

# The GNU Enterprise Application Server

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Application Programmer's Interface  
Edition 0.0.7, 2002-12-20

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## Table of Contents

<b>1</b>	<b>Data Types .....</b>	<b>1</b>
<b>2</b>	<b>API Functions .....</b>	<b>2</b>
2.1	Session Management .....	2
2.2	Handling Lists Of Objects .....	2
2.3	Handling Specific Objects .....	3
 <b>Appendix A GNU Free Documentation License</b>		
	.....	<b>4</b>
A.1	ADDENDUM: How to use this License for your documents	
	.....	9
 <b>Appendix B Data Type and Function Index</b>		
	.....	<b>10</b>

# 1 Data Types

In the API definition, we will make use of the following data type placeholders, which will have to be translated into appropriate data types for the various implemented RPC mechanisms:

**void** Data Type  
This is used as the result type for functions that actually don't return a result.

**boolean** Data Type  
This is a boolean data type that can only hold TRUE or FALSE values.

**integer** Data Type  
This is an integer data type which must be able to contain signed 32 bit values.  
This restriction limits the maximum list size to more than 2 billion objects.

**string** Data Type  
This is a data type that must be able to hold variable length strings without length limitations.

**stringlist** Data Type  
This is an one-dimensional array of elements of the type **string**. Implementation may restrict the number of elements to 32767.

**stringtable** Data Type  
This is a two-dimensional array of elements of the type **string**. Implementation may restrict the number of columns as well as the number of rows to 32767.

**session\_id** Data Type  
This is a 32 bit integer value identifying a session. There is no special meaning one could read from the value.

**list\_id** Data Type  
This is a 32 bit integer value identifying a list. There is no special meaning one could read from the value.

## 2 API Functions

All API functions can raise exceptions on failure. All functions are atomic, in the sense that in case of an exception the function has no effect at all. No error in a function call can cause a function to be "half-done".

The exact syntax of the API functions is dependant on the selected RPC interface and the language sitting on top of it. However, we are describing the functions in a C-like syntax here, using the data type placeholders we defined above.

### 2.1 Session Management

**session\_id open** (*auth\_parameters*) Function  
 Opens a connection to Appserver using the given parameters for authentication. The number and type of the parameters still have to be decided. The return value is a handle to the session that has to be passed to all subsequent function calls.

**void close** (*session\_id session, boolean commit*) Function  
 Closes the connection identified by *session*. If *commit* is TRUE, an uncommitted transaction of this session is implicitly committed; if *commit* is FALSE, it is implicitly rolled back. After this call, *session* will no longer be a valid session identifier.

**void commit** (*session\_id session*) Function  
 Commits the current transaction of *session*, making all changes permanent

**void rollback** (*session\_id session*) Function  
 Discards all changes done in *session* since the last **commit** or **rollback**.

**void setcontext** (*session\_id session, string context*) Function  
 Sets the current module context for *session* to *context*. The module context is used to expand all nonfully qualified references to classes, properties, and procedures into fully qualified references for all subsequent operations within *session*.

### 2.2 Handling Lists Of Objects

These functions provide a means for getting data for a list of objects fulfilling certain conditions.

**list\_id request** (*session\_id session, string classname, string conditions, stringlist sort\_order, stringlist properties*) Function  
 Requests a list of objects of class *classname* matching the *conditions*. Appserver prepares to send the values of the properties listed in *properties* on subsequent calls to **fetch**, where the order of the objects is determined by the properties listed in *sort\_order*. The properties in *sort\_order* may, but need not appear in *properties*. If *classname*, *conditions*, *sort\_order*, or *properties* contain not fully referenced identifiers for classes or properties, they are expanded using *context* as the current module context.  
 This function only returns a list identifier. No actual data is passed over the network when calling this function.

**integer count** (*session\_id session, list\_id list*) Function  
 Returns the number of objects contained in *list*, where *list* is the return value of a previous call to **request**

**stringtable fetch** (*session\_id session, list\_id list, integer start, integer count, boolean close*) Function

Returns a 2-dimensional array of data with *count* rows, where column 0 always holds the *object\_id* of the object, and the remaining columns contain the values for the properties defined in the previous call to **request**. Negative values for *start* indicate position from the end of the list. Negative values for *count* are invalid. Count may not be greater than 32767.

If *close* is TRUE, then the list is "closed", all server-side memory allocated with the management of this list is freed and the id *list* may no longer be used in calls to **count** or **fetch**. However, *object\_ids* and other data already received remains valid.

## 2.3 Handling Specific Objects

These functions provide a means for reading, writing and deleting an object or a set of objects, as well as for calling a procedure for an object or a set of objects. However, the *object\_ids* for the objects to operate upon have to be determined before these functions can be used, for example by using the list handling functions described above.

**stringtable load** (*session\_id session, string classname, stringlist object\_ids, stringlist properties*) Function

Returns a 2-dimensional array of data with a row for every entry in the *object\_ids* list and a column for every entry in *properties*. Unlike **fetch**, this function does *not* automatically return the *object\_ids* in column 0.

**stringlist store** (*session\_id session, string classname, stringlist object\_ids, stringlist properties, stringtable values*) Function

Stores the data in *values* in the objects identified by *object\_ids*. Every row in *values* matches an entry in *object\_ids*, while every column matches an entry in *properties*. Empty object ids indicate that new objects with that data should be created. Validation is performed before the actual storing is done. If validation of a single object fails, none of the objects are stored, but an exception is raised. This function returns a list of all object ids of the stored objects. This is important for the caller to know under which object ids the new objects have been stored and can be accessed from now on. Note that after calling **store**, **commit** has to be called to make the changes persistent, while a call to **rollback** can undo the changes.

**void remove** (*session\_id session, string classname, stringlist object\_ids*) Function

Deletes the objects of class *classname* identified through *object\_ids*.

**stringlist call** (*session\_id session, stringlist object\_ids, string procedurename, stringlist parameters*) Function

Calls the procedure *procedurename* for every object identified through the *object\_ids* and passes the same *parameters* to every call. The number of entries in *parameters* must match the parameter count of the procedure. This function returns a list of strings that contains the results of the procedure calls for each object.

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## Appendix B Data Type and Function Index

### B

boolean ..... 1

### C

call ..... 3

close ..... 2

commit ..... 2

count ..... 2

### F

fetch ..... 3

### I

integer ..... 1

### L

list\_id ..... 1

load ..... 3

### O

open ..... 2

### R

remove ..... 3

request ..... 2

rollback ..... 2

### S

session\_id ..... 1

setcontext ..... 2

store ..... 3

string ..... 1

stringlist ..... 1

stringtable ..... 1

### V

void ..... 1