stores the destination name in this location.
name_len	Length of the name buffer.

# tibemsProducerInfo\_GetDestinationType

Function

**Purpose** Get the producer's destination type.

**C Declaration** `tibems_status tibemsProducerInfo_GetDestinationType(  
tibemsProducerInfo producerInfo,  
tibemsDestinationType* type);`

**COBOL Call** `CALL "tibemsProducerInfo_GetDestinationType"  
USING BY VALUE producerInfo,  
BY REFERENCE destType,  
RETURNING tibems-status  
END-CALL.`

**Parameters**

Parameter	Description
producerInfo	Get the destination type of this producer.
type	The function stores the destination type in this location.

**See Also** [tibemsDestinationType on page 143](#)

# tibemsProducerInfo\_GetDetailedStatistics

Function

**Purpose** Get detailed statistics for an unidentified producer.

**C Declaration** `tibems_status tibemsProducerInfo_GetDetailedStatistics(  
tibemsProducerInfo producerInfo,  
tibemsCollection* collection;`

**COBOL Call** `CALL "tibemsProducerInfo_GetDetailedStatistics"  
USING BY VALUE producerInfo,  
BY REFERENCE collection,  
RETURNING tibems-status  
END-CALL.`



collection has usage pointer.

Parameters

Parameter	Description
producerInfo	Get statistics for this producer.
collection	The function stores the statistics in this location, as a collection of <code>tibemsDetailedDestStat</code> objects.

**Remarks** Gets detailed statistics for an unidentified producer, giving a breakdown of the producer's aggregate statistics across all destinations that it has published messages on.

This function returns NULL when there are no detailed statistics available for the producer. This can happen when, for example, detailed statistics for producers are disabled in the server.

**See Also** [tibemsDetailedDestStat on page 462](#)

# tibemsProducerInfo\_GetID

Function

**Purpose** Get the producer’s ID.

**C Declaration** `tibems_status tibemsProducerInfo_GetID(  
tibemsProducerInfo producerInfo,  
tibems_long* id);`

**COBOL Call** `CALL "tibemsProducerInfo_GetID"  
USING BY VALUE producerInfo,  
BY REFERENCE id,  
RETURNING tibems-status  
END-CALL.`

**Parameters**

Parameter	Description
producerInfo	Get the ID for this producer.
id	The function stores the producer ID in this location.



# tibemsProducerInfo\_GetStatistics

Function

**Purpose** Get total statistics for a producer.

**C Declaration** `tibems_status tibemsProducerInfo_GetStatistics(  
tibemsProducerInfo producerInfo,  
tibemsStatData* statData);`

**COBOL Call** `CALL "tibemsProducerInfo_GetStatistics"  
USING BY VALUE producerInfo,  
BY REFERENCE stat,  
RETURNING tibems-status  
END-CALL.`

Parameters	Parameter	Description
	producerInfo	Get statistics for this producer.
	statData	The function stores the statistics in this location. The stored value will be NULL if statistics are disabled in the server and so there are none available for the producer.

**See Also** [tibemsStatData on page 497](#)

# tibemsQueueInfo

Type

**Purpose**     Represent a message queue that is configured in the EMS server.

Function	Description	Page
<a href="#">tibemsQueueInfo_Create</a>	Create a tibemsQueueInfo object.	476
<a href="#">tibemsQueueInfo_Destroy</a>	Destroy a tibemsQueueInfo object.	477
<a href="#">tibemsQueueInfo_GetDeliveredMessageCount</a>	Get the total number of messages that have been delivered to consumer applications but have not yet been acknowledged.	478
<a href="#">tibemsQueueInfo_GetFlowControlMaxBytes</a>	Get the volume of pending messages at which flow control is enabled for the queue.	479
<a href="#">tibemsQueueInfo_GetInboundStatistics</a>	Get inbound statistics for this queue.	480
<a href="#">tibemsQueueInfo_GetMaxBytes</a>	Get the maximum number of bytes that the server stores of pending messages bound for this queue.	481
<a href="#">tibemsQueueInfo_GetMaxMsgs</a>	Get the maximum number of pending messages bound for the queue that the server will store.	482
<a href="#">tibemsQueueInfo_GetName</a>	Get the name of this queue.	483
<a href="#">tibemsQueueInfo_GetOutboundStatistics</a>	Get outbound statistics for this queue.	484
<a href="#">tibemsQueueInfo_GetOverflowPolicy</a>	Get the overflow policy for this queue.	485
<a href="#">tibemsQueueInfo_GetPendingMessageCount</a>	Get the total number of pending messages for this queue.	486
<a href="#">tibemsQueueInfo_GetPendingMessageSize</a>	Get the total size of all pending messages for this queue.	487
<a href="#">tibemsQueueInfo_GetPendingPersistentMessageCount</a>	Get the total number of pending messages for this queue that were sent persistently.	488

Function	Description	Page
<a href="#">tibemsQueueInfo_GetPendingPersistentMessageSize</a>	Get the total size of all pending messages for this queue that were sent persistently.	489
<a href="#">tibemsQueueInfo_GetReceiverCount</a>	Get the number of active receivers on this queue.	490

**Related Types**    [tibemsQueue](#) on page 150  
                          [tibemsStatData](#) on page 497

# tibemsQueueInfo\_Create

Function

**Purpose** Create a tibemsQueueInfo object.

**C Declaration** `tibems_status tibemsQueueInfo_Create(  
tibemsQueueInfo* queueInfo,  
const char* queueName);`

**COBOL Call** `CALL "tibemsQueueInfo_Create"  
USING BY REFERENCE queueInfo,  
BY REFERENCE name,  
RETURNING tibems-status  
END-CALL.`

**Parameters**

Parameter	Description
queueInfo	Store the new tibemsQueueInfo object in this location.
queueName	Create the tibemsQueueInfo object with this name. The queueName can include wildcards.

**Remarks** This function is used to create a tibemsQueueInfo object with the specified name. The tibemsQueueInfo object may then be passed as the tibemsDestinationInfo argument to the [tibemsAdmin\\_GetConsumers](#) and [tibemsAdmin\\_GetProducerStatistics](#) functions. The name may include wildcards.

For more information on wildcards, see [Wildcards on page 74](#) of the *TIBCO Enterprise Message Service User's Guide*.

**See Also** [tibemsTopicInfo\\_Create on page 504](#)  
[tibemsAdmin\\_GetConsumers on page 422](#)  
[tibemsAdmin\\_GetProducerStatistics on page 426](#)

# tibemsQueueInfo\_Destroy

Function

**Purpose** Destroy a tibemsQueueInfo object.

**C Declaration** `tibems_status tibemsQueueInfo_Destroy(  
tibemsQueueInfo queueInfo);`

**COBOL Call** `CALL "tibemsQueueInfo_Destroy"  
USING BY VALUE queueInfo,  
RETURNING tibems-status  
END-CALL.`

Parameters	Parameter	Description
	queueInfo	The tibemsQueueInfo object to destroy.

**See Also** [tibemsTopicInfo\\_Destroy on page 505](#)

# tibemsQueueInfo\_GetDeliveredMessageCount

Function

**Purpose** Get the total number of messages that have been delivered to consumer applications but have not yet been acknowledged.

**C Declaration** `tibems_status tibemsQueueInfo_GetDeliveredMessageCount(  
tibemsQueueInfo queueInfo,  
tibems_long* count);`

**COBOL Call** `CALL "tibemsQueueInfo_GetDeliveredMessageCount"  
USING BY VALUE queueInfo,  
BY REFERENCE count,  
RETURNING tibems-status  
END-CALL.`

Parameters

Parameter	Description
queueInfo	Get the number of unacknowledged messages in this queue.
count	The function stores the message count in this location.

# tibemsQueueInfo\_GetFlowControlMaxBytes

Function

**Purpose** Get the volume of pending messages at which flow control is enabled for the queue.

**C Declaration** `tibems_status tibemsQueueInfo_GetFlowControlMaxBytes(  
tibemsQueueInfo queueInfo,  
tibems_long* maxBytes);`

**COBOL Call** `CALL "tibemsQueueInfo_GetFlowControlMaxBytes"  
USING BY VALUE queueInfo,  
BY REFERENCE maxBytes,  
RETURNING tibems-status  
END-CALL.`

Parameters	Parameter	Description
	queueInfo	Get the volume for this queue.
	maxBytes	The function stores the volume in this location.  The value stored indicates the volume of pending messages, in bytes, that the server will store in the queue before enabling flow control. A value of 0 indicates that flow control will never be enabled.

**See Also** [tibemsTopicInfo\\_GetFlowControlMaxBytes on page 508](#)

# tibemsQueueInfo\_GetInboundStatistics

Function

**Purpose** Get inbound statistics for this queue.

**C Declaration** `tibems_status tibemsQueueInfo_GetInboundStatistics(  
tibemsQueueInfo queueInfo,  
tibemsStatData* statData);`

**COBOL Call** `CALL "tibemsQueueInfo_GetInboundStatistics"  
USING BY VALUE queueInfo,  
BY REFERENCE statData,  
RETURNING tibems-status  
END-CALL.`

**Parameters**

Parameter	Description
queueInfo	Get statistics for this queue.
statData	The function stores the statistics in this location.

**Remarks** This function retrieves the inbound statistics for the queue. Inbound statistics include all messages sent into the queue by EMS clients and routed servers.

**See Also** [tibemsTopicInfo\\_GetInboundStatistics on page 509](#)



# tibemsQueueInfo\_GetMaxBytes

Function

**Purpose** Get the maximum number of bytes that the server stores of pending messages bound for this queue.

**C Declaration** `tibems_status tibemsQueueInfo_GetMaxBytes(  
tibemsQueueInfo queueInfo,  
tibems_long* maxBytes);`

**COBOL Call** `CALL "tibemsQueueInfo_GetMaxBytes"  
USING BY VALUE queueInfo,  
BY REFERENCE maxBytes,  
RETURNING tibems-status  
END-CALL.`

Parameters	Parameter	Description
	queueInfo	Get the maximum bytes for this queue.
	maxBytes	The function stores the number of bytes in this location.

**See Also** [tibemsTopicInfo\\_GetMaxBytes on page 510](#)

# tibemsQueueInfo\_GetMaxMsgs

Function

**Purpose** Get the maximum number of pending messages bound for the queue that the server will store.

**C Declaration** `tibems_status tibemsQueueInfo_GetMaxMsgs(  
tibemsQueueInfo queueInfo,  
tibems_long* maxMsgs);`

**COBOL Call** `CALL "tibemsQueueInfo_GetMaxMsgs"  
USING BY VALUE queueInfo,  
BY REFERENCE maxMsgs,  
RETURNING tibems-status  
END-CALL.`

**Parameters**

Parameter	Description
queueInfo	
maxMsgs	The function stores the number of messages in this location.

**See Also** [tibemsTopicInfo\\_GetMaxMsgs on page 511](#)

## tibemsQueueInfo\_GetName

*Function*

**Purpose** Get the name of this queue.

**C Declaration** `tibems_status tibemsQueueInfo_GetName(  
 tibemsQueueInfo queueInfo,  
 char* name,  
 tibems_int name_len);`

**COBOL Call** `CALL "tibemsQueueInfo_GetName"  
 USING BY VALUE queueInfo,  
 BY REFERENCE name,  
 BY VALUE name_len,  
 RETURNING tibems-status  
END-CALL.`

**Parameters**

Parameter	Description
queueInfo	Get the name of this queue.
name	The function stores the queue name in this location.
name_len	Length of the name buffer.

**See Also** [tibemsTopicInfo\\_GetName on page 512](#)

# tibemsQueueInfo\_GetOutboundStatistics

Function

**Purpose** Get outbound statistics for this queue.

**C Declaration** `tibems_status tibemsQueueInfo_GetOutboundStatistics(  
tibemsQueueInfo queueInfo,  
tibemsStatData* statData);`

**COBOL Call** `CALL "tibemsQueueInfo_GetOutboundStatistics"  
USING BY VALUE queueInfo,  
BY REFERENCE statData,  
RETURNING tibems-status  
END-CALL.`

Parameters	Parameter	Description
	queueInfo	Get statistics for this queue.
	statData	The function stores the statistics in this location.

**Remarks** This function retrieves the outbound statistics for the queue. Outbound statistics include all messages delivered from the queue to EMS clients and routed servers.

**See Also** [tibemsTopicInfo\\_GetOutboundStatistics on page 513](#)

# tibemsQueueInfo\_GetOverflowPolicy

Function

**Purpose** Get the overflow policy for this queue.

**C Declaration** `tibems_status tibemsQueueInfo_GetOverflowPolicy(  
tibemsQueueInfo queueInfo,  
tibems_int* overflowPolicy);`

**COBOL Call** `CALL "tibemsQueueInfo_GetOverflowPolicy"  
USING BY VALUE queueInfo,  
BY REFERENCE overflowPolicy,  
RETURNING tibems-status  
END-CALL.`

Parameters	Parameter	Description
	queueInfo	Get the policy for this queue.
	overflowPolicy	The function stores the overflow policy in this location.

**Remarks** This function retrieves the overflow policy for the queue. Possible values are:

- TIBEMS\_OVERFLOW\_DEFAULT
- TIBEMS\_OVERFLOW\_DISCARD\_OLD
- TIBEMS\_OVERFLOW\_REJECT\_INCOMING

For more information about overflow policies, see the *TIBCO Enterprise Message Service User's Guide*.

**See Also** [tibemsTopicInfo\\_GetOverflowPolicy on page 514](#)

# tibemsQueueInfo\_GetPendingMessageCount

Function

**Purpose** Get the total number of pending messages for this queue.

**C Declaration** `tibems_status tibemsQueueInfo_GetPendingMessageCount(  
tibemsQueueInfo queueInfo,  
tibems_long* count);`

**COBOL Call** `CALL "tibemsQueueInfo_GetPendingMessageCount"  
USING BY VALUE queueInfo,  
BY REFERENCE count,  
RETURNING tibems-status  
END-CALL.`

Parameters	Parameter	Description
	queueInfo	Get the number of messages for this queue.
	count	The function stores the number of messages in this location.

**See Also** [tibemsTopicInfo\\_GetPendingMessageCount on page 515](#)

## tibemsQueueInfo\_GetPendingMessageSize

---

*Function*

**Purpose** Get the total size of all pending messages for this queue.

**C Declaration** `tibems_status tibemsQueueInfo_GetPendingMessageSize(  
 tibemsQueueInfo queueInfo,  
 tibems_long* size);`

**COBOL Call** `CALL "tibemsQueueInfo_GetPendingMessageSize"  
 USING BY VALUE queueInfo,  
 BY REFERENCE size,  
 RETURNING tibems-status  
END-CALL.`

**Parameters**

Parameter	Description
queueInfo	Get the size of pending messages for this queue.
size	The function stores the size of pending messages in this location.

**See Also** [tibemsTopicInfo\\_GetPendingMessageSize on page 516](#)

# tibemsQueueInfo\_GetPendingPersistentMessageCount

Function

**Purpose** Get the total number of pending messages for this queue that were sent persistently.

**C Declaration** `tibems_status tibemsQueueInfo_GetPendingPersistentMessageCount(tibemsQueueInfo queueInfo, tibems_long* count);`

**COBOL Call** `CALL "tibemsQueueInfo_GetPendingPersistentMessageCount"  
USING BY VALUE queueInfo,  
BY REFERENCE count,  
RETURNING tibems-status  
END-CALL.`

**Parameters**

Parameter	Description
queueInfo	Get the number of messages for this queue.
count	The function stores the number of messages in this location.

**See Also** [tibemsTopicInfo\\_GetPendingPersistentMessageCount on page 517](#)



## tibemsQueueInfo\_GetPendingPersistentMessageSize

Function

**Purpose** Get the total size of all pending messages for this queue that were sent persistently.

**C Declaration** `tibems_status tibemsQueueInfo_GetPendingPersistentMessageSize(  
tibemsQueueInfo queueInfo,  
tibems_long* size);`

**COBOL Call** `CALL "tibemsQueueInfo_GetPendingPersistentMessageSize"  
USING BY VALUE queueInfo,  
BY REFERENCE size,  
RETURNING tibems-status  
END-CALL.`

Parameters	Parameter	Description
	queueInfo	Get the size of pending messages for this queue.
	size	The function stores the size of pending messages in this location.

**See Also** [tibemsTopicInfo\\_GetPendingPersistentMessageSize on page 518](#)

# tibemsQueueInfo\_GetReceiverCount

Function

**Purpose** Get the number of active receivers on this queue.

**C Declaration** `tibems_status tibemsQueueInfo_GetReceiverCount(  
tibemsQueueInfo queueInfo,  
tibems_int* count);`

**COBOL Call** `CALL "tibemsQueueInfo_GetReceiverCount"  
USING BY VALUE queueInfo,  
BY REFERENCE count,  
RETURNING tibems-status  
END-CALL.`

**Parameters**

Parameter	Description
queueInfo	Get the number of receivers on this queue.
count	The function stores the number of receivers in this location.

# tibemsServerInfo

Type

- Purpose**Represent a TIBCO Enterprise Message Service server.
- Remarks**This type represents metrics for an EMS server.

Function	Description	Page
<a href="#">tibemsServerInfo_Destroy</a>	Destroy a tibemsServerInfo object.	492
<a href="#">tibemsServerInfo_GetConsumerCount</a>	Get the total number of consumers.	493
<a href="#">tibemsServerInfo_GetProducerCount</a>	Get the total number of producers.	494
<a href="#">tibemsServerInfo_GetQueueCount</a>	Get the total number of queues in the server.	495
<a href="#">tibemsServerInfo_GetTopicCount</a>	Get the total number of topics in the server.	496

# tibemsServerInfo\_Destroy

Function

**Purpose** Destroy a tibemsServerInfo object.

**C Declaration** `tibems_status tibemsServerInfo_Destroy(  
tibemsServerInfo serverInfo);`

**COBOL Call** `CALL "tibemsServerInfo_Destroy"  
USING BY VALUE serverInfo,  
RETURNING tibems-status  
END-CALL.`

Parameters	Parameter	Description
	serverInfo	The tibemsServerInfo object to destroy.

## tibemsServerInfo\_GetConsumerCount

---

### Function

**Purpose** Get the total number of consumers.

**C Declaration** `tibems_status tibemsServerInfo_GetConsumerCount(  
tibemsServerInfo serverInfo,  
tibems_int* count);`

**COBOL Call** `CALL "tibemsServerInfo_GetConsumerCount"  
USING BY VALUE serverInfo,  
BY REFERENCE count,  
RETURNING tibems-status  
END-CALL.`

**Parameters**

Parameter	Description
serverInfo	Get the number of consumers for this server.
count	The function stores the number of consumers in this location.

# tibemsServerInfo\_GetProducerCount

Function

**Purpose** Get the total number of producers.

**C Declaration** `tibems_status tibemsServerInfo_GetProducerCount(  
tibemsServerInfo serverInfo,  
tibems_int* count);`

**COBOL Call** `CALL "tibemsServerInfo_GetProducerCount"  
USING BY VALUE serverInfo,  
BY REFERENCE count,  
RETURNING tibems-status  
END-CALL.`

**Parameters**

Parameter	Description
serverInfo	Get the number of producers for this server.
count	The function stores the number of producers in this location.

# tibemsServerInfo\_GetQueueCount

Function

**Purpose** Get the total number of queues in the server.

**C Declaration** `tibems_status tibemsServerInfo_GetQueueCount(  
tibemsServerInfo serverInfo,  
tibems_int* count);`

**COBOL Call** `CALL "tibemsServerInfo_GetQueueCount"  
USING BY VALUE serverInfo,  
BY REFERENCE count,  
RETURNING tibems-status  
END-CALL.`

Parameters

Parameter	Description
serverInfo	Get the number of queues in this server.
count	The function stores the number of queues in this location.

# tibemsServerInfo\_GetTopicCount

Function

**Purpose** Get the total number of topics in the server.

**C Declaration** `tibems_status tibemsServerInfo_GetTopicCount(  
tibemsServerInfo serverInfo,  
tibems_int* count);`

**COBOL Call** `CALL "tibemsServerInfo_GetTopicCount"  
USING BY VALUE serverInfo,  
BY REFERENCE count,  
RETURNING tibems-status  
END-CALL.`

**Parameters**

Parameter	Description
serverInfo	Get the number of topics in this server.
count	The function stores the number of topics in this location.



# tibemsStatData

Type

- Purpose**Represent statistical data about another object, such as a topic or queue.
- Remarks**Statistical data contains the total number of messages and their cumulative size. It can also provide message rates, as the number of messages sent each second and number of bytes each second. Whether or not rate information is available is controlled by the server configuration. If rate collection is turned off, all rate numbers are set to 0. However, in those cases the application can calculate the rates based on absolute numbers taken at periodic intervals.

Function	Description	Page
<a href="#">tibemsStatData_GetByteRate</a>	Get the average rate of bytes sent or received each second.	498
<a href="#">tibemsStatData_GetMessageRate</a>	Get the rate of messages sent or received each second.	499
<a href="#">tibemsStatData_GetTotalBytes</a>	Get the total size of messages sent or received each second.	500
<a href="#">tibemsStatData_GetTotalMessages</a>	Get the total number of messages sent or received each second.	501

- Related Types**[tibemsQueue](#) on page 150  
[tibemsTopic](#) on page 156  
[tibemsConsumerInfo](#) on page 441  
[tibemsProducerInfo](#) on page 466  
[tibemsQueueInfo](#) on page 474  
[tibemsTopicInfo](#) on page 502

# tibemsStatData\_GetByteRate

Function

**Purpose** Get the average rate of bytes sent or received each second.

**C Declaration** `tibems_status tibemsStatData_GetByteRate(  
tibemsStatData statData,  
tibems_long* byteRate);`

**COBOL Call** `CALL "tibemsStatData_GetByteRate"  
USING BY VALUE statData,  
BY REFERENCE rate_size,  
RETURNING tibems-status  
END-CALL.`

**Parameters**

Parameter	Description
statData	Get the rate for this message consumer, producer, topic, or queue.
byteRate	The function stores the average byte rate in this location.

**Remarks** This function gets the average byte rate for messages sent or received per second. For message consumers, this rate reflects the number of messages received by the consumer. For messages producers, it is the rate of messages sent, and for topics and queues the rate includes both inbound and outbound messages.

# tibemsStatData\_GetMessageRate

Function

**Purpose** Get the rate of messages sent or received each second.

**C Declaration** `tibems_status tibemsStatData_GetMessageRate(  
tibemsStatData statData,  
tibems_long* messageRate);`

**COBOL Call** `CALL "tibemsStatData_GetMessageRate"  
USING BY VALUE statData,  
BY REFERENCE rate_msgs,  
RETURNING tibems-status  
END-CALL.`

Parameters	Parameter	Description
	statData	Get the rate for this message consumer, producer, topic, or queue.
	messageRate	The function stores the average message rate in this location.

**Remarks** This function gets the average number of messages sent or received per second. For message consumers, this rate reflects the number of messages received by the consumer. For messages producers, it is the rate of messages sent, and for topics and queues the rate includes both inbound and outbound messages.

# tibemsStatData\_GetTotalBytes

Function

**Purpose** Get the total size of messages sent or received each second.

**C Declaration** `tibems_status tibemsStatData_GetTotalBytes(  
tibemsStatData statData,  
tibems_long* bytes);`

**COBOL Call** `CALL "tibemsStatData_GetTotalBytes"  
USING BY VALUE statData,  
BY REFERENCE size,  
RETURNING tibems-status  
END-CALL.`

Parameters	Parameter	Description
	statData	Get the total message size for this consumer, producer, topic, or queue.
	bytes	The function stores the size of messages in this location.

**Remarks** This function gets the total size of messages sent or received. For message consumers, this is the size of messages received by the consumer. For messages producers, it is the size of messages sent, and for topics and queues the size includes both inbound and outbound messages.

## tibemsStatData\_GetTotalMessages

*Function*

**Purpose** Get the total number of messages sent or received each second.

**C Declaration** `tibems_status tibemsStatData_GetTotalMessages(  
tibemsStatData statData,  
tibems_long* messages);`

**COBOL Call** `CALL "tibemsStatData_GetTotalMessages"  
USING BY VALUE statData,  
BY REFERENCE msgs,  
RETURNING tibems-status  
END-CALL.`

**Parameters**

Parameter	Description
statData	Get the total number of messages for this consumer, producer, topic, or queue.
messages	The function stores the number of messages in this location.

**Remarks** This function gets the total number of messages sent or received. For message consumers, this is the number of messages received by the consumer. For messages producers, it is the number of messages sent, and for topics and queues the number includes both inbound and outbound messages.

# tibemsTopicInfo

Type

**Purpose**     Represent a topic that is configured in the server.

Function	Description	Page
<a href="#">tibemsTopicInfo_Create</a>	Create a tibemsTopicInfo object.	<a href="#">504</a>
<a href="#">tibemsTopicInfo_Destroy</a>	Destroy a tibemsTopicInfo object.	<a href="#">505</a>
<a href="#">tibemsTopicInfo_GetActiveDurableCount</a>	Get the current number of active durable subscribers for this topic.	<a href="#">506</a>
<a href="#">tibemsTopicInfo_GetDurableCount</a>	Get the current number of durable subscribers for this topic.	<a href="#">507</a>
<a href="#">tibemsTopicInfo_GetFlowControlMaxBytes</a>	Get the volume of pending message bytes at which flow control is enabled for the topic.	<a href="#">508</a>
<a href="#">tibemsTopicInfo_GetInboundStatistics</a>	Get inbound statistics for this topic.	<a href="#">509</a>
<a href="#">tibemsTopicInfo_GetMaxBytes</a>	Get the maximum number of bytes of pending messages bound for this topic that the server will store.	<a href="#">510</a>
<a href="#">tibemsTopicInfo_GetMaxMsgs</a>	Get the maximum number of pending messages bound for the topic that the server will store.	<a href="#">511</a>
<a href="#">tibemsTopicInfo_GetName</a>	Get the name of this topic.	<a href="#">512</a>
<a href="#">tibemsTopicInfo_GetOutboundStatistics</a>	Get outbound statistics for this topic.	<a href="#">513</a>
<a href="#">tibemsTopicInfo_GetOverflowPolicy</a>	Get the overflow policy for this topic.	<a href="#">514</a>
<a href="#">tibemsTopicInfo_GetPendingMessageCount</a>	Get the total number of pending messages for this topic.	<a href="#">515</a>
<a href="#">tibemsTopicInfo_GetPendingMessageSize</a>	Get the total size of all pending messages for this topic.	<a href="#">516</a>
<a href="#">tibemsTopicInfo_GetPendingPersistentMessageCount</a>	Get the total number of pending messages for this topic that were sent persistently.	<a href="#">517</a>

Function	Description	Page
<a href="#">tibemsTopicInfo_GetPendingPersistentMessageSize</a>	Get the total size of all pending messages for this topic that were sent persistently.	518
<a href="#">tibemsTopicInfo_GetSubscriberCount</a>	Get the number of subscribers on this topic.	519

**Related Types**     [tibemsStatData](#) on page 497

# tibemsTopicInfo\_Create

Function

**Purpose** Create a tibemsTopicInfo object.

**C Declaration** `tibems_status tibemsTopicInfo_Create(  
tibemsTopicInfo* topicInfo,  
const char* topicName);`

**COBOL Call** `CALL "tibemsTopicInfo_Create"  
USING BY REFERENCE topicInfo,  
BY REFERENCE name,  
RETURNING tibems-status  
END-CALL.`

**Parameters**

Parameter	Description
topicInfo	Store the new tibemsTopicInfo object in this location.
topicName	Create the tibemsTopicInfo object with this name. The topicName can include wildcards.

**Remarks** This function is used to create a tibemsTopicInfo object with the specified name. The tibemsTopicInfo object may then be passed as the tibemsDestinationInfo argument to the [tibemsAdmin\\_GetConsumers](#) and [tibemsAdmin\\_GetProducerStatistics](#) functions. The name may include wildcards.

For more information on wildcards, see [Wildcards on page 74](#) of the *TIBCO Enterprise Message Service User's Guide*.

**See Also** [tibemsQueueInfo\\_Create on page 476](#)  
[tibemsAdmin\\_GetConsumers on page 422](#)  
[tibemsAdmin\\_GetProducerStatistics on page 426](#)



# tibemsTopicInfo\_Destroy

Function

**Purpose** Destroy a tibemsTopicInfo object.

**C Declaration** `tibems_status tibemsTopicInfo_Destroy(  
tibemsTopicInfo topicInfo);`

**COBOL Call** `CALL "tibemsTopicInfo_Destroy"  
USING BY VALUE topicInfo,  
RETURNING tibems-status  
END-CALL.`

Parameters	Parameter	Description
	topicInfo	Destroy this tibemsTopicInfo object.

**See Also** [tibemsQueueInfo\\_Destroy on page 477](#)

# tibemsTopicInfo\_GetActiveDurableCount

Function

**Purpose** Get the current number of active durable subscribers for this topic.

**C Declaration** `tibems_status tibemsTopicInfo_GetActiveDurableCount(  
tibemsTopicInfo topicInfo,  
tibems_int* count);`

**COBOL Call** `CALL "tibemsTopicInfo_GetActiveDurableCount"  
USING BY VALUE topicInfo,  
BY REFERENCE count,  
RETURNING tibems-status  
END-CALL.`

**Parameters**

Parameter	Description
topicInfo	Get the number of subscribers to this topic.
count	The function stores the number of active subscribers in this location.

**See Also** [tibemsTopicInfo\\_GetDurableCount on page 507](#)  
[tibemsTopicInfo\\_GetSubscriberCount on page 519](#)

## tibemsTopicInfo\_GetDurableCount

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*Function*

**Purpose** Get the current number of durable subscribers for this topic.

**C Declaration** `tibems_status tibemsTopicInfo_GetDurableCount(  
 tibemsTopicInfo topicInfo,  
 tibems_int* count);`

**COBOL Call** `CALL "tibemsTopicInfo_GetDurableCount"  
 USING BY VALUE topicInfo,  
 BY REFERENCE count,  
 RETURNING tibems-status  
END-CALL.`

**Parameters**

Parameter	Description
topicInfo	Get the number of subscribers to this topic.
count	The function stores the number of subscribers in this location.

**See Also** [tibemsTopicInfo\\_GetActiveDurableCount on page 506](#)  
[tibemsTopicInfo\\_GetSubscriberCount on page 519](#)

# tibemsTopicInfo\_GetFlowControlMaxBytes

Function

**Purpose** Get the volume of pending message bytes at which flow control is enabled for the topic.

**C Declaration** `tibems_status tibemsTopicInfo_GetFlowControlMaxBytes(  
tibemsTopicInfo topicInfo,  
tibems_long* maxBytes);`

**COBOL Call** `CALL "tibemsTopicInfo_GetFlowControlMaxBytes"  
USING BY VALUE topicInfo,  
BY REFERENCE maxBytes,  
RETURNING tibems-status  
END-CALL.`

**Parameters**

Parameter	Description
topicInfo	Get the volume for this topic.
maxBytes	The function stores the volume in this location.  The value stored indicates the volume of pending messages, in bytes, that the server will store for the topic before enabling flow control. A value of 0 indicates that flow control will never be enabled.

**See Also** [tibemsQueueInfo\\_GetFlowControlMaxBytes on page 479](#)

# tibemsTopicInfo\_GetInboundStatistics

Function

**Purpose** Get inbound statistics for this topic.

**C Declaration** `tibems_status tibemsTopicInfo_GetInboundStatistics(  
tibemsTopicInfo topicInfo,  
tibemsStatData* statData);`

**COBOL Call** `CALL "tibemsTopicInfo_GetInboundStatistics"  
USING BY VALUE topicInfo,  
BY REFERENCE statData,  
RETURNING tibems-status  
END-CALL.`

Parameters	Parameter	Description
	topicInfo	Get statistics for this topic.
	statData	The function stores the statistics in this location.

**Remarks** This function retrieves the inbound statistics for the topic. Inbound statistics include all messages sent by EMS clients and routed servers.

**See Also** [tibemsQueueInfo\\_GetInboundStatistics on page 480](#)

# tibemsTopicInfo\_GetMaxBytes

Function

**Purpose** Get the maximum number of bytes of pending messages bound for this topic that the server will store.

**C Declaration** `tibems_status tibemsTopicInfo_GetMaxBytes(  
tibemsTopicInfo topicInfo,  
tibems_long* maxBytes);`

**COBOL Call** `CALL "tibemsTopicInfo_GetMaxBytes"  
USING BY VALUE topicInfo,  
BY REFERENCE maxBytes,  
RETURNING tibems-status  
END-CALL.`

**Parameters**

Parameter	Description
topicInfo	Get the number of bytes for this server.
maxBytes	The function stores the number of bytes in this location.

**See Also** [tibemsQueueInfo\\_GetMaxBytes on page 481](#)

# tibemsTopicInfo\_GetMaxMsgs

Function

**Purpose** Get the maximum number of pending messages bound for the topic that the server will store.

**C Declaration** `tibems_status tibemsTopicInfo_GetMaxMsgs(  
tibemsTopicInfo topicInfo,  
tibems_long* maxMsgs);`

**COBOL Call** `CALL "tibemsTopicInfo_GetMaxMsgs"  
USING BY VALUE topicInfo,  
BY REFERENCE maxMsgs,  
RETURNING tibems-status  
END-CALL.`

**Parameters**

Parameter	Description
topicInfo	Get the number of messages for this topic.
maxMsgs	The function stores the number of messages in this location.

**See Also** [tibemsQueueInfo\\_GetMaxMsgs on page 482](#)

# tibemsTopicInfo\_GetName

Function

**Purpose** Get the name of this topic.

**C Declaration** `tibems_status tibemsTopicInfo_GetName(  
tibemsTopicInfo topicInfo,  
char* name,  
tibems_int name_len);`

**COBOL Call** `CALL "tibemsTopicInfo_GetName"  
USING BY VALUE topicInfo,  
BY REFERENCE name,  
BY VALUE name_len,  
RETURNING tibems-status  
END-CALL.`

**Parameters**

Parameter	Description
topicInfo	Get the name of this topic.
name	The function stores the topic name in this location.
name_len	Length of the name buffer.

**See Also** [tibemsQueueInfo\\_GetName on page 483](#)



# tibemsTopicInfo\_GetOutboundStatistics

Function

**Purpose** Get outbound statistics for this topic.

**C Declaration** `tibems_status tibemsTopicInfo_GetOutboundStatistics(  
tibemsTopicInfo topicInfo,  
tibemsStatData* statData);`

**COBOL Call** `CALL "tibemsTopicInfo_GetOutboundStatistics"  
USING BY VALUE topicInfo,  
BY REFERENCE statData,  
RETURNING tibems-status  
END-CALL.`

Parameters	Parameter	Description
	topicInfo	Get statistics for this topic.
	statData	The function stores the statistics in this location.

**Remarks** This function retrieves the outbound statistics for the topic. Outbound statistics include all messages delivered by the topic to EMS clients and routed servers.

**See Also** [tibemsQueueInfo\\_GetOutboundStatistics on page 484](#)

# tibemsTopicInfo\_GetOverflowPolicy

Function

**Purpose** Get the overflow policy for this topic.

**C Declaration** `tibems_status tibemsTopicInfo_GetOverflowPolicy(  
tibemsTopicInfo topicInfo,  
tibems_int* overflowPolicy);`

**COBOL Call** `CALL "tibemsTopicInfo_GetOverflowPolicy"  
USING BY VALUE topicInfo,  
BY REFERENCE overflowPolicy,  
RETURNING tibems-status  
END-CALL.`

Parameters	Parameter	Description
	topicInfo	
	overflowPolicy	The function stores the overflow policy in this location.

**Remarks** This function retrieves the overflow policy for the queue. Possible values are:

- TIBEMS\_OVERFLOW\_DEFAULT
- TIBEMS\_OVERFLOW\_DISCARD\_OLD
- TIBEMS\_OVERFLOW\_REJECT\_INCOMING

For more information about overflow policies, see the *TIBCO Enterprise Message Service User's Guide*.

**See Also** [tibemsQueueInfo\\_GetOverflowPolicy on page 485](#)

# tibemsTopicInfo\_GetPendingMessageCount

Function

**Purpose** Get the total number of pending messages for this topic.

**C Declaration** `tibems_status tibemsTopicInfo_GetPendingMessageCount(  
tibemsTopicInfo topicInfo,  
tibems_long* count);`

**COBOL Call** `CALL "tibemsTopicInfo_GetPendingMessageCount"  
USING BY VALUE topicInfo,  
BY REFERENCE size,  
RETURNING tibems-status  
END-CALL.`

**Parameters**

Parameter	Description
topicInfo	Get the number of messages for this topic.
count	The function stores the number of messages in this location.

**See Also** [tibemsQueueInfo\\_GetPendingMessageCount on page 486](#)

# tibemsTopicInfo\_GetPendingMessageSize

Function

**Purpose** Get the total size of all pending messages for this topic.

**C Declaration** `tibems_status tibemsTopicInfo_GetPendingMessageSize(  
tibemsTopicInfo topicInfo,  
tibems_long* count);`

**COBOL Call** `CALL "tibemsTopicInfo_GetPendingMessageSize"  
USING BY VALUE topicInfo,  
BY REFERENCE size,  
RETURNING tibems-status  
END-CALL.`

**Parameters**

Parameter	Description
topicInfo	Get the size of messages for this topic.
count	The function stores the size of pending messages in this location.

**See Also** [tibemsQueueInfo\\_GetPendingMessageSize on page 487](#)

# tibemsTopicInfo\_GetPendingPersistentMessageCount

Function

**Purpose** Get the total number of pending messages for this topic that were sent persistently.

**C Declaration** `tibems_status tibemsTopicInfo_GetPendingPersistentMessageCount(  
tibemsTopicInfo topicInfo,  
tibems_long* count);`

**COBOL Call** `CALL "tibemsTopicInfo_GetPendingPersistentMessageCount"  
USING BY VALUE topicInfo,  
BY REFERENCE size,  
RETURNING tibems-status  
END-CALL.`

**Parameters**

Parameter	Description
topicInfo	Get the number of messages for this topic.
count	The function stores the number of messages in this location.

**See Also** [tibemsQueueInfo\\_GetPendingPersistentMessageCount on page 488](#)

# tibemsTopicInfo\_GetPendingPersistentMessageSize

Function

**Purpose** Get the total size of all pending messages for this topic that were sent persistently.

**C Declaration** `tibems_status tibemsTopicInfo_GetPendingPersistentMessageSize(  
tibemsTopicInfo topicInfo,  
tibems_long* size);`

**COBOL Call** `CALL "tibemsTopicInfo_GetPendingPersistentMessageSize"  
USING BY VALUE topicInfo,  
BY REFERENCE size,  
RETURNING tibems-status  
END-CALL.`

**Parameters**

Parameter	Description
topicInfo	Get the size of messages for this topic.
count	The function stores the size of pending messages in this location.

**See Also** [tibemsQueueInfo\\_GetPendingPersistentMessageSize on page 489](#)

# tibemsTopicInfo\_GetSubscriberCount

Function

**Purpose** Get the number of subscribers on this topic.

**C Declaration** `tibems_status tibemsTopicInfo_GetSubscriberCount(  
tibemsTopicInfo topicInfo,  
tibems_int* count);`

**COBOL Call** `CALL "tibemsTopicInfo_GetSubscriberCount"  
USING BY VALUE topicInfo,  
BY REFERENCE count,  
RETURNING tibems-status  
END-CALL.`

Parameters	Parameter	Description
	topicInfo	Get the count for this topic.
	count	The function stores the number of subscribers in this location.

**See Also** [tibemsTopicInfo\\_GetActiveDurableCount on page 506](#)  
[tibemsTopicInfo\\_GetDurableCount on page 507](#)  
[tibemsQueueInfo\\_GetReceiverCount on page 490](#)





## Chapter 16 **Exception**

This chapter presents exceptions related to EMS.

### Topics

---

- [tibems\\_status](#), page 522
- [tibemsErrorContext](#), page 529

# tibems\_status

Type

**Purpose** Functions return status codes to indicate return conditions.

Table 15 Status Codes

Constant	Code	Description
TIBEMS_OK	0	The call completed normally.
TIBEMS_ILLEGAL_STATE	1	<p>A function call or server request occurred in an inappropriate context.</p> <p>For example, <code>tibemsSession_Commit</code> indicates this status when the session is non-transactional.</p>
TIBEMS_INVALID_CLIENT_ID	2	<p>The provider rejects the connection’s client ID.</p> <p>Setting a connection’s client ID to an invalid or duplicate value results in this exception. (A duplicate value is one that is already in use by another connection.)</p>
TIBEMS_INVALID_DESTINATION	3	<code>tibemsd</code> cannot locate the destination.
TIBEMS_INVALID_SELECTOR	4	The client passed a message selector with invalid syntax; see <a href="#">Message Selectors on page 17</a> .
TIBEMS_EXCEPTION	5	Non-specific error code.
TIBEMS_SECURITY_EXCEPTION	6	<p>The function cannot complete because of a security restriction.</p> <p>For example, the provider rejects a user or the user’s authentication.</p>

Table 15 Status Codes

Constant	Code	Description
TIBEMS_MSG_EOF	7	<p>The data stream within a message ended unexpectedly.</p> <p><code>tibemsBytesMsg</code> contains a stream of bytes. <code>tibemsStreamMsg</code> contains a stream of characters. If any of their read functions detects the end of a stream unexpectedly, it indicates this status.</p>
TIBEMS_MSG_NOT_READABLE	9	Attempt to read from a message in write-only mode.
TIBEMS_MSG_NOT_WRITEABLE	10	<p>Attempt to write to a message in read-only mode.</p> <p>See also, <a href="#">tibemsMsg_MakeWriteable on page 53</a>.</p>
TIBEMS_SERVER_NOT_CONNECTED	11	<ul style="list-style-type: none"> <li>• An attempt to connect to the server has failed.</li> <li>• The operation requires a server connection, but the program is not connected.</li> </ul>
TIBEMS_SUBJECT_COLLISION	13	The server cannot create a topic or durable because the name is already in use. (Also applies to collisions with external subjects, such as Rendezvous.)
TIBEMS_INVALID_PROTOCOL	15	Cannot create a connection or transaction because the specified protocol does not exist.
TIBEMS_INVALID_HOSTNAME	17	<p>The connection URL includes an invalid hostname, or an attempt to lookup the host address failed.</p> <p>Host names must be less than 128 characters.</p>
TIBEMS_INVALID_PORT	18	The connection URL includes an invalid port number.

Table 15 Status Codes

Constant	Code	Description
TIBEMS_NO_MEMORY	19	The program exceeded available memory during the call.
TIBEMS_INVALID_ARG	20	The function received an illegal value as an argument.
TIBEMS_SERVER_LIMIT	21	The server has exceeded the maximum number of licensed connections or hosts that it can service.
TIBEMS_NOT_PERMITTED	27	The function call is not permitted (for example, closing a connection within a callback).
TIBEMS_SERVER_RECONNECTED	28	Exception callback handler functions receive this code to indicate that the server has reconnected.  See <a href="#">tibemsExceptionCallback on page 225</a>
TIBEMS_INVALID_NAME	30	In a lookup request, the name has incorrect syntax.  The most common syntax error is a prefix other than <code>tibjmsnaming://</code> (or a misspelling).  See also, <a href="#">tibemsLookupContext on page 322</a> .
TIBEMS_INVALID_SIZE	32	An argument is outside the range of valid values.
TIBEMS_NOT_FOUND	35	1. The name lookup repository cannot find a name; the name is not bound. See also, <a href="#">tibemsLookupContext on page 322</a>  2. A function that gets a message field or property value cannot find the specified item because the name is not bound in the message.

Table 15 Status Codes

Constant	Code	Description
TIBEMS_CONVERSION_FAILED	38	A datatype conversion failed while parsing a message (converting UTF-8 data to native datatypes).
TIBEMS_INVALID_MSG	42	The message is uninitialized or corrupt.
TIBEMS_INVALID_FIELD	43	The message contains an invalid field. The message might be corrupt.
TIBEMS_CORRUPT_MSG	45	The message is corrupt.
TIBEMS_TIMEOUT	50	The timeout has expired while waiting for a message.  See <a href="#">tibemsMsgConsumer_ReceiveTimeout</a> on page 170.
TIBEMS_INTR	51	A blocking operation has been interrupted. See <a href="#">tibemsMsgConsumer_Receive</a> on page 168.
TIBEMS_DESTINATION_LIMIT_EXCEEDED	52	A server queue or topic has exceeded its size limit, and cannot add a new message.
TIBEMS_MEM_LIMIT_EXCEEDED	53	The server has exceeded its memory limit.
TIBEMS_USER_INTR	54	IBM z/OS only. A blocking operation has been interrupted. See <a href="#">tibx_MVSConsole_SetConsumer()</a> on page 540.
TIBEMS_INVALID_IO_SOURCE	65	The function detected an invalid I/O source (such as a socket or file).
TIBEMS_OS_ERROR	68	An operating system error occurred during the call.
TIBEMS_INSUFFICIENT_BUFFER	70	The result of the call overflowed the buffer supplied by the program.
TIBEMS_EOF	71	The call detected an unexpected end-of-file.
TIBEMS_INVALID_FILE	72	The function detected an invalid file.

Table 15 Status Codes

Constant	Code	Description
TIBEMS_FILE_NOT_FOUND	73	The specified file does not exist.
TIBEMS_IO_FAILED	74	An operating system I/O call failed.
TIBEMS_ALREADY_EXISTS	91	Cannot create an item that already exists.
TIBEMS_INVALID_CONNECTION	100	The connection is invalid.
TIBEMS_INVALID_SESSION	101	The session is invalid.
TIBEMS_INVALID_CONSUMER	102	The consumer is invalid.
TIBEMS_INVALID_PRODUCER	103	The producer is invalid.
TIBEMS_INVALID_USER	104	The server could not authenticate the user.
TIBEMS_TRANSACTION_FAILED	106	A transaction failed at the server during a commit call.
TIBEMS_TRANSACTION_ROLLBACK	107	Failure during prepare or commit caused automatic rollback of a transaction. This type of rollback can occur during fault tolerance failover.
TIBEMS_TRANSACTION_RETRY	108	A transaction failed during two-phase commit; the program may attempt to commit it again.
TIBEMS_INVALID_XARESOURCE	109	When a session uses an XA transaction manager, the XA resource is the correct locus for all commit and rollback requests. Local commit or rollback calls are not permitted, and indicate this status.
TIBEMS_FT_SERVER_LACKS_TRANSACTION	110	The producer attempted to send a message immediately after a fault tolerance failover to another server. The new server has no record of the transaction.
<b>SSL</b>		
TIBEMS_INVALID_CERT	150	SSL detected an invalid X.509 certificate.

Table 15 Status Codes

Constant	Code	Description
TIBEMS_INVALID_CERT_NOT_YET	151	SSL detected an X.509 certificate that is not yet valid; that is, the current date is before the first date for which the certificate becomes valid.
TIBEMS_INVALID_CERT_EXPIRED	152	SSL detected an X.509 certificate that is no longer valid; that is, the current date is after the expiration date.
TIBEMS_INVALID_CERT_DATA	153	SSL detected an X.509 certificate containing corrupt data.
TIBEMS_ALGORITHM_ERROR	154	Error loading a cipher suite algorithm.
TIBEMS_SSL_ERROR	155	Generic SSL error code.
TIBEMS_INVALID_PRIVATE_KEY	156	SSL detected a private key that does not match its public key.
TIBEMS_INVALID_ENCODING	157	SSL detected a certificate encoding that it cannot read.
TIBEMS_NOT_ENOUGH_RANDOM	158	SSL lacks sufficient random data to complete an operation securely.
<b>Unimplemented</b>		
TIBEMS_NOT_IMPLEMENTED	255	The function is not implemented.

# tibemsStatus\_GetText

Function

**Purpose** Get the text string corresponding to a status code.

**C Declaration** `const char* tibemsStatus_GetText(  
tibems_status status );`

**COBOL Call** `CALL "tibemsStatus_GetText"  
USING BY VALUE status  
RETURNING tibems-Pointer  
END-CALL.`

Parameters	Parameter	Description
	status	Get the text corresponding to this status code.



## tibemsErrorContext

*Type*

**Purpose** Enable additional error tracking

**Remarks** The `tibemsErrorContext` objects collect additional error information beyond the status returned by most EMS calls. When a `tibemsErrorContext` is created, EMS records detailed error information and a stack trace for the last error detected inside the EMS client library. Upon encountering an EMS error, the error information is written to the `tibemsErrorContext` object and then cleared at the start of the next public EMS function call.

Because each thread of execution in an application may contain specific error information, `tibemsErrorContext` objects should be created at the start of each thread and then destroyed before exiting the thread. Threads spawned internally by EMS will automatically create `tibemsErrorContext` objects.

Function	Description	Page
<a href="#">tibemsErrorContext_Create</a>	Create a new error context object.	530
<a href="#">tibemsErrorContext_Close</a>	Close and free memory associated with an error context.	531
<a href="#">tibemsErrorContext_GetLastErrorString</a>	Retrieve any available detailed error string associated with the last EMS call.	532
<a href="#">tibemsErrorContext_GetLastErrorStackTrace</a>	Retrieve a stack trace associated with the last EMS call.	533

# tibemsErrorContext\_Create

Function

**Purpose** Create a new error context object.

**C Declaration** `tibems_status tibemsErrorContext_Create(  
tibemsErrorContext* errorContext);`

**COBOL Call** `CALL "tibemsErrorContext_Create"  
USING BY REFERENCE errorContext,  
RETURNING tibems-status  
END-CALL.`

Parameters	Parameter	Description
	errorContext	The function stores the new error context in this location.

**Remarks** Create a new error context object and enables detailed error information and stack tracing for the thread that calls this function.  
  
Returns TIBEMS\_OK, TIBEMS\_INVALID\_ARG, or TIBEMS\_NO\_MEMORY.

**See Also** [tibemsErrorContext\\_Close on page 531](#)

# tibemsErrorContext\_Close

Function

**Purpose** Close and free memory associated with an error context.

**C Declaration** `tibems_status tibemsErrorContext_Close(  
tibemsErrorContext errorContext);`

**COBOL Call** `CALL "tibemsErrorContext_Close"  
USING BY VALUE errorContext,  
RETURNING tibems-status  
END-CALL.`

Parameters	Parameter	Description
	errorContext	Close this error context.

**Remarks** Returns TIBEMS\_OK, TIBEMS\_INVALID\_ARG.

**See Also** [tibemsErrorContext\\_Create on page 530](#)

## tibemsErrorContext\_GetLastErrorString

**Purpose** Retrieve any available detailed error string associated with the last EMS call.

**C Declaration** `tibems_status tibemsErrorContext_GetLastErrorString(  
tibemsErrorContext errorContext,  
const char** string);`

**COBOL Call** `CALL "tibemsErrorContext_GetLastErrorString"  
USING BY VALUE errorContext,  
BY REFERENCE string,  
RETURNING tibems-status  
END-CALL.`

Parameters	Parameter	Description
	errorContext	The error context.
	string	Location of the detailed error string.

**Remarks** Error string includes the day and time the error occurred.

Passing NULL for the errorContext parameter will default to the error context of the current thread. This is useful for retrieving information from within a listener or exception callback. This function returns a pointer, not a copy of the error string. If the last call was considered a non-error, an empty string is returned.

Returns TIBEMS\_OK, TIBEMS\_INVALID\_ARG (string is null, or passing an object created in a different thread), TIBEMS\_NOT\_INITIALIZED (no error context for this thread)

**See Also** [tibemsErrorContext\\_GetLastErrorStackTrace on page 533](#)

# tibemsErrorContext\_GetLastErrorStackTrace

**Purpose** Retrieve a stack trace associated with the last EMS call.

**C Declaration** `tibems_status tibemsErrorContext_GetLastErrorStackTrace(  
tibemsErrorContext errorContext,  
const char** string);`

**COBOL Call** CALL "tibemsErrorContext\_GetLastErrorStackTrace"  
USING BY VALUE errorContext,  
BY REFERENCE string,  
RETURNING tibems-status  
END-CALL.

Parameters	Parameter	Description
	errorContext	The error context.
	string	Location of the stack trace string.

**Remarks** Passing NULL for the errorContext parameter will default to the error context of the current thread. This is useful for retrieving information from within a listener or exception callback. This function returns a pointer, not a copy of the stack trace string. If the last call was considered a non-error, an empty string is returned.

Returns TIBEMS\_OK, TIBEMS\_INVALID\_ARG (string is null, or passing an object created in a different thread), TIBEMS\_NOT\_INITIALIZED (no error context for this thread)

**See Also** [tibemsErrorContext\\_GetLastErrorString on page 532](#)



## Chapter 17 **IBM z/OS and IBM i**

This chapter presents items of interest only to programmers coding for IBM z/OS and IBM i native operating systems.

### Topics

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- [IBM EBCDIC Platform Calls, page 536](#)
  - [tibems\\_SetCodePages\(\), page 537](#)
- [IBM z/OS Functions, page 539](#)
  - [tibx\\_MVSConsole\\_SetConsumer\(\), page 540](#)
  - [tibx\\_MVSConsole\\_Create\(\), page 541](#)
  - [Console\\_Response, page 543](#)

## IBM EBCDIC Platform Calls

---

The calls we present on the following pages are implemented only on IBM EBCDIC platforms.



# tibems\_SetCodePages()

Function

**Purpose** Set code pages for string conversion on EBCDIC platforms (when non-default code pages are required).

**C Declaration** `tibems_status tibems_SetCodePages(  
char* host_codepage,  
char* net_codepage);`

**COBOL Call** `CALL "tibems_SetCodePages"  
USING BY REFERENCE host-codepage,  
BY REFERENCE net-codepage,  
RETURNING TIBEMS-STATUS  
END-CALL.`

Parameters	Parameter	Description
	host_codepage	Set this code page as the native (EBCDIC) character encoding for the host computer.
	net_codepage	Set this code page as the ASCII or UTF-8 character set for the network.

**String Conversion** EMS software uses the operating system's `iconv()` call to automatically convert strings within messages. Conversion occurs only as needed:

- Programs running in EBCDIC environments represent all strings using an EBCDIC code page (called the *host code page*). Before sending a message, the EMS client library converts its strings to an ASCII or UTF-8 character set (the *network code page*).
- Conversely, when a message arrives from the network, the EMS client library converts its strings to the EBCDIC host code page before presenting the message to the program.

**Remarks** This call sets the host and network code pages for string conversions in EBCDIC environments.

Call this function when the system code pages differ from the EMS default code pages (see the table of [Default Code Pages on page 538](#)). Throughout an enterprise, all sending and receiving programs must use the same code pages.

Both arguments are string names of code pages. To determine valid code page names for your operating system, see documentation from the operating system vendor.

Programs may call this function at most once. The call *must* precede the first call to any message function, and the arrival of the first message from the network.

**Default Code Pages** To use a default code page, programs may supply NULL for either parameter. Using the default code pages in both parameter positions has the same effect as not calling this function at all.

Default Host Code Page	Default Network Code Page
"IBM-1047"	"ISO8859-1"

**See Also** [Strings and Character Encodings on page 4](#)

## IBM z/OS Functions

---

These functions are implemented only on IBM z/OS platforms.

# tibx\_MVSConsole\_SetConsumer()

Function

**Purpose** Exit from a blocking listener.

**C Declaration**

```
tibx_MVSConsole_SetConsumer(
    void* pConsole,
    tibemsMsgConsumer tibemsMsgConsumer,
    char* tibems_MVS_BreakFunction);

signed long int tibems_MVS_BreakFunction(
    void* pConsole );
```

**COBOL Call**

```
SET WS-PROCEDURE-PTR TO ENTRY 'tibems_MVS_BreakFunction'

CALL "tibx_MVSConsole_SetConsumer"
    USING BY VALUE    pConsole,
           BY VALUE    tibemsMsgConsumer,
           BY VALUE    pFunction,
           RETURNING   tibems-status
END-CALL.
```



pConsole has usage pointer.  
Before this call, you must set the entry to the MVS break function.

**Parameters**

Parameter	Description
pConsole	Set the consumer of this MVS console object.
tibemsMsgConsumer	Use this message consumer.
pFunction	In COBOL, use this tibems_MVS_BreakFunction function address.
tibems_MVS_BreakFunction	In C, use this break function name.

**Remarks**

Programs in single-threaded environments (such as COBOL) need a way to interrupt blocking receive calls (such as [tibemsMsgConsumer\\_Receive](#)).

After registering this function in COBOL, a console stop or shut command causes the receive call to return with a status code TIBEMS\_USER\_INTR (54).

**See Also**

[tibemsMsgConsumer\\_Receive](#) on page 168

[tibx\\_MVSConsole\\_Create\(\)](#) on page 541

# tibx\_MVSConsole\_Create()

Function

**Purpose** Create or destroy an MVS console.

**C Declaration**

```
signed long int tibx_MVSConsole_Create (
    void** pConsole,
    char** pConsoleMsg,
    Console_Response pCallBack)

signed long int tibx_MVSConsole_Destroy(
    void* pConsole );
```

**COBOL Call**

```
CALL "tibx_MVSConsole_Create"
    USING BY REFERENCE pConsole,
          BY REFERENCE pConsoleMsg,
          BY VALUE      TIBEMS-NULLPTR,
          RETURNING     tibems-status
END-CALL.

CALL "tibx_MVSConsole_Destroy"
    USING BY VALUE pConsole,
          RETURNING tibems-status
END-CALL.
```



pConsole and pConsole-Msg have usage pointer.

Parameters

Parameter	Description
pConsole	The create call stores the MVS console handle in this location.  The destroy call destroys this MVS console.
pConsoleMsg	When the return status code is non-zero, the function stores an error message in this location.
pCallBack	C programs define this callback function to receive the results of MVS console commands.

**Remarks** Some consumer application programs wait indefinitely for messages to arrive. You can use this function in conjunction with `tibems_MVS_BreakFunction` to arrange console input to such programs, in order to interrupt them from waiting to receive a message, so they can exit cleanly (see [tibx\\_MVSConsole\\_SetConsumer\(\)](#) on page 540).

C programs can receive console command results through a callback function. COBOL programs cannot receive console command results, but can react to the MVS stop and shut commands.

**See Also**    [tibemsMsgConsumer\\_Receive on page 168](#)  
              [tibx\\_MVSConsole\\_SetConsumer\(\) on page 540](#)

## Console\_Response

*Function Type*

**Purpose** Callback function to relay the results of MVS console commands to C programs.

**C Declaration**

```
signed long int  
Console_Response(  
    signed long int rc,  
    char* ops_command );
```

**Parameters**

Parameter	Description
rc	This parameter receives the return status code from the MVS console.
ops_command	This parameter receives the operator command from the MVS console.
<i>return value</i>	Zero indicates a normal return.  All other values indicate a special console command—namely, stop or shut.

**Remarks** Available only in C for z/OS MVS.  
COBOL does not support callback functions.

**See Also** [tibx\\_MVSConsole\\_Create\(\) on page 541](#)





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