BEA Tuxedo®

File Formats, Data Descriptions, MIBs, and System Processes Reference

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About This Document

This document provides reference information on file formats, data descriptions, Management Information Bases (MIBs), and system processes for the BEA Tuxedo system. The reference pages are arranged in alphabetical order by the name of the file format, data description, MIB, or system process.

What You Need to Know

This document is intended for the following audiences:

- Administrators who are interested in configuring and managing applications in a BEA Tuxedo environment
- Application developers who are interested in programming applications in a BEA Tuxedo environment

This document assumes a familiarity with the BEA Tuxedo platform and either C or COBOL programming.

e-docs Web Site

BEA product documentation is available on the BEA corporate Web site. From the BEA Home page, click on Product Documentation or go directly to the "e-docs" Product Documentation page at `http://e-docs.bea.com`.

How to Print the Document

You can print a copy of this document from a Web browser, one file at a time, by using the File—>Print option on your Web browser.

A PDF version of this document is available on the BEA Tuxedo documentation Home page on the e-docs Web site (and also on the documentation CD). You can open the PDF in Adobe Acrobat Reader and print the entire document (or a portion of it) in book format. To access the PDFs, open the BEA Tuxedo documentation Home page, click the PDF files button and select the document you want to print.

If you do not have the Adobe Acrobat Reader, you can get it for free from the Adobe Web site at `http://www.adobe.com`.

Related Information

Related documents are listed in the See Also section of each reference page. For MIBs, related information is listed for the MIB as a whole rather than for each class.

Contact Us!

Your feedback on the BEA Tuxedo documentation is important to us. Send us e-mail at `docsupport@bea.com` if you have questions or comments. Your comments will be reviewed directly by the BEA professionals who create and update the BEA Tuxedo documentation.

In your e-mail message, please indicate that you are using the documentation for the BEA Tuxedo 9.0 release.

If you have any questions about this version of BEA Tuxedo, or if you have problems installing and running BEA Tuxedo, contact BEA Customer Support through BEA WebSupport at `http://www.bea.com`. You can also contact Customer Support by using the contact information provided on the Customer Support Card, which is included in the product package.

When contacting Customer Support, be prepared to provide the following information:

- Your name, e-mail address, phone number, and fax number
- Your company name and company address
- Your machine type and authorization codes
- The name and version of the product you are using
- A description of the problem and the content of pertinent error messages

Documentation Conventions

The following documentation conventions are used throughout this document.

Convention	Item
boldface text	Indicates terms defined in the glossary.
Ctrl+Tab	Indicates that you must press two or more keys simultaneously.
italics	Indicates emphasis or book titles.

`monospace text`	Indicates code samples, commands and their options, data structures and their members, data types, directories, and filenames and their extensions. Monospace text also indicates text that you must enter from the keyboard.
	Examples:
	`#include <iostream.h> void main ( ) the pointer psz`
	`chmod u+w *`
	`\tux\data\ap`
	`.doc`
	`tux.doc`
	`BITMAP`
	`float`

`monospace boldface text`	Identifies significant words in code. *Example*: `void` **`commit`** `( )`
`monospace italic text`	Identifies variables in code. *Example*: `String` *`expr`*
UPPERCASE TEXT	Indicates device names, environment variables, and logical operators. *Examples*: LPT1 SIGNON OR
`{ }`	Indicates a set of choices in a syntax line. The braces themselves should never be typed.

Convention	Item
`[ ]`	Indicates optional items in a syntax line. The brackets themselves should never be typed. *Example*: `buildobjclient [-v] [-o name ] [-f file-list]... [-l file-list]...`
|	Separates mutually exclusive choices in a syntax line. The symbol itself should never be typed.
`...`	Indicates one of the following in a command line: • That an argument can be repeated several times in a command line • That the statement omits additional optional arguments • That you can enter additional parameters, values, or other information The ellipsis itself should never be typed. *Example*: `buildobjclient [-v] [-o name ] [-f file-list]... [-l file-list]...`
. . .	Indicates the omission of items from a code example or from a syntax line. The vertical ellipsis itself should never be typed.

Section 5 - File Formats, Data Descriptions, MIBs, and System Processes Reference

Table 1 BEA Tuxedo File Formats, Data Descriptions, MIBs, and System Processes

Name	Description
Introduction to Tables and Files	Overview of this document
`ACL_MIB(5)`	Management Information Base for ACLs
`APPQ_MIB(5)`	Management Information Base for /Q
`AUTHSVR(5)`	Server providing per-user authentication
`compilation(5)`	Instructions for compilation of BEA Tuxedo system application components
`DMADM(5)`	Domains administrative server
`DMCONFIG(5)`	Text version of a Domains configuration file
`DM_MIB(5)`	Management Information Base for Domains
`EVENTS(5)`	List of system-generated events
`EVENT_MIB(5)`	Management Information Base for EventBroker
`factory_finder.ini(5)`	FactoryFinder Domains configuration file
`Ferror, Ferror32(5)`	FML error codes
`field_tables(5)`	FML mapping files for field names

Table 1 BEA Tuxedo File Formats, Data Descriptions, MIBs, and System Processes (Continued)

Name	Description
GWADM(5)	Domains gateway administrative server
GWTDOMAIN(5)	TDomain gateway process
ISL(5)	Enables access to BEA Tuxedo objects by remote BEA Tuxedo clients using IIOP.
KAUTHSVR(5)	Kerberos-based Tuxedo authorization server
langinfo(5)	Language information constants
LAUTHSVR(5)	WebLogic Server embedded LDAP-based authentication server
METAREPOS(5)	Tuxedo service metadata repository buffer format
MIB(5)	Management Information Base
nl_types(5)	Native language data types
servopts(5)	Run-time options for server processes
TM_MIB(5)	Management Information Base for core BEA Tuxedo system
TMFFNAME(5)	Server that runs the FactoryFinder and NameManager services
TMIFRSVR(5)	The Interface Repository server
TMMETADATA(5)	Tuxedo service metadata repository server
TMQFORWARD(5)	Message Forwarding Server
TMQUEUE(5)	Message Queue Manager
TMSYSEVT(5)	System event reporting process
tmtrace(5)	Run-time tracing facility
TMUSREVT(5)	User event reporting process
tperrno(5)	BEA Tuxedo system error codes
tpurcode(5)	BEA Tuxedo system global variable for an application-specified return code
tuxenv(5)	List of environment variables in the BEA Tuxedo system

Table 1 BEA Tuxedo File Formats, Data Descriptions, MIBs, and System Processes (Continued)

Name	Description
`tuxtypes(5)`	Buffer type switch; descriptions of buffer types provided by the BEA Tuxedo system
`typesw(5)`	Buffer type switch structure; parameters and routines needed for each buffer type
`UBBCONFIG(5)`	Text version of a BEA Tuxedo configuration file
`viewfile(5)`	Source file for view descriptions
`WS_MIB(5)`	Management Information Base for Workstation
`WSL(5)`	Workstation Listener server

Introduction to Tables and Files

Description

This section describes the format of miscellaneous tables and files.

The page named `compilation(5)` summarizes information about header files, libraries, and environment variables needed when compiling application source code.

The section includes descriptions of BEA Tuxedo system-supplied servers. Applications wishing to use the BEA Tuxedo system-supplied servers should specify them in the configuration file for the application.

The `servopts` page describes options that can be specified in the configuration file as the `CLOPT` parameter of application servers.

The BEA Tuxedo Management Information Base is documented in the `MIB(5)` reference page and in the following component MIB pages:

- `ACL_MIB(5)`
- `APPQ_MIB(5)`
- `DM_MIB(5)`
- `EVENT_MIB(5)`
- `TM_MIB(5)`
- `WS_MIB(5)`

ACL_MIB(5)

Name

ACL_MIB—Management Information Base for ACLs

Synopsis

```
#include <fml32.h>
#include <tpadm.h>
```

Description

The BEA Tuxedo MIB defines the set of classes through which access control lists (ACLs) may be managed. A BEA Tuxedo configuration with SECURITY set to USER_AUTH, ACL, or MANDATORY_ACL must be created before accessing or updating these classes. ACL_MIB(5) should be used in combination with the generic MIB reference page MIB(5) to format administrative requests and interpret administrative replies. Requests formatted as described in MIB(5) using classes and attributes described in this reference page may be used to request an administrative service using any one of a number of existing ATMI interfaces in an active application. For additional information pertaining to all ACL_MIB(5) class definitions, see "ACL_MIB(5) Additional Information" on page 13.

ACL_MIB(5) consists of the following classes.

Table 2 ACL_MIB Classes

Class Name	Attribute
T_ACLGROUP	ACL group
T_ACLPERM	ACL permissions
T_ACLPRINCIPAL	ACL principal (users or domains)

Each class description section has four subsections:

Overview

High level description of the attributes associated with the class.

Attribute Table

A table that lists the name, type, permissions, values and default for each attribute in the class. The format of the attribute table is described below.

Attribute Semantics

Tells how each attribute should be interpreted.

Limitations

Limitations in the access to and interpretation of this class.

Attribute Table Format

As described above, each class that is a part of this MIB is defined below in four parts. One of these parts is the attribute table. The attribute table is a reference guide to the attributes within a class and how they may used by administrators, operators and general users to interface with an application. There are five components to each attribute description in the attribute tables: name, type, permissions, values and default. Each of these components is discussed in `MIB(5)`.

TA_FLAGS Values

`MIB(5)` defines the generic `TA_FLAGS` attribute which is a `long` containing both generic and component MIB specific flag values. At this time, there are no `ACL_MIB(5)` specific flag values defined.

FML32 Field Tables

The field tables for the attributes described in this reference page are found in the file `udataobj/tpadm` relative to the root directory of the BEA Tuxedo system software installed on the system. The directory `${TUXDIR}/udataobj` should be included by the application in the colon-separated list specified by the `FLDTBLDIR` environment variable and the field table name `tpadm()` should be included in the comma-separated list specified by the `FIELDTBLS` environment variable.

Limitations

Access to the header files and field tables for this MIB is provided only at sites running BEA Tuxedo release 6.0 and later, both native and Workstation.

T_ACLGROUP Class Definition

Overview

The `T_ACLGROUP` class represents groups of BEA Tuxedo application users and domains.

Attribute Table

Table 3 ACL_MIB(5): T_ACLGROUP Class Definition Attribute Table

Attribute	Type	Permissions	Values	Default
TA_GROUPNAME(r)(*)	string	rU-------	*string*[1..30]	N/A
TA_GROUPID(k)	long	rw-------	0 <= *num* <16,384	lowest id
TA_STATE	string	rw-------	GET: "INA"	N/A
			SET: "{NEW | INV}"	N/A

(k)—GET key field
(r)—required field for object creation (SET TA_STATE NEW)
(*)—GET/SET key, one or more required for SET operations

Attribute Semantics

TA_GROUPNAME: ***string*[1..30]**

Logical name of the group. A group name is a string of printable characters and cannot contain a pound sign, comma, colon, or newline.

TA_GROUPID: **0 <= *num* < 16,384**

Group identifier associated with this user. A value of 0 indicates the default group "other." If not specified at creation time, it defaults to the next available (unique) identifier greater than 0.

TA_STATE:

GET: {VALid}

A GET operation will retrieve configuration information for the selected T_ACLGROUP object(s). The following states indicate the meaning of a TA_STATE returned in response to a GET request.

VALid	T_ACLGROUP object is defined and inactive. Note that this is the only valid state for this class. ACL groups are never *active*.

SET: {NEW | INValid}

A SET operation will update configuration information for the selected T_ACLGROUP object. The following states indicate the meaning of a TA_STATE set in a SET request. States not listed may not be set.

NEW	Create T_ACLGROUP object for application. State change allowed only when in the INValid state. Successful return leaves the object in the VALid state.
unset	Modify an existing T_ACLGROUP object. This combination is not allowed in the INValid state. Successful return leaves the object state unchanged.
INValid	Delete T_ACLGROUP object for application. State change allowed only when in the VALid state. Successful return leaves the object in the INValid state.

Limitations

A user can be associated with exactly one ACL group. For someone to take on more than one role or be associated with more than one group, multiple user entries must be defined.

T_ACLPERM Class Definition

Overview

The T_ACLPERM class indicates what groups are allowed to access BEA Tuxedo system entities. These entities are named via a string. The names currently represent service names, event names, and application queue names.

Attribute Table

Table 4 ACL_MIB(5): T_ACLPERM Class Definition: Attribute Table

Attribute	Type	Permissions	Values	Default
TA_ACLNAME(r)(*)	string	rw-------	*string*[1..30]	N/A
TA_ACLTYPE(r)(*)	string	rw-------	"ENQ | DEQ | SERVICE | POSTEVENT"	N/A

Table 4 ACL_MIB(5): T_ACLPERM Class Definition: Attribute Table

Attribute	Type	Permissions	Values	Default
TA_ACLGROUPIDS	string	rw-------	*string*	N/A
TA_STATE	string	rw-------	GET: "INA"	N/A
			SET: "{NEW | INV}"	N/A

(r)—required field for object creation (SET TA_STATE NEW)
(*)—GET/SET key, one or more required for SET operations

Attribute Semantics

TA_ACLNAME: *string*

The name of the entity for which permissions are being granted. The name can represent a service name, an event name, and/or a queue name. An ACL name is a string of printable characters and cannot contain a colon, pound sign, or newline.

TA_ACLTYPE: ENQ | DEQ | SERVICE | POSTEVENT

The type of the entity for which permissions are being granted.

TA_ACLGROUPIDS: *string*

A comma-separated list of group identifiers (numbers) that are permitted access to the associated entity. The length of *string* is limited only by the amount of disk space on the machine.

TA_STATE:

GET: {VALid}

A GET operation will retrieve configuration information for the selected T_ACLPERM object(s). The following states indicate the meaning of a TA_STATE returned in response to a GET request.

VALid	T_ACLPERM object is defined and inactive. Note that this is the only valid state for this class. ACL permissions are never *active*.

SET: {NEW | INValid}

A SET operation will update configuration information for the selected T_ACLPERM object. The following states indicate the meaning of a TA_STATE set in a SET request. States not listed may not be set.

`NEW`	Create `T_ACLPERM` object for application. State change allowed only when in the `INValid` state. Successful return leaves the object in the `VALid` state.
`unset`	Modify an existing `T_ACLPERM` object. This combination is not allowed in the `INValid` state. Successful return leaves the object state unchanged.
`INValid`	Delete `T_ACLPERM` object for application. State change allowed only when in the `VALid` state. Successful return leaves the object in the `INValid` state.

Limitations

Permissions are defined at the group level, not on individual user identifiers.

T_ACLPRINCIPAL Class Definition

Overview

The `T_ACLPRINCIPAL` class represents users or domains that can access a BEA Tuxedo application and the group with which they are associated. To join the application as a specific user, it is necessary to present a user-specific password.

Attribute Table

Attribute Semantics

Table 5 ACL_MIB(5): T_ACLPRINCIPAL Class Definition Attribute Table

Attribute	Type	Permissions	Values	Default
TA_PRINNAME(r)(*)	string	rU-------	*string*[1..30]	N/A
TA_PRINCLTNAME(k)	string	rw-------	*string*[1..30]	"*"
TA_PRINID(k)	long	rU-------	1 <= *num* < 131,072	lowest id
TA_PRINGRP(k)	long	rw-------	0 <= *num* < 16,384	0
TA_PRINPASSWD	string	rwx------	*string*	N/A
TA_STATE	string	rw-------	GET: "INA"	N/A
			SET: "{NEW | INV}"	N/A

(k)—GET key field
(r)—required field for object creation (SET TA_STATE NEW)
(*)—GET/SET key, one or more required for SET operations

TA_PRINNAME**:** *string*
: Logical name of the user or domain (a principal). A principal name is a string of printable characters and cannot contain a pound sign, colon, or newline.

TA_PRINCLTNAME**:** *string*
: The client name associated with the user. It generally describes the role of the associated user, and provides a further qualifier on the user entry. If not specified at creation time, the default is the wildcard asterisk (*). A client name is a string of printable characters and cannot contain a colon, or newline.

TA_PRINID**: 1 <=** *num* **< 131,072**
: Unique user identification number. If not specified at creation time, it defaults to the next available (unique) identifier greater than 0.

TA_PRINGRP**: 0 <=** *num* **< 16,384**
: Group identifier associated with this user. A value of 0 indicates the default group "other." If not specified at creation time, the default 0 is assigned.

TA_PRINPASSWD: *string*

TA_STATE:

GET: {VALid}

A GET operation will retrieve configuration information for the selected T_ACLPRINCIPAL object(s). The following states indicate the meaning of a TA_STATE returned in response to a GET request.

VALid	T_ACLPRINCIPAL object is defined and inactive. Note that this is the only valid state for this class. ACL principals are never *active*.

SET: {NEW | INValid}

A SET operation will update configuration information for the selected T_ACLPRINCIPAL object. The following states indicate the meaning of a TA_STATE set in a SET request. States not listed may not be set.

NEW	Create T_ACLPRINCIPAL object for application. State change allowed only when in the INValid state. Successful return leaves the object in the VALid state.
unset	Modify an existing T_ACLPRINCIPAL object. This combination is not allowed in the INValid state. Successful return leaves the object state unchanged.
INValid	Delete T_ACLPRINCIPAL object for application. State change allowed only when in the VALid state. Successful return leaves the object in the INValid state.

Limitations

A user or domain can be associated with exactly one ACL group. For someone to take on more than one role or be associated with more than one group, multiple principal entries must be defined.

ACL_MIB(5) Additional Information

Diagnostics

There are two general types of errors that may be returned to the user when interfacing with `ACL_MIB(5)`. First, any of the three ATMI verbs (`tpcall()`, `tpgetrply()` and `tpdequeue()`) used to retrieve responses to administrative requests may return any error defined for them. These errors should be interpreted as described on the appropriate reference pages.

If, however, the request is successfully routed to a system service capable of satisfying the request and that service determines that there is a problem handling the request, failure may be returned in the form of an application level service failure. In these cases, `tpcall()` and `tpgetrply()` will return an error with `tperrno()` set to `TPESVCFAIL` and return a reply message containing the original request along with `TA_ERROR`, `TA_STATUS` and `TA_BADFLD` fields further qualifying the error as described below. When a service failure occurs for a request forwarded to the system through the `TMQFORWARD(5)` server, the failure reply message will be enqueued to the failure queue identified on the original request (assuming the `-d` option was specified for `TMQFORWARD`).

When a service failure occurs during processing of an administrative request, the FML32 field `TA_STATUS` is set to a textual description of the failure, the FML32 field `TA_ERROR` is set to indicate the cause of the failure as indicated below. All error codes specified below are guaranteed to be negative.

The following diagnostic codes are returned in `TA_ERROR` to indicate successful completion of an administrative request. These codes are guaranteed to be non-negative.

[*`other`***]**

Other return codes generic to any component MIB are specified in the `MIB(5)` reference page. These return codes are guaranteed to be mutually exclusive with any `ACL_MIB(5)` specific return codes defined here.

Interoperability

The header files and field tables defined in this reference page are available on BEA Tuxedo release 6.0 and later. Fields defined in these headers and tables will not be changed from release to release. New fields may be added which are not defined on the older release site. Access to the AdminAPI is available from any site with the header files and field tables necessary to build a request. The `T_ACLPRINCIPAL`, `T_ACLGROUP`, and `T_ACLPERM` classes are new with BEA Tuxedo release 6.0.

Portability

The existing FML32 and ATMI functions necessary to support administrative interaction with BEA Tuxedo system MIBs, as well as the header file and field table defined in this reference page, are available on all supported native and Workstation platforms.

Example

Following is a sequence of code fragments that adds a user to a group and adds permissions for that group to a service name.

Field Tables

The field table *tpadm* must be available in the environment to have access to attribute field identifiers. This can be done at the shell level as follows:

```
$ FIELDTBLS=tpadm
$ FLDTBLDIR=${TUXDIR}/udataobj
$ export FIELDTBLS FLDTBLDIR
```

Header Files

The following header files are included.

```
#include <atmi.h>
#include <fml32.h>
#include <tpadm.h>
```

Add User

The following code fragment adds a user to the default group "other."

```
/* Allocate input and output buffers */

ibuf = tpalloc("FML32", NULL, 1000);


 obuf = tpalloc("FML32", NULL, 1000);

 /* Set MIB(5) attributes defining request type *
 Fchg32(ibuf, TA_OPERATION, 0, "SET", 0);
 Fchg32(ibuf, TA_CLASS, 0, "T_ACLPRINCIPAL", 0);

 /* Set ACL_MIB(5) attributes */
 Fchg32(ibuf, TA_PRINNAME, 0, ta_prinname, 0);
```

```
Fchg32(ibuf, TA_PRINID, 0, (char *)ta_prinid, 0);
Fchg32(ibuf, TA_STATE, 0, (char *)"NEW", 0);

Fchg32(ibuf, TA_PRINPASSWD, 0, (char *)passwd, 0);


/* Make the request */
if (tpcall(".TMIB", (char *)ibuf, 0, (char **)obuf, olen, 0) 0)  {
fprintf(stderr, "tpcall failed: %s\en", tpstrerror(tperrno));
if (tperrno == TPESVCFAIL) {
Fget32(obuf, TA_ERROR, 0,(char *)ta_error, NULL);
ta_status = Ffind32(obuf, TA_STATUS, 0, NULL);
fprintf(stderr, "Failure: %ld, %s\en",
ta_error, ta_status);
}
/* Additional error case processing */
}
```

Files

`${TUXDIR}/include/tpadm.h`, `${TUXDIR}/udataobj/tpadm`,

See Also

`tpacall(3c)`, `tpalloc(3c)`, `tpcall(3c)`, `tpdequeue(3c)`, `tpenqueue(3c)`, `tpgetrply(3c)`, `tprealloc(3c)`, Introduction to FML Functions, `Fadd, Fadd32(3fml)`, `Fchg, Fchg32(3fml)`, `Ffind, Ffind32(3fml)`, `MIB(5)`, `TM_MIB(5)`

Setting Up a BEA Tuxedo Application

Programming a BEA Tuxedo ATMI Application Using C

Programming a BEA Tuxedo ATMI Application Using FML

APPQ_MIB(5)

Name

APPQ_MIB—Management Information Base for /Q

Synopsis

```
#include <fml32.h>
#include <tpadm.h>
```

Description

The /Q MIB defines classes through which application queues can be managed.

APPQ_MIB(5) should be used in combination with the generic MIB reference page MIB(5) to format administrative requests and interpret administrative replies. Requests formatted as described in MIB(5) using classes and attributes described on this reference page may be used to request an administrative service using any one of a number of existing ATMI interfaces in an active application. Application queues in an inactive application may also be administered using the tpadmcall() function interface. For additional information pertaining to all APPQ_MIB(5) class definitions, see "APPQ_MIB(5) Additional Information" on page 46.

APPQ_MIB(5) consists of the following classes.

Table 6 APPQ_MIB Classes

Class Name	Attributes
T_APPQ	Application queues within a queue space
T_APPQMSG	Messages within an application queue
T_APPQSPACE	Application queue spaces
T_APPQTRANS	Transactions associated with application queues

Note that this MIB refers to application-defined persistent (reliable disk-based) and non-persistent (in memory) queues (that is, /Q queues), and not server queues (the T_QUEUE class of the TM_MIB(5) component).

Each class description section has four subsections:

Overview

High level description of the attributes associated with the class.

Attribute Table

A table that lists the name, type, permissions, values and default for each attribute in the class. The format of the attribute table is described below.

Attribute Semantics

Tells how each attribute should be interpreted.

Limitations

Limitations in the access to and interpretation of this class.

Attribute Table Format

Each class that is a part of this MIB is documented in four parts. One part is the attribute table. The attribute table is a reference guide to the attributes within a class and how they may used by administrators, operators, and general users to interface with an application.

There are five components to each attribute description in the attribute tables: name, type, permissions, values and default. Each of these components is discussed in MIB(5).

TA_FLAGS Values

MIB(5) defines the generic TA_FLAGS attribute which is a long containing both generic and component MIB-specific flag values. The following flag values are defined for the APPQ_MIB(5) component. These flag values should be OR'd with any generic MIB flags.

QMIB_FORCECLOSE

When setting the TA_STATE attribute of a T_APPQSPACE object to CLEaning, this flag indicates that the state change should succeed even if the state of the queue space is ACTive.

QMIB_FORCEDELETE

When setting the TA_STATE attribute of a T_APPQSPACE object to INValid, this flag indicates that the state change should succeed even if the queue space is ACTive or if messages are present in any of its queues. Similarly, when setting the TA_STATE attribute of a T_APPQ object to INValid, this flag allows the queue to be deleted even if messages are present or processes are attached to the queue space.

QMIB_FORCEPURGE

When setting the TA_STATE attribute of a T_APPQ object to INValid, this flag indicates that the state change should succeed even if messages are present on the queue. If, however, a message stored in the selected T_APPQ object is currently involved in a transaction, the state change will fail and an error will be written to the user log.

FML32 Field Table

The field table for the attributes described on this reference page is found in the file `udataobj/tpadm` relative to the root directory of the BEA Tuxedo software installed on the system. The directory `${TUXDIR}/udataobj` should be included by the application in the path list (semicolon-separated list on Windows and colon-separated list otherwise) specified by the `FLDTBLDIR` environment variable and the field table name `tpadm` should be included in the comma-separated list specified by the `FIELDTBLS` environment variable.

Limitations

This MIB is provided only on BEA Tuxedo system 6.0 sites and later, both native and Workstation.

If a site running a BEA Tuxedo release earlier than release 6.0 is active in the application, administrative access through this MIB is limited as follows.

- `SET` operations are not allowed.
- Local information access for sites earlier than release 6.0 is not available.

T_APPQ Class Definition

Overview

The `T_APPQ` class represents application queues. One or more application queues may exist in a single application queue space.

Limitations

It is not possible to retrieve all instances of this class by leaving all key fields unset. Instead, sufficient key fields must be supplied to explicitly target a single application queue space. These required key fields are `TA_APPQSPACENAME`, `TA_QMCONFIG`, and `TA_LMID`, except when the application is unconfigured (that is, when the `TUXCONFIG` environment variable is not set), in which case `TA_LMID` must be omitted. For example, if the `TA_APPQSPACENAME`, `TA_QMCONFIG`, and `TA_LMID` attributes are set in a request using `tpcall()`, all `T_APPQ` objects within the specified queue space will be retrieved.

Attribute Table

Table 7 APPQ_MIB(5): T_APPQ Class Definition Attribute Table

Attribute [a]	Type	Permissions	Values	Default
TA_APPQNAME(k)(r)(*)	string	ru-r--r--	*string*[1..15]	N/A
TA_APPQSPACENAME(k)(r)(*)	string	ru-r--r--	*string*[1..15]	N/A
TA_QMCONFIG(k)(r)(*)	string	ru-r--r--	*string*[1..78]	N/A
TA_LMID(k)(r)(*) [b]	string	ru-r--r--	*string*[1..30]	N/A
TA_STATE [c]	string	rw-r--r--	GET: "VAL" SET: "{NEW | INV}"	N/A N/A
TA_APPQORDER [d]	string	rw-r--r--	{PRIO | TIME | LIFO | FIFO | EXPIR}	FIFO
TA_DEFEXPIRATIONTIME	string	rw-r--r--	{+*seconds* | NONE}	N/A
TA_DEFDELIVERYPOLICY	string	rw-r--r--	{PERSIST | NONPERSIST}	PERSIST
TA_CMD	string	rw-r--r--	*shell-command -string*[0..127] [e]	""
TA_CMDHW	string	rw-r--r--	0 <= *num* [bBm%]	100%
TA_CMDLW	string	rw-r--r--	0 <= *num* [bBm%]	0%
TA_CMDNONPERSIST	string	rw-r--r--	*shell-command-string* [0..127] [e]	""
TA_CMDNONPERSISTHW	string	rw-r--r--	0 <= *num*[bB%]	100%
TA_CMDNONPERSISTLW	string	rw-r--r--	0 <= *num*[bB%]	0%
TA_MAXRETRIES	long	rw-r--r--	0 <= *num*	0
TA_OUTOFORDER	string	rw-r--r--	{NONE | TOP | MSGID}	NONE

Table 7 APPQ_MIB(5): T_APPQ Class Definition Attribute Table (Continued)

Attribute [a]	Type	Permissions	Values	Default
TA_RETRYDELAY	long	rw-r--r--	0 <= *num*	0
TA_CURBLOCKS	long	r--r--r--	0 <= *num*	N/A
TA_CURMSG	long	r--r--r--	0 <= *num*	N/A
TA_CURNONPERSISTBYTES	long	r--r--r--	0 <= *num*	N/A
TA_CURNONPERSISTMSG	long	r--r--r--	0 <= *num*	N/A
(k)—GET key field [f] (r)—required field for object creation (*)—required SET key field				

[a] All attributes of class T_APPQ are local attributes.
[b] TA_LMID must be specified as a key field except when the application is unconfigured (that is, the TUXCONFIG environment variable is not set).
[c] All operations on T_APPQ objects—both GET and SET—silently open the associated queue space (that is, implicitly set the state of the queue space to OPEn if it is not already OPEn or ACTive). This may be a time-consuming operation if the queue space is large.
[d] TA_APPQORDER cannot be modified after the application queue is created.
[e] Maximum string length for this attribute is 78 bytes for BEA Tuxedo 8.0 or earlier.
[f] Sufficient key fields must be supplied in a GET operation to explicitly target a single application queue space.

Attribute Semantics

TA_APPQNAME: *string*[1..15]
: Name of the application queue.

TA_APPQSPACENAME: *string*[1..15]
: Name of the application queue space containing the application queue.

TA_QMCONFIG: *string*[1..78]
: Absolute pathname of the file or device where the application queue space is located.

TA_LMID: *string*[1..30] **(no comma)**
: Identifier of the logical machine where the application queue space is located.

TA_STATE:

GET: {VALid}

A GET operation retrieves information about the selected application queues. The following list describes the meaning of the TA_STATE attribute returned in response to a GET request.

VALid	The specified queue exists. This state is INActive equivalent for purposes of permissions checking.

SET: {NEW | INValid}

A SET operation changes characteristics of the selected application queue or creates a new queue. The following list describes the meaning of the TA_STATE attribute returned by a SET request. States not listed cannot be set.

NEW	Create a new queue in the specified queue space. The queue is left in state VALid following successful creation.
INValid	Delete the specified queue. The queue must be in state VALid to be deleted. If the queue space has processes attached to it (that is, it is in the ACTive state), the queue will not be deleted unless the TA_FLAGS attribute includes the QMIB_FORCEDELETE flag. In addition, if the queue has messages in it, it will not be deleted unless QMIB_FORCEPURGE is specified. Successful return leaves the object in the INValid state.
unset	Modify an application queue. Successful return leaves the state unchanged.

TA_APPQORDER:

The order in which messages in the queue are to be processed. Legal values are PRIO, TIME, or EXPIR. A combination of sort criteria may be specified with the most significant criterion specified first, followed by other criteria, and optionally followed by either LIFO or FIFO, which are mutually exclusive. If EXPIR is specified, messages with no expiration time are dequeued after all messages with an expiration time. If neither FIFO nor LIFO is specified, FIFO is assumed. If no order is specified when a queue is created, the default order is FIFO. For example, the following are settings are legal:

```
PRIO
PRIO,TIME,LIFO
```

```
TIME,PRIO,FIFO
TIME,FIFO
EXPIR
EXPIR,PRIO,FIFO
TIME,EXPIR,PRIO,FIFO
```

`TA_CMD`**:** *`shell-command-string`***[0..127]**

The command to be automatically executed when the high water mark for persistent (disk-based) messages, `TA_CMDHW`, is reached. The command will be re-executed when the high water mark is reached again after the low water mark, `TA_CMDLW`, has been reached.

For BEA Tuxedo 8.0 or earlier, the maximum string length for the `TA_CMD` attribute is 78 bytes.

`TA_CMDHW`**: 0 <=** *`num`***[**`bBm%`**]**

`TA_CMDLW`**: 0 <=** *`num`***[**`bBm%`**]**

The high and low water marks that control the automatic execution of the command specified in the `TA_CMD` attribute. Each is an integer greater than or equal to zero. Both `TA_CMDHW` and `TA_CMDLW` must be followed by one of the following keyletters and the keyletters must be consistent for `TA_CMDHW` and `TA_CMDLW`.

`b`

The high and low water marks pertain to the number of bytes used by persistent (disk based) messages in the queue.

`B`

The high and low water marks pertain to the number of blocks used by persistent messages in the queue.

`m`

The high and low water marks pertain to the number of messages (both persistent and non-persistent) in the queue.

`%`

The high and low water marks are expressed in terms of a percentage of queue capacity. This pertains only to persistent messages.

For example, if `TA_CMDLW` is `50m` and `TA_CMDHW` is `100m`, the command specified in `TA_CMD` will be executed when 100 messages are on the queue, and it will not be executed again until the queue has been drained below 50 messages and has filled again to 100 messages.

`TA_CMDNONPERSIST`**:** *`shell-command-string`***[0..127]**

This attribute specifies the command to be executed automatically when the high water mark for non-persistent (memory-based delivery) messages, `TA_CMDNONPERSISTHW`, is reached. The command is re-executed when the high-water mark is reached again after the low-water mark for non-persistent (memory-based delivery) messages, `TA_CMDNONPERSISTLW`, has been reached.

For BEA Tuxedo 8.0 or earlier, the maximum string length for the `TA_CMDNONPERSIST` attribute is 78 bytes.

`TA_CMDNONPERSISTHW`**: 0 <=** *`num`***[**`bB%`**]**

`TA_CMDNONPERSISTLW`**: 0 <=** ***num*****[**`bB%`**]**

These attributes specify the high and low water marks that control the automatic execution of the command specified in the `TA_CMDNONPERSIST` attribute. Each is an integer greater than or equal to zero followed by one of the following keyletters. The keyletters must be consistent for `TA_CMDNONPERSISTHW` and `TA_CMDNONPERSISTLW`.

`b`

The high and low water marks are expressed as the number of bytes used by non-persistent (in memory) messages in the queue.

`B`

The high and low water marks are expressed as the number of blocks used by non-persistent (in memory) messages in the queue.

`%`

The high and low water marks are expressed as a percentage of the shared memory capacity reserved for non-persistent messages in the queue space used by the queue.

The messages threshold type specified via the `TA_CMDHW` and `TA_CMDLW` attributes (when followed by an `m`) applies to all messages in a queue, including both persistent and non-persistent messages, and therefore is not available as a threshold type for `TA_CMDNONPERSISTHW` and `TA_CMDNONPERSISTLW`.

`TA_CURBLOCKS`**: 0 <=** *`num`*

The number of disk pages currently consumed by the queue.

`TA_CURMSG`**: 0 <=** *`num`*

The number of persistent messages currently in the queue. To determine the total number of messages in the queue, add `TA_CURMEMMSG` to this value.

TA_DEFAULTEXPIRATIONTIME:

This attribute specifies an expiration time for messages enqueued with no explicit expiration time. The expiration time may be either a relative expiration time or NONE. The relative expiration time is determined by associating a fixed amount of time with a message after the message arrives at the queue manager process. When a message's expiration time is reached and the message has not been dequeued or administratively deleted, all resources associated with the message are reclaimed by the system and statistics are updated. If a message expires during a transaction, the expiration does not cause the transaction to fail. Messages that expire while being enqueued or dequeued within a transaction are removed from the queue when the transaction ends. There is no notification that the message has expired. If no default expiration time is specified for a queue, messages without an explicit expiration time do not expire. When the queue's expiration time is modified, the expiration times of messages that were in the queue before the modification are not changed.

The format is +*seconds* where *seconds* is the number of seconds allowed to lapse between the time that the queue manager successfully completes the operation and the time that the message is to expire. If *seconds* is set to zero (0) the message expires immediately.

The value of this attribute may also be set to the string NONE. The NONE string indicates that messages enqueued to the queue with no explicit expiration time do not expire. You may change the expiration time for messages already in a queue with the TA_EXPIRETIME attribute of the T_APPQMSG class in the APPQ_MIB.

TA_DEFDELIVERYPOLICY:

This attribute specifies the default delivery policy for the queue when no delivery mode is specified for a message enqueued to the queue. When the value is PERSIST, messages enqueued to the queue without an explicitly specified delivery mode are delivered using the persistent (disk-based) delivery method. When the value is NONPERSIST, messages enqueued to the queue without an explicitly specified delivery mode are delivered using the non-persistent (in memory) delivery method.When a queue's default delivery policy is modified, the delivery quality of service of messages that are in the queue before the modification are not changed. If the queue being modified is the reply queue named for any messages currently in the queue space, the reply quality of service is not changed for those messages as a result of changing the default delivery policy of the queue.

For non-persistent delivery, if the memory area is exhausted or fragmented such that a message cannot be enqueued, the enqueuing operation fails, even if there is sufficient persistent storage for the message. Similarly, if the persistent storage area is exhausted or fragmented such that a message cannot be enqueued, the enqueuing operation fails, even if there is sufficient non-persistent storage for the message. If the TA_MEMNONPERSIST attribute of the T_APPQSPACE class is zero (0) for a queue space, no space is reserved for non-persistent messages. In such a case, any attempt to enqueue a non-persistent message fails. This type of failure results, for example, when no delivery quality of service has been specified for a message and the TA_DEFDELIVERYPOLICY attribute for the target queue has been set to NONPERSIST.

TA_MAXRETRIES: **0 <=** *num*
: The maximum number of retries for a failed queue message. When the number of retries is exhausted, the message is placed on the error queue of the associated application queue space. If there is no error queue, the message is dropped. The default is zero.

TA_OUTOFORDER: **{**NONE **|** TOP **|** MSGID**}**
: The way in which out-of-order message processing is to be handled. The default is NONE.

TA_RETRYDELAY: **0 <=** *num*
: The delay, in seconds, between retries for a failed queue message. The default is zero.

TA_CURNONPERSISTBYTES: **0 <=** *num*
: This attribute specifies the number of shared memory bytes currently consumed by the non-persistent messages on the queue.

TA_CURNONPERSISTMSG: **0 <=** *num*
: This attribute specifies the number of non-persistent messages currently in the queue. To determine the total number of messages in the queue, add TA_CURMSG to this value.

T_APPQMSG Class Definition

Overview

The T_APPQMSG class represents messages stored in application queues. A message is not created by an administrator; instead, it comes into existence as a result of a call to tpenqueue(). A message can be destroyed either by a call to tpdequeue() or by an administrator. In addition, certain attributes of a message can be modified by an administrator. For example, an administrator can move a message from one queue to another queue within the same queue space or change its priority.

Limitations

It is not possible to retrieve all instances of this class by leaving all key fields unset. Instead, sufficient key fields must be supplied to explicitly target a single application queue space. These required key fields are TA_APPQSPACENAME, TA_QMCONFIG, and TA_LMID, except when the application is unconfigured (that is, the TUXCONFIG environment variable is not set), in which case TA_LMID must be omitted. For example, if the TA_APPQSPACENAME, TA_QMCONFIG, and TA_LMID attributes are set in a request using tpcall(), all T_APPQMSG objects in all queues of the specified queue space will be retrieved.

Attribute Table

Table 8 APPQ_MIB(5): T_APPQMSG Class Definition Attribute Table

Attribute[a]	Type	Permissions	Values	Default
TA_APPQMSGID(k)(*)	string	r--r--r--	*string*[1..32]	N/A
TA_APPQNAME(k)(*)	string	r--r--r--	*string*[1..15]	N/A
TA_APPQSPACENAME(k) (*)	string	r--r--r--	*string*[1..15]	N/A
TA_QMCONFIG(k)(*)	string	r--r--r--	*string*[1..78]	N/A
TA_LMID(k)(*)[b]	string	r--r--r--	*string*[1..30]	N/A
TA_STATE[c]	string	rw-r--r--	GET: "VAL" SET: "INV"	N/A N/A
TA_NEWAPPQNAME	string	-w--w----	*string*[1..15]	N/A
TA_PRIORITY	long	rw-rw-r--	{ 1 <= *num* <= 100 | -1 }	N/A
TA_TIME	string	rw-rw-r--	{*YY*[*MM*[*DD*[*hh*[*mm*[*ss*]]]]] | +*seconds*}	N/A
TA_EXPIRETIME	string	rw-rw-r--	{*YY*[*MM*[*DD*[*hh*[*mm*[*ss*]]]]] | +*seconds*}	N/A
TA_CORRID(k)	string	r--r--r--	*string*[0..32]	N/A
TA_PERSISTENCE (k)	string	r--r--r--	{PERSIST|NONPERSIST}	N/A
TA_REPLYPERSISTENCE	string	r--r--r--	{PERSIST|NONPERSIST | DEFAULT}	N/A

Table 8 APPQ_MIB(5): T_APPQMSG Class Definition Attribute Table (Continued)

Attribute[a]	Type	Permissions	Values	Default
TA_LOWPRIORITY(k)	long	k--k--k--	1 <= *num* <= 100	1
TA_HIGHPRIORITY(k)	long	k--k--k--	1 <= *num* <= 100	100
TA_MSGENDTIME(k)	string	k--k--k--	{ *YY*[*MM*[*DD*[*hh*[*mm*[*ss*]]]]] | +*seconds*}	MAXLONG
TA_MSGSTARTTIME(k)	string	k--k--k--	{ *YY*[*MM*[*DD*[*hh*[*mm*[*ss*]]]]] | +*seconds*}	0
TA_MSGEXPIREENDTIME(k)	string	k--k--k--	{ *YY*[*MM*[*DD*[*hh*[*mm*[*ss*]]]]] | +*seconds* | *NONE*}	MAXLONG
TA_MSGEXPIRESTARTTIME(k)	string	k--k--k--	{ *YY*[*MM*[*DD*[*hh*[*mm*[*ss*]]]]] | +*seconds*}	0
TA_CURRETRIES	long	r--r--r--	0 <= *num*	N/A
TA_MSGSIZE	long	r--r--r--	0 <= *num*	N/A
(k)—GET key field[d] (*)—required SET key field				

[a]All attributes of class T_APPQMSG are local attributes.
[b]TA_LMID must be specified as a key field except when the application is unconfigured (that is, the TUXCONFIG environment variable is not set).
[c]All operations on T_APPQMSG objects—both GET and SET—silently open the associated queue space (that is, implicitly set the state of the queue space to OPEn if it is not already OPEn or ACTive). This may be a time-consuming operation if the queue space is large.
[d]Sufficient key fields must be supplied in a GET operation to explicitly target a single application queue space.

Attribute Semantics

TA_APPQMSGID: *string*[**1..32**]
: A unique identifier for the queue message, which can be used to select the message for GET or SET operations. No significance should be placed on this value beyond using it for equality comparisons.

`TA_APPQNAME`: *`string`*[1..15]
Name of the application queue in which the message is stored.

`TA_APPQSPACENAME`: *`string`*[1..15]
Name of the application queue space containing the message.

`TA_QMCONFIG`: *`string`*[1..78]
Absolute pathname of the file or device where the application queue space is located.

`TA_LMID`: *`string`*[1..30] **(no comma)**
Identifier of the logical machine where the application queue space is located.

`TA_STATE`:

`GET`: {`VALid`}
A `GET` operation retrieves information about the selected messages. The following list describes the meaning of the `TA_STATE` attribute returned in response to a `GET` request.

`VALid`	The message exists. This state is `INActive` equivalent for purposes of permissions checking.

`SET`: {`INValid`}
A `SET` operation changes characteristics of the selected message. The following list describes the meaning of the `TA_STATE` attribute returned by a `SET` request. States not listed cannot be set.

INValid	The message is deleted from its queue space. The message must be in state VALid before attempting this operation. Successful return leaves the object in the INValid state.
unset	Modify a message. Successful return leaves the state unchanged.

TA_CURRETRIES: **0 <=** *num*

The number of retries that have been attempted so far on this message.

TA_CORRID: *string*[**0..32**]

The correlation identifier for this message provided by the application in the tpenqueue(3c) request. The empty string indicates that a correlation identifier is not present.

TA_EXPIRETIME:

This attribute specifies the time at which a message expires (that is, the time at which the message should be removed from the queue if it has not already been dequeued or administratively deleted). When a message expires, all resources used by it are reclaimed by the system and statistics are updated. If a message expires during a transaction, the expiration does not cause the transaction to fail. Messages that expire while being enqueued or dequeued within a transaction are removed from the queue when the transaction ends. There is no notification that the message has expired.

Expiration times cannot be added to messages enqueued by versions of the BEA Tuxedo system that do not support message expiration, even when the queue manager responsible for changing this value supports message expiration. Attempts to add an expiration time fail.

The empty string is returned by a GET operation if the expiration time is not set. The TA_EXPIRETIME format is one of the following:

+*seconds*

Specifies that the message will be removed after the specified number of seconds. If the value of *seconds* is set to zero (0), the message is removed immediately from the queue. Relative expiration time is calculated on the basis of the time at which the MIB request arrives and has been processed by the corresponding queue manager.

YY[*MM*[*DD*[*hh*]*mm*[*ss*]]]]

Specifies the year, month, day, hour, minute, and second when the message will be removed if it has not been dequeued or administratively deleted already. Omitted units default to their minimum possible values. For example, 9506 is equivalent to

950601000000. The years 00 through 37 are treated as 2000 through 2037, 70 through 99 are treated as 1970 through 1999, and 38 through 69 are invalid. An absolute expiration time is determined by the clock on the machine where the queue manager process resides.

NONE

Specifies that the message will never expire.

TA_LOWPRIORITY: **1 <=** *num* **<= 100**
TA_HIGHPRIORITY: **1 <=** *num* **<= 100**

The lowest and highest priority within which to search for occurrences of T_APPQMSG objects. These attributes may only be used as key fields with GET operations.

TA_MSGEXPIRESTARTTIME:
TA_MSGEXPIREENDTIME:

The expiration start and end times within which to search for occurrences of T_APPQMSG objects. The range is inclusive. A start or end time must be specified as an absolute time value; see TA_EXPIRETIME for the format. These attributes may only be used as key fields with GET operations.

TA_MSGSIZE: **0 <=** *num*

The size of the message, in bytes.

TA_MSGSTARTTIME:
TA_MSGENDTIME:

The start and end time within which to search for occurrences of T_APPQMSG objects. The range is inclusive. A start or end time must be specified as an absolute time value; see TA_TIME for the format. These attributes may only be used as key fields with GET operations.

TA_NEWAPPQNAME: *string***[1..15]**

Name of the queue into which to move the selected message. This queue must be an existing queue in the same queue space. The message must be in state VALid for this operation to succeed. This attribute is not returned by a GET operation. The delivery quality of service of messages that are moved will not be changed as a result of the default delivery policy of the new queue. When messages with an expiration time are moved, the expiration time is considered an absolute expiration time in the new queue, even if it was previously specified as a relative expiration time.

TA_PERSISTENCE:

The quality of service with which the message is being delivered. This read-only state is set to NONPERSIST for non-persistent messages and PERSIST for persistent messages.

TA_PRIORITY**: 1 <=** *num* **<= 100**
The priority of the message.

TA_REPLYPERSISTENCE**:**
The quality of service with which replies to the message should be delivered. This read-only state is set to NONPERSIST for non-persistent, PERSIST for persistent, and DEFAULT when the reply is to use the default persistence established for the queue where the reply is to be enqueued.

Note that the default delivery policy is determined when the reply to a message is enqueued. That is, if the default delivery policy of the reply queue is modified between the time that the original message is enqueued and the reply to the message is enqueued, the policy used is the one in effect when the reply is finally enqueued.

TA_TIME**:**
The time when the message will be made available. The format is one of the following:

+*seconds*
Specifies that the message will be processed *seconds* in the future. The value zero (0) specifies that the message should be processed immediately.

YY[*MM*[*DD*[*hh*[*mm*[*ss*]]]]]
Specifies the year, month, day, hour, minute, and second when the message should be processed. Omitted units default to their minimum possible values. For example, 9506 is equivalent to 950601000000. The years 00 through 37 are treated as 2000 through 2037, 70 through 99 are treated as 1970 through 1999, and 38 through 69 are invalid.

T_APPQSPACE Class Definition

Overview

The T_APPQSPACE class represents application queue spaces. An application queue space is an area in a BEA Tuxedo system device; see the T_DEVICE class in TM_MIB(5) for more information about devices and their attributes. Each queue space typically contains one or more application queues, and each queue may have messages stored in it.

A queue space is uniquely identified by several attributes: its name (TA_APPQSPACENAME attribute), the device that contains it (TA_QMCONFIG attribute), and the logical machine where the device is located (TA_LMID attribute).

A queue space is typically associated with exactly one server group in a configured application. The queue space name as well as the device name are components of the TA_OPENINFO attribute of the T_GROUP object.

Limitations

It is not possible to retrieve all instances of this class by leaving all key fields unset. Instead, all three key fields must be supplied to explicitly target a single application queue space. The single exception occurs when accessing a local queue space via tpadmcall() in the context of an unconfigured application (that is, the TUXCONFIG environment variable is not set). In this case the TA_LMID key field must be omitted.

The above limitation regarding accessibility of queue spaces also applies to T_APPQ, T_APPQMSG, and T_APPQTRANS objects because operations on all objects in the /Q MIB implicitly involve queue spaces.

Attribute Table

Table 9 APPQ_MIB(5): T_APPQSPACE Class Definition Attribute Table

Attribute[a]	Type	Permissions	Values	Default
TA_APPQSPACENAME(k)(r)(*)	string	ru-r--r--	*string*[1..15]	N/A
TA_QMCONFIG(k)(r)(*)	string	ru-r--r--	*string*[1..78]	N/A
TA_LMID(k)(r)(*)b	string	ru-r--r--	*string*[1..30]	N/A
TA_STATE(k)c	string	rwxrwxr--	GET: "{INA | INI | OPE | ACT}"	N/A
			SET: "{NEW | OPE | CLE | INV}"	N/A

Table 9 APPQ_MIB(5): T_APPQSPACE Class Definition Attribute Table (Continued)

Attribute[a]	Type	Permissions	Values	Default
TA_BLOCKING	long	rw-r--r--	0 <= *num*	16
TA_ERRORQNAME	string	rw-r--r--	*string*[0..15]	""
TA_FORCEINIT	string	rw-r--r--	{Y | N}	N
TA_IPCKEY(r)	long	rw-r--r--	32769 <= *num* <= 262143	N/A
TA_MAXMSG(r)	long	rw-r--r--	0 <= *num*	N/A
TA_MAXPAGES(r)	long	rw-r--r--	0 <= *num*	N/A
TA_MAXPROC(r)	long	rw-r--r--	0 <= *num*	N/A
TA_MAXQUEUES(r)[d]	long	rw-r--r--	0 <= *num*	N/A
TA_MAXTRANS(r)	long	rw-r--r--	0 <= *num*	N/A
TA_MAXACTIONS	long	rw-r--r--	0 <= *num*	0
TA_MAXHANDLES	long	rw-r--r--	0 <= *num*	0
TA_MAXOWNERS	long	rw-r--r--	0 <= *num*	0
TA_MAXTMPQUEUES	long	rw-r--r--	0 <= *num*	0
TA_MAXCURSORS	long	rw-r--r--	0 <= *num*	0
TA_MEMNONPERSIST	string	rw-r--r--	0 <= *num*[bB]	0
TA_MEMFILTERS	long	rw-r--r--	0 <= *num*	0
TA_MEMOVERFLOW	long	rw-r--r--	0 <= *num*	0
TA_MEMSYSTEMRESERVED	long	r--r--r--	0 <= *num*	N/A
TA_MEMTOTALALLOCATED	long	r--r--r--	0 <= *num*	N/A

Table 9 APPQ_MIB(5): T_APPQSPACE Class Definition Attribute Table (Continued)

Attribute[a]	Type	Permissions	Values	Default
`TA_CUREXTENT`	long	`r--r--r--`	0 <= *num* <= 100	N/A
`TA_CURMSG`	long	`r--r--r--`	{ 0 <= *num* | -1 }	N/A
`TA_CURPROC`	long	`r--r--r--`	0 <= *num*	N/A
`TA_CURQUEUES`	long	`r--r--r--`	{ 0 <= *num* | -1 }	N/A
`TA_CURTRANS`	long	`R--R--R--`	0 <= *num*	N/A
`TA_CURACTIONS`	long	`r--r--r--`	0 <= *num*	N/A
`TA_CURHANDLES`	long	`r--r--r--`	0 <= *num*	N/A
`TA_CUROWNERS`	long	`r--r--r--`	0 <= *num*	N/A
`TA_CURTMPQUEUES`	long	`r--r--r--`	0 <= *num*	N/A
`TA_CURCURSORS`	long	`r--r--r--`	0 <= *num*	N/A
`TA_CURMEMNONPERSIST`	long	`r--r--r--`	0 <= *num*	N/A
`TA_CURMEMFILTERS`	long	`r--r--r--`	0 <= *num*	N/A
`TA_CURMEMOVERFLOW`	long	`r--r--r--`	0 <= *num*	N/A
`TA_HWMSG`	long	`R--R--R--`	0 <= *num*	N/A
`TA_HWPROC`	long	`R--R--R--`	0 <= *num*	N/A
`TA_HWQUEUES`	long	`R--R--R--`	0 <= *num*	N/A
`TA_HWTRANS`	long	`R--R--R--`	0 <= *num*	N/A
`TA_HWACTIONS`	long	`R--R--R--`	0 <= *num* <= 100	N/A
`TA_HWHANDLES`	long	`R--R--R--`	0 <= *num*	N/A
`TA_HWOWNERS`	long	`R--R--R--`	0 <= *num*	N/A
`TA_HWTMPQUEUES`	long	`R--R--R--`	0 <= *num*	N/A
`TA_HWCURSORS`	long	`R--R--R--`	0 <= *num*	N/A
`TA_HWMEMNONPERSIST`	long	`R--R--R--`	0 <= *num*	N/A
`TA_HWMEMFILTERS`	long	`R--R--R--`	0 <= *num*	N/A
`TA_HWMEMOVERFLOW`	long	`R--R--R--`	0 <= *num*	N/A
`TA_PERCENTINIT`	long	`r--r--r--`	0 <= *num*	N/A

(k)—`GET` key field
(r)—required field for object creation
(*)—required `SET` key field

a.All attributes of class T_APPQSPACE are local attributes.
b.TA_LMID must be specified as a key field except when the application is unconfigured (that is, the TUXCONFIG environment variable is not set).
c.All operations on T_APPQ, T_APPQMSG, and T_APPQTRANS objects (both GET and SET) silently open the associated queue space (that is, implicitly set the state of the queue space to OPEn if it is not already OPEn or ACTive). This may be a time-consuming operation if the queue space is large.
d.TA_MAXQUEUES cannot be modified after the queue space is created.

Attribute Semantics

TA_APPQSPACENAME**: string[1..15]**

Name of the application queue space.

TA_QMCONFIG**: string[1..78]**

Absolute pathname of the file or device where the application queue space is located.

TA_LMID**:** *string***[1..30] (no comma)**

Identifier of the logical machine where the application queue space is located.

TA_STATE**:**

GET: {INActive | INItializing | OPEn | ACTive}

A GET operation retrieves information about the selected application queue space. The following list describes the meaning of the TA_STATE attribute returned in response to a GET request.

INActive	The queue space exists; that is, disk space for it has been reserved in a device and the space has been initialized (if requested or if necessary).
INItializing	Disk space for the queue space is currently being initialized. This state is ACTive equivalent for purposes of permissions checking.

OPEn	Shared memory and other IPC resources for the queue space have been allocated and initialized, but no processes are currently attached to the shared memory. This state is INActive equivalent for purposes of permissions checking.
ACTive	Shared memory and other IPC resources for the queue space have been allocated and initialized, and at least one process is currently attached to the shared memory. These processes can be the queue servers (TMS_QM, TMQUEUE, and perhaps TMQFORWARD) associated with the queue space, or they can be administrative processes such as qmadmin(1), or they can be processes associated with another application.

SET: {NEW | OPEn | CLEaning | INValid}

A SET operation changes the selected application queue space or creates a new one. The following list describes the meaning of the TA_STATE attribute returned by a SET request. States not listed cannot be set.

NEW	Create a new queue space. The state of the queue space becomes either INItializing or INActive following a successful SET to this state.
OPEn	Allocate and initialize shared memory and other IPC resources for the queue space. This is allowed only if the queue space is in the INActive state.
CLEaning	Remove the shared memory and other IPC resources for the queue space. This is allowed only when the queue space is in the OPEn or ACTive state. The QMIB_FORCECLOSE flag must be specified if the state is ACTive. When successful, all non-persistent messages are permanently lost.

`INValid`	Delete the queue space. Unless the `QMIB_FORCEDELETE` flag is passed, an error is reported if the state is `ACTive` or if messages exist on any queues in the queue space. Successful return leaves the object in the `INValid` state. When successful, all non-persistent messages are permanently lost.
`unset`	Modify an application queue space. Successful return leaves the state unchanged.

`TA_BLOCKING`**: 0 <=** *`num`*

The blocking factor used for disk space management of the queue space. The default when a new queue space is created is 16.

`TA_CURACTIONS`**: 0 <=** *`num`*

This attribute specifies the current number of actions in use in the queue space. This number can be determined if the queue space is `OPEn` or `ACTive`, or if the queue space is newly created. If none of the conditions apply, the value –1 is returned.

`TA_CURCURSORS`**: 0 <=** *`num`*

This attribute specifies the current number of cursors in use in the queue space. This number can be determined if the queue space is `OPEn` or `ACTive`, or if the queue space is newly created. If none of the conditions apply, the value –1 is returned.

`TA_CUREXTENT`**: 0 <=** *`num`* **<= 100**

The current number of extents used by the queue space. The largest number allowed is 100. Each time the value of the `TA_MAXPAGES` attribute is increased, a new extent is allocated. When this attribute is modified, all non-persistent messages in the queue space are permanently lost.

`TA_CURHANDLES`**: 0 <=** *`num`*

This attribute specifies the current number of handles in use in the queue space. This number can be determined if the queue space is `OPEn` or `ACTive`, or if the queue space is newly created. If none of the conditions apply, the value –1 is returned.

`TA_CURMEMFILTERS`**: 0 <=** *`num`*

This attribute specifies the current number of bytes in use for filters in the queue space. This number can be determined if the queue space is `OPEn` or `ACTive`, or if the queue space is newly created. If none of the conditions apply, the value –1 is returned.

`TA_CURMEMNONPERSIST`: **0 <=** *`num`*

The current amount of memory in bytes consumed by non-persistent messages in the queue space. This number can be determined if the queue space is `OPEn` or `ACTive`, or if the queue space is newly created. If none of the conditions apply, the value –1 is returned.

`TA_CURMEMOVERFLOW`: **0 <=** *`num`*

This attribute specifies the current number of bytes in use of the overflow memory in the queue space. This number can be determined if the queue space is `OPEn` or `ACTive`, or if the queue space is newly created. If none of the conditions apply, the value –1 is returned.

`TA_CURMSG`: **0 <=** *`num`*

The current number of messages in the queue space. This number can be determined only if the queue space is `OPEn` or `ACTive`, or if the queue space is newly created. If none of these conditions are met, the value -1 is returned.

`TA_CUROWNERS`: **0 <=** *`num`*

This attribute specifies the current number of owners in use in the queue space. This number can be determined if the queue space is `OPEn` or `ACTive`, or if the queue space is newly created. If none of the conditions apply, the value –1 is returned.

`TA_CURPROC`: **0 <=** *`num`*

The current number of processes accessing the queue space.

`TA_CURQUEUES`: **0 <=** *`num`*

The current number of queues existing in the queue space. This number can be determined only if the queue space is `OPEn` or `ACTive`, or if the queue space is newly created. If none of these conditions are met, the value -1 is returned.

`TA_CURTMPQUEUES`: **0 <=** *`num`*

This attribute specifies the current number of temporary queues in use in the queue space. This number can be determined if the queue space is `OPEn` or `ACTive`, or if the queue space is newly created. If none of the conditions apply, the value –1 is returned.

`TA_CURTRANS`: **0 <=** *`num`*

The current number of outstanding transactions involving the queue space.

`TA_ERRORQNAME`: *`string`***[0..15]**

Name of the error queue associated with the queue space. If there is no error queue, an empty string is returned by a `GET` request.

`TA_FORCEINIT`: **{**`Y` | `N`**}**

Whether or not to initialize disk pages on new extents for the queue space. The default is not to initialize. Depending on the device type (for example, regular file or raw slice), initialization can be done even if it is not requested.

`TA_HWACTIONS`: **0** <= *num*
: This attribute specifies the highest number of concurrent actions reached in the queue space since the queue space was last opened. The number is reset to 0 when the queue space state is set to `CLEaning`.

`TA_HWCURSORS`: **0** <= *num*
: This attribute specifies the highest number of concurrent cursors created in the queue space since the queue space was last opened. The number is reset to 0 when the queue space state is set to `CLEaning`.

`TA_HWHANDLES`: **0** <= *num*
: This attribute specifies the highest number of concurrent handles opened in the queue space since the queue space was last opened. The number is reset to 0 when the queue space state is set to `CLEaning`.

`TA_HWMEMFILTERS`: **0** <= *num*
: This attribute specifies the highest number of bytes used for filters in the queue space since the queue space was last opened. The number is reset to 0 when the queue space state is set to `CLEaning`.

`TA_HWMEMNONPERSIST`: **0** <= *num*
: The largest amount of memory in bytes consumed by non-persistent messages since the queue space was last opened. The number is reset to 0 when the queue space state is set to `CLEaning`.

`TA_HWMEMOVERFLOW`: **0** <= *num*
: This attribute specifies the highest number of bytes used in the overflow memory in the queue space since the queue space was last opened. The number is reset to 0 when the queue space state is set to `CLEaning`.

`TA_HWMSG`: **0** <= *num*
: The highest number of messages in the queue space at a given time since the queue space was last opened. The number is reset to 0 when the queue space state is set to `CLEaning`.

`TA_HWOWNERS`: **0** <= *num*
: This attribute specifies the highest number of concurrent owners reached in the queue space since the queue space was last opened. The number is reset to 0 when the queue space state is set to `CLEaning`.

`TA_HWPROC`: **0** <= *num*
: The highest number of processes simultaneously attached to the queue space since the queue space was last opened. The number is reset to 0 when the queue space state is set to `CLEaning`.

`TA_HWQUEUES`: **0 <=** *num*

The highest number of queues existing in the queue space at a given time since the queue space was last opened. The number is reset to 0 when the queue space state is set to `CLEaning`.

`TA_HWTMPQUEUES`: **0 <=** *num*

This attribute specifies the highest number of concurrent temporary queues opened in the queue space since the queue space was last opened. The number is reset to 0 when the queue space state is set to `CLEaning`.

`TA_HWTRANS`: **0 <=** *num*

The highest number of outstanding transactions at a given time involving the queue space since the queue space was last opened. If the queue space is accessed by more than one application, this number reflects all applications, not just the application represented by the `TUXCONFIG` environment variable. The number is reset to 0 when the queue space state is set to `CLEaning`.

`TA_IPCKEY`: **32769 <=** *num* **<= 262143**

The IPC key used to access queue space shared memory.

`TA_MAXACTIONS`: **0 <=** *num*

This attribute specifies the number of additional actions that the Queuing Services component of the BEA Tuxedo infrastructure can handle concurrently. When a blocking operation is encountered and additional actions are available, the blocking operation is set aside until it can be satisfied. After setting aside the blocking operation, another operation request can be handled. When the blocking operation completes, the action associated with the operation is made available for a subsequent operation. The system reserves actions equivalent to the number of processes that can attach to a queue space, so that each queue manager process may have at least one blocking action. Beyond the system-reserved number of blocking actions, the administrator may configure the system to be able to accommodate additional blocking actions beyond the reserve. An operation fails if a blocking operation is requested and cannot be immediately satisfied and there are no actions available.

`TA_MAXCURSORS`: **0 <=** *num*

This attribute specifies the number of cursors that users of that the Queuing Services component of the BEA Tuxedo infrastructure may use concurrently. Cursors are used to navigate a queue. When a cursor is destroyed, the cursor resources are made available for subsequent cursor creation operations. When the cursors are used by an application, the administrator must configure the system to accommodate the maximum number of cursors that will be allocated concurrently. An operation fails if a user attempts to create a cursor and there are no cursor resources available. BEA Tuxedo applications need not adjust this value. Adjusting this value has no effect on BEA Tuxedo applications other than unnecessarily consuming shared memory resources.

`TA_MAXHANDLES`**: 0 <=** *num*
: This attribute specifies the number of handles that users of that the Queuing Services component of the BEA Tuxedo infrastructure may use concurrently. Objects manipulated by the queuing services API require handles to access the objects. When an object is opened by a call to the Queuing Services API, a new handle is created and returned to the user. When an object handle is closed, the handle is made available for subsequent open object operations. When the Queuing Services API is used by an application, the administrator must configure the system to accommodate the maximum number of handles that will be opened concurrently. An operation fails if a user attempts to open a queuing services object and there are no handles available. Adjusting this value has no effect on BEA Tuxedo applications other than unnecessarily consuming shared memory resources.

`TA_MAXMSG`**: 0 <=** *num*
: The maximum number of messages that the queue space can contain at a given time.

`TA_MAXOWNERS`**: 0 <=** *num*
: This attribute specifies the number of additional BEA Tuxedo infrastructure authenticated users that may concurrently use Queuing Services resources. There is one owner record per user, regardless of the number of open handles for the user. When there are no open handles for a user, the owner record is made available for subsequent users. The system reserves owners equivalent to the number of actions so that each action may be initiated by a different owner. Beyond the system-reserved number of owners that may be concurrently using queuing services resources, the administrator may configure the system to accommodate additional owners beyond the reserve. An operation fails if a user attempts to open a handle when they currently do not have any open handles, and there are no owners available. Adjusting this value has no effect on BEA Tuxedo applications other than unnecessarily consuming shared memory resources.

`TA_MAXPAGES`**: 0 <=** *num*
: The maximum number of disk pages for all queues in the queue space. Each time the `TA_MAXPAGES` attribute is increased, a new extent is allocated (see `TA_CUREXTENT`). It is not possible to decrease the number of pages by setting this attribute to a lower number; an error is reported in this case.

`TA_MAXPROC`**: 0 <=** *num*
: The maximum number of processes that can attach to the queue space.

`TA_MAXQUEUES`**: 0 <=** *num*
: The maximum number of queues that the queue space can contain at a given time.

`TA_MAXTMPQUEUES`**: 0 <=** *num*

This attribute specifies the number of temporary queues that may be opened concurrently in the Queuing Services component of the BEA Tuxedo infrastructure. Temporary queues reduce the need for administrators to configure each queue used by an application. They are used by dynamic self-configuring applications. Messages enqueued to temporary queues are not persistent. When all handles to a temporary queue are closed, the temporary queue resources are made available for subsequent temporary queue creation. When the temporary queues are used by an application, the administrator must configure the system to accommodate the maximum number of temporary queues that will be active concurrently. An open operation fails if a user attempts to open a temporary queue and there are no temporary queue resources available. Adjusting this value has no effect on BEA Tuxedo applications other than unnecessarily consuming shared memory resources.

`TA_MAXTRANS`**: 0 <=** *num*

The maximum number of simultaneously active transactions allowed by the queue space.

`TA_MEMFILTERS`**: 0 <=** *num*

This attribute specifies the size of the memory area to reserve in shared memory to hold the compiled representation of user defined filters. The memory size is specified in bytes. Filters are used by the Queuing Services component of the BEA Tuxedo infrastructure for message selection in dequeuing and cursor operations. Filters may be specified using various grammars but are compiled into an BEA Tuxedo infrastructure normal form and stored in shared memory. Filters are referenced by a handle returned when they are compiled. When a filter is destroyed, the memory used by the filter is made available for subsequent compiled filters. When the filters are defined by an application, the administrator must configure the system to accommodate the maximum number of filters that will be concurrently compiled. An operation fails if a user attempts to create a new filter and there is not enough memory allocated for the compiled version of the filter. Adjusting this value has no effect on BEA Tuxedo applications other than unnecessarily consuming shared memory resources.

`TA_MEMNONPERSIST`**: 0 <=** *num* **[bB]**

This attribute specifies the size of the area reserved in shared memory to hold non-persistent messages for all queues in the queue space. The memory size may be specified in bytes (`b`) or blocks (`B`). (The size of a block, in this context, is equivalent to the size of a disk block.) The [`bB`] suffix is optional and, if not specified, the default is blocks (`B`).

If the value is specified in bytes (`b`) for this attribute, the system divides the specified value by the number of bytes per *page* (page size is equivalent to the disk page size), rounds down the result to the nearest integer, and allocates that number of pages of memory. For example, assuming a page size of 1024 bytes (1KB), a requested value of 2000b results in a memory allocation of 1 page (1024 bytes), and a requested value of 2048b results in a memory allocation of 2 pages (2048 bytes). Requesting a value less than the number of bytes per page results in an allocation of 0 pages (0 bytes).

If the value is specified in blocks (`B`) for this attribute and assuming that one block of memory is equivalent to one page of memory, the system allocates the same value of pages. For example, a requested value of 50B results in a memory allocation of 50 pages.

All non-persistent messages in the specified queue space are permanently lost when `TA_MEMNONPERSIST` is successfully changed.

If `TA_MEMNONPERSIST` for a queue space is zero (`0`) for a queue space, no space is reserved for non-persistent messages. In this case, any attempt to enqueue a non-persistent message fails. This type of failure results, for example, when no delivery quality of service has been specified for a message and the `TA_DEFDELIVERYPOLICY` attribute of the `T_APPQ` class for the target queue has been set to `NONPERSIST`. For non-persistent delivery, if the memory area is exhausted or fragmented such that a message cannot be enqueued, the enqueuing operation fails, even if there is sufficient persistent storage for the message. Similarly, if the persistent storage area is exhausted or fragmented such that a message cannot be enqueued, the enqueuing operation fails, even if there is sufficient non-persistent storage for the message.

`TA_MEMOVERFLOW`: **0 <=** *num*
This attribute specifies the size of the memory area to reserve in shared memory to accommodate peek load situations where some or all of the allocated shared memory resources are exhausted. The memory size is specified in bytes. Additional objects are allocated from this additional memory on a first-come-first-served basis. When an object created in the additional memory is closed or destroyed, the memory is released for subsequent overflow situations. This additional memory space may yield more objects than the configured number, but there is no guarantee that additional memory is available for any particular object at any given point in time. Currently, only actions, handles, cursors, owners, temporary queues, timers, and filters use the overflow memory.

`TA_MEMSYSTEMRESERVED`: **0 <=** *num*
This attribute specifies the total amount of memory (in bytes) reserved from shared memory for queuing services system use.

`TA_MEMTOTALALLOCATED`: **0 <=** *num*
This attribute specifies the total amount of memory (in bytes) allocated from shared for all queuing services objects.

`TA_PERCENTINIT`: **0 <=** *num* **<= 100**
The percentage of disk space that has been initialized for the queue space.

T_APPQTRANS Class Definition

Overview

The T_APPQTRANS class represents run-time attributes of transactions associated with application queues.

Limitations

It is not possible to retrieve all instances of this class by leaving all key fields unset. Instead, sufficient key fields must be specified to explicitly target a single application queue space. For example, if all key fields except TA_XID are set in an request using tpcall(), all T_APPQTRANS objects associated with the specified queue space will be retrieved.

It is important to keep in mind that transactions represented by objects of this class are not necessarily associated with the application in which they are retrieved. Care must be taken when heuristically committing or aborting a transaction because the transaction may actually belong to or have an effect on another application. The value of the TA_XID attribute is not guaranteed to be unique across applications.

Attribute Table

Table 10 APPQ_MIB(5): T_APPQTRANS Class Definition Attribute Table

Attribute[a]	Type	Permissions	Values	Default
TA_XID(k)(*)	string	R--R--R--	*string*[1..78]	N/A
TA_APPQSPACENAME(k)(*)	string	r--r--r--	*string*[1..15]	N/A
TA_QMCONFIG(k)(*)	string	r--r--r--	*string*[1..78]	N/A
TA_LMID(k)(*)	string	r--r--r--	*string*[1..30]	N/A
TA_STATE[b]	string	R-XR-XR--	GET: "{ACT|ABY|ABD|COM|REA |DEC|HAB|HCO}"	N/A
			SET: "{HAB|HCO}"	N/A

(k)—GET key field[c]
(*)—required SET key field

a. All attributes of class T_APPQTRANS are local attributes.

b. All operations on T_APPQTRANS objects—both GET and SET–silently open the associated queue space (that is, implicitly set the state of the queue space to OPEn if it is not already OPEn or ACTive). This may be a time-consuming operation if the queue space is large.
c. Sufficient key fields must be supplied in a GET operation to explicitly target a single application queue space.

Attribute Semantics

TA_XID: **string[1..78]**

Transaction identifier as returned by tx_info() and mapped to a string representation. The data in this field should not be interpreted directly by the user except for equality comparison.

TA_APPQSPACENAME: *string***[1..15]**

Name of the application queue space associated with the transaction.

TA_QMCONFIG: *string***[1..78]**

Absolute pathname of the file or device where the application queue space is located.

TA_LMID: *string***[1..30] (no comma)**

Identifier of the logical machine where the application queue space is located.

TA_STATE:

GET: {ACTive | ABortonlY | ABorteD | COMcalled | REAdy | DECided | HAbord | HCommit}

A GET operation retrieves run-time information about the selected transactions. The following list describes the meaning of the TA_STATE attribute returned in response to a GET request. All states are ACTive equivalent for purposes of permissions checking.

ACTive	The transaction is active.
ABortonlY	The transaction has been identified for rollback.
ABorteD	The transaction has been identified for rollback and rollback has been initiated.
COMcalled	The initiator of the transaction has called tpcommit() and the first phase of two-phase commit has begun.
REAdy	All of the participating groups on the retrieval site have successfully completed the first phase of two-phase commit and are ready to be committed.

`DECided`	The second phase of the two-phase commit has begun.
`SUSpended`	The initiator of the transaction has suspended processing on the transaction.

`SET`: {`HABort` | `HCOmmit`}

A `SET` operation updates the state of the selected transactions. The following list describes the meaning of the `TA_STATE` attribute returned by a `SET` request. States not listed cannot be set.

`HABort`	Heuristically abort the transaction. Successful return leaves the object in the `HABort` state.
`HCOmmit`	Heuristically commit the transaction. Successful return leaves the object in the `HCOmmit` state.

APPQ_MIB(5) Additional Information

Portability

The existing FML32 and ATMI functions necessary to support administrative interaction with BEA Tuxedo system MIBs, as well as the header file and field table mentioned on this reference page, are available on all supported native and Workstation platforms.

Interoperability

This MIB is provided only on BEA Tuxedo 6.0 sites and later, both native and Workstation.

If a site running a BEA Tuxedo release earlier than release 6.0 is active in the application, administrative access through this MIB is limited as follows:

- `SET` operations are not allowed.
- Local information access for sites earlier than release 6.0 is not available. If the class being accessed also has global information, the global information only is returned. Otherwise, an error is returned.

If sites of differing releases, both greater than or equal to release 6.0, are interoperating, information on the older site is available for access and update as defined on the MIB reference page for that release and may be a subset of the information available in the later release.

Examples

Following is a set of code fragments that illustrate how to perform various operations on application queue spaces, queues, messages, and transactions.

Each fragment should be preceded by code that allocates an FML32 typed buffer, such as the following:

```
rqbuf = tpalloc("FML32", NULL, 0);
```

After the buffer is populated, each fragment should be followed by code that sends the request and receives the reply, such as the following:

```
flags = TPNOTRAN | TPNOCHANGE | TPSIGRSTRT;
rval = tpcall(".TMIB", rqbuf, 0, rpbuf, rplen, flags);
```

See `MIB(5)` for additional information.

Field Tables

The field table `tpadm` must be available in the environment to allow access to attribute field identifiers. This can be done at the shell level as follows:

```
$ FIELDTBLS=tpadm
$ FLDTBLDIR=${TUXDIR}/udataobj
$ export FIELDTBLS FLDTBLDIR
```

Header Files

The following header files are needed.

```
#include <atmi.h>
#include <fml32.h>
#include <tpadm.h>
```

Libraries

```
${TUXDIR}/lib/libtmib.a, ${TUXDIR}/lib/libqm.a,
${TUXDIR}/lib/libtmib.so.<rel>, ${TUXDIR}/lib/libqm.so.<rel>,
${TUXDIR}/lib/libqm.lib
```

The libraries must be linked manually when using `buildclient`. The user must use:
`-L${TUXDIR}/lib -ltmib -lqm`

Create an Application Queue Space

Creating an application queue space typically involves two operations: the first to create the BEA Tuxedo system device in which the queue space will be allocated, and the second to create the queue space itself.

```
/* Allocate the buffer; see above */

/* Build the request to create a new device on SITE1 */
Fchg32(rqbuf, TA_OPERATION, 0, "SET", 0);
Fchg32(rqbuf, TA_CLASS, 0, "T_DEVICE", 0);
Fchg32(rqbuf, TA_STATE, 0, "NEW", 0);
Fchg32(rqbuf, TA_CFGDEVICE, 0, "/dev/q/dsk001", 0);
Fchg32(rqbuf, TA_LMID, 0, "SITE1", 0);
size = 500;
Fchg32(rqbuf, TA_DEVSIZE, 0, (char *)size, 0);

/* Make the request; see above */

/* Reinitialize the same buffer for reuse */
Finit32(rqbuf, (FLDLEN) Fsizeof32(rqbuf));

/* Build the request to create the queue space */
Fchg32(rqbuf, TA_OPERATION, 0, "SET", 0);
Fchg32(rqbuf, TA_CLASS, 0, "T_APPQSPACE", 0);
Fchg32(rqbuf, TA_STATE, 0, "NEW", 0);
Fchg32(rqbuf, TA_APPQSPACENAME, 0, "QSPACE1", 0);
Fchg32(rqbuf, TA_QMCONFIG, 0, "/dev/q/dsk001", 0);
Fchg32(rqbuf, TA_LMID, 0, "SITE1", 0);
Fchg32(rqbuf, TA_ERRORQNAME, 0, "errque", 0);
ipckey = 123456;
Fchg32(rqbuf, TA_IPCKEY, 0, (char *)ipckey, 0);
maxmsg = 100;
Fchg32(rqbuf, TA_MAXMSG, 0, (char *)maxmsg, 0);
maxpages = 200;
Fchg32(rqbuf, TA_MAXPAGES, 0, (char *)maxpages, 0);
maxproc = 50;
Fchg32(rqbuf, TA_MAXPROC, 0, (char *)maxproc, 0);
maxqueues = 10;
```

```
Fchg32(rqbuf, TA_MAXQUEUES, 0, (char *)maxqueues, 0);
maxtrans = 100;
Fchg32(rqbuf, TA_MAXTRANS, 0, (char *)maxtrans, 0);

/* Make the request; see above */
```

Add a Queue to an Application Queue Space

The following code creates a new queue in the queue space created in the previous example.

```
/* Build the request */
Fchg32(rqbuf, TA_OPERATION, 0, "SET", 0);
Fchg32(rqbuf, TA_CLASS, 0, "T_APPQ", 0);
Fchg32(rqbuf, TA_STATE, 0, "NEW", 0);
Fchg32(rqbuf, TA_APPQNAME, 0, "errque", 0);
Fchg32(rqbuf, TA_APPQSPACENAME, 0, "QSPACE1", 0);
Fchg32(rqbuf, TA_QMCONFIG, 0, "/dev/q/dsk001", 0);
Fchg32(rqbuf, TA_LMID, 0, "SITE1", 0);
Fchg32(rqbuf, TA_APPQORDER, 0, "PRIO", 0);

/* Make the request; see above */
```

List Application Queue Spaces Known to the Application

To list the application queue spaces known to an application, a two-level search is used. First, the groups using the /Q transaction manager `TMS_QM` are retrieved from the application configuration, and then the queue space referenced by each group is retrieved. The following code fragment assumes that each `GROUP` entry involving a queue space has a single logical machine associated with it (that is, server migration is not used).

Listing 1 List Application Queue Spaces Known to the Application

```
/* Build the request to retrieve all TMS_QM groups */
Fchg32(rqbuf, TA_OPERATION, 0, "GET", 0);
Fchg32(rqbuf, TA_CLASS, 0, "T_GROUP", 0);
Fchg32(rqbuf, TA_TMSNAME, 0, "TMS_QM", 0);
fldid1 = TA_OPENINFO;
fldid2 = TA_LMID;
Fchg32(rqbuf, TA_FILTER, 0, (char *)fldid1, 0);
Fchg32(rqbuf, TA_FILTER, 0, (char *)fldid2, 1);

/* Make the request, assuming we are joined to the application */
```

```
rval = tpcall(".TMIB", rqbuf, 0, rpbuf, rplen, flags);

/* For each TMS_QM group, build the request to retrieve its queue space */
rval = Fget32(*rpbuf, TA_OCCURS, 0, (char *)occurs, NULL);
for (i = 0; i occurs; i++) {


  /* Reinitialize the buffer and set all common attributes */
  Finit32(rqbuf, (FLDLEN) Fsizeof32(rqbuf));
  Fchg32(rqbuf, TA_OPERATION, 0, "GET", 0);
  Fchg32(rqbuf, TA_CLASS, 0, "T_APPQSPACE", 0);

  /* Get the OPENINFO to determine device and queue space name */
  /* OPENINFO has the format <resource-mgr>:<qmconfig>:<appqspacename> */
  /* or on Windows <resource-mgr>:<qmconfig>;<appqspacename> */
  rval = Fget32(rpbuf, TA_OPENINFO, i, openinfo, NULL);

  /* The device is the 2nd field in OPENINFO */
  qmconfig = strchr(openinfo, ':') + 1;
  /* The queue space name is the 3rd field in OPENINFO */

#if defined(_TMDOWN) || defined(_TM_NETWARE)
#define pathsep ";" /* separator for PATH */
#else
#define pathsep ":" /* separator for PATH */
#endif
  appqspacename = strchr(qmconfig, pathsep);
  appqspacename[0] = '\e0'; /* NULL-terminate qmconfig */
  appqspacename++; /* bump past the NULL */

  /* Set the APPQSPACENAME and QMCONFIG keys */
  Fchg32(rqbuf, TA_APPQSPACENAME, 0, appqspacename, 0);
  Fchg32(rqbuf, TA_QMCONFIG, 0, qmconfig, 0);

  /* Get the LMID (assume no migration for this group) */
  rval = Fget32(rpbuf, TA_LMID, i, lmid, NULL);
  Fchg32(rqbuf, TA_LMID, 0, lmid, 0);

  /* Make the request */
  rval = tpcall(".TMIB", rqbuf, 0, rpbuf2, rplen2, flags);
}
```

The above technique does not find any queue space that has been created but does not yet have a corresponding GROUP entry in the application configuration. Such queue spaces must be retrieved by knowing *a priori* the key fields (that is, TA_APPQSPACENAME, TA_QMCONFIG, and TA_LMID) for the queue space.

List Messages in an Application Queue

The following code retrieves all messages in the queue STRING in the queue space QSPACE1 in device /dev/q/dsk001 on logical machine SITE1.

```
/* Build the request */ Fchg32(rqbuf, TA_OPERATION, 0, "GET", 0);
Fchg32(rqbuf, TA_CLASS, 0, "T_APPQMSG", 0);
Fchg32(rqbuf, TA_APPQNAME, 0, "STRING", 0);
Fchg32(rqbuf, TA_APPQSPACENAME, 0, "QSPACE1", 0);
Fchg32(rqbuf, TA_QMCONFIG, 0, "/dev/q/dsk001", 0);
Fchg32(rqbuf, TA_LMID, 0, "SITE1", 0);
/* Make the request; see above */
```

List Transactions Involving a Queue Space

The following fragment retrieves all transactions involving (any queue in) the queue space QSPACE1.

```
/* Build the request */ Fchg32(rqbuf, TA_OPERATION, 0, "GET", 0);
Fchg32(rqbuf, TA_CLASS, 0, "T_APPQTRANS", 0);
Fchg32(rqbuf, TA_APPQSPACENAME, 0, "QSPACE1", 0);
Fchg32(rqbuf, TA_QMCONFIG, 0, "/dev/q/dsk001", 0);
Fchg32(rqbuf, TA_LMID, 0, "SITE1", 0);
/* Make the request; see above */
```

Files

```
${TUXDIR}/include/tpadm.h
${TUXDIR}/udataobj/tpadm
```

See Also

tpacall(3c), tpadmcall(3c), tpalloc(3c), tpcall(3c), tpdequeue(3c), tpenqueue(3c), tpgetrply(3c), tprealloc(3c), Introduction to FML Functions, Fadd, Fadd32(3fml), Fchg, Fchg32(3fml), Ffind, Ffind32(3fml), MIB(5), TM_MIB(5)

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Programming a BEA Tuxedo ATMI Application Using C

Programming a BEA Tuxedo ATMI Application Using FML

AUTHSVR(5)

Name

AUTHSVR—Server providing per-user authentication

Synopsis

```
AUTHSVR SRVGRP="identifier" SRVID=number other_parms CLOPT="-A"
```

Description

AUTHSVR is a BEA Tuxedo provided server that offers the authentication service. This server may be used in a secure application to provide per-user authentication when clients join the application. This server accepts service requests containing TPINIT typed buffers for client processes requesting access to the application. It uses the data field of the TPINIT typed buffer as a user password and validates it against the configured password. If the request passes validation, an application key is returned with a successful return as the ticket to be used by the client.

The rcode parameter of tpreturn(3c) is used to set the application key. It is returned (in tpurcode) to the code that has called tpinit(3c) upon either successful validation or permission failure.

For additional information pertaining to AUTHSVR, see "AUTHSVR Additional Information" on page 56.

SECURITY USER_AUTH

If SECURITY is set to USER_AUTH, per-user authentication is enforced. The name of the authentication service can be configured for the application using the AUTHSVC parameter in the RESOURCES section of the UBBCONFIG file. For example, the following AUTHSVC parameter setting specifies the authentication service (AUTHSVC) advertised by AUTHSVR when SECURITY is set to USER_AUTH.

```
*RESOURCES
SECURITY    USER_AUTH
AUTHSVC     AUTHSVC
```

If the AUTHSVC parameter is not specified, the authentication service defaults to AUTHSVC.

By default, the file tpusr in the directory referenced by the first pathname defined in the application's APPDIR variable is searched for password information; /etc/passwd is used if this file does not exist (although this file cannot be used correctly on systems that have a shadow password file). The file can be overridden by specifying the filename using a "`-f filename`" option in the server command-line options (for example, `CLOPT="-A -- -f /usr/tuxedo/users"`). Note that automatic propagation of the user file from the master machine to other machines in the configuration is done only if `$APPDIR/tpusr` is used.

The user file is searched for a matching username and client name. There are four types of entries in the user file. They are listed below in order of matching precedence when validating a user against the file.

1. Exact username/exact clientname
2. Wildcard username (*)/exact clientname
3. Exact username/wildcard clientname (*)
4. Wildcard username (*)/wildcard clientname (*)

An authentication request is authenticated against only the first matching password file entry. These semantics allow for a single user to have multiple entries (usually with different client names) and the username may be a wildcard. These semantics are allowed if the user file is maintained using `tpaddusr()`, `tpdelusr()`, and `tpmodusr()`. Note that use of these semantics is not compatible with the semantics for `ACL` and `MANDATORY_ACL` and will make migration to these security levels difficult. To get the restricted semantics for compatibility with ACL security, use the `tpusradd()`, `tpusrdel()`, and `tpusrmod()` programs to maintain the user file.

Note: To use `tpusradd()`, `tpusrdel()`, and `tpusrmod()`, `SECURITY` for the target application must be set to `USER_AUTH`, `ACL`, or `MANDATORY_ACL`. Otherwise, the system returns an error when you attempt to use these programs.

The reserved client name values `tpsysadm` (system administrator) and `tpsysop` (system operator) are treated specially by `AUTHSVR(5)` when processing authentication requests. These values are not allowed to match wildcard client names in the user file.

The application key that is returned by the `AUTHSVR` is the user identifier. This application key is passed to every service in the *`appkey`* element of the `TPSVCINFO` structure.

Note that a standard `AUTHSVR` is shipped as part of the system in `${TUXDIR}/bin/AUTHSVR` and has the semantics as described above. Sample source code is provided in `${TUXDIR}/lib/AUTHSVR.c`. The `AUTHSVR` can be replaced by an application authentication server that validates users and user data (which may not be a password) in an application-dependent fashion (for example, using Kerberos). If you plan to replace `AUTHSVR`, take special note of the warning later in this reference page. It is also up to the application to determine what value is returned from the authentication service to be used for the application key (which is passed to each service).

The application keys that correspond to `tpsysadm` and `tpsysop` are 0x80000000 and 0xC0000000, respectively.

SECURITY ACL or MANDATORY_ACL

If `SECURITY` is set to `ACL` or `MANDATORY_ACL`, per-user authentication is enforced, and access control lists are supported for access to services, application queues, and events. The name of the authentication service can be configured for the application using the `AUTHSVC` parameter in the `RESOURCES` section of the `UBBCONFIG` file. For example, the following `AUTHSVC` parameter setting specifies the authentication service (`..AUTHSVC`) advertised by `AUTHSVR` when `SECURITY` is set to `ACL` or `MANDATORY_ACL`.

```
*RESOURCES
SECURITY    ACL
AUTHSVC     ..AUTHSVC
```

If the `AUTHSVC` parameter is not specified, the authentication service defaults to `..AUTHSVC`.

Note: `AUTHSVR` advertises the authentication service as `AUTHSVC` when `SECURITY` is set to `USER_AUTH`, and as `..AUTHSVC` when `SECURITY` is set to `ACL` or `MANDATORY_ACL`. `AUTHSVC` and `..AUTHSVC` point to the same authentication service.

The user file must be `$APPDIR/tpusr`. It is automatically propagated from the master machine to other active machines in the configuration. One instance of the `AUTHSVR` must be run on the master machine. Additional copies can be run on other active machines in the configuration.

The user file is searched for a matching username and client name. The entry must match exactly on the username. The client name must either match exactly, or the client name value in the user file can be specified as the wildcard (*) which will match any client name. A single user can have only one entry in the user file and cannot be a wildcard. The user file can be maintained through the `tpusradd()`, `tpusrdel()`, and `tpusrmod()` programs, the graphical user interface, or the administrative interface.

The reserved client name values `tpsysadm` (system administrator) and `tpsysop` (system operator) are treated specially by `AUTHSVR(5)` when processing authentication requests. These values are not allowed to match wildcard client names in the user file.

The application key that is returned by the `AUTHSVR` is the user identifier in the low order 17 bits and the group identifier in the next 14 bits (the high order bit is reserved for administrative keys). The application keys that correspond to `tpsysadm` and `tpsysop` are 0x80000000 and

0xC0000000, respectively. This application key is passed to every service in the *appkey* element of the TPSVCINFO structure.

For SECURITY ACL or MANDATORY_ACL, you must use the standard AUTHSVR shipped as part of the system in ${TUXDIR}/bin/AUTHSVR.

AUTHSVR Additional Information

Usage

Warning: ${TUXDIR}/lib/AUTHSVR.c is not the source file used to generate ${TUXDIR}/bin/AUTHSVR (don't clobber this executable); if you provide your own AUTHSVR, it is recommended that you install it in ${APPDIR}.

Portability

AUTHSVR is supported as a BEA Tuxedo-supplied server on non-Workstation platforms.

Examples

```
# Using USER_AUTH
*RESOURCES
SECURITY  USER_AUTH
AUTHSVC   AUTHSVC

*SERVERS
AUTHSVR SRVGRP="AUTH" CLOPT="-A -- -f /usr/tuxedo/users" \
 SRVID=100 RESTART=Y GRACE=0 MAXGEN=2
#
#
# Using ACLs
*RESOURCES
SECURITY  ACL
AUTHSVC   ..AUTHSVC

*SERVERS
AUTHSVR SRVGRP="AUTH" SRVID=100 RESTART=Y GRACE=0 MAXGEN=2
#
#
# Using a custom authentication service
*RESOURCES
```

```
SECURITY  USER_AUTH
AUTHSVC   KERBEROS

*SERVERS
KERBEROSSVR SRVGRP="AUTH1" SRVID=100 RESTART=Y GRACE=0 MAXGEN=2
```

See Also

`tpaddusr(1)`, `tpusradd(1)`, `UBBCONFIG(5)`

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Programming a BEA Tuxedo ATMI Application Using C

compilation(5)

Name

`compilation`—Instructions for compilation of BEA Tuxedo ATMI system application components.

Description

In order to compile application clients and servers, and subroutines that are link edited with the BEA Tuxedo system, programmers need to know:

- Which header files to include, and the order in which to specify them
- Which environment variables to set and export
- Which utilities are used to compile the application modules

A programmer who has finished writing code modules and is ready to build an executable program must:

- Compile the source files
- Link edit the executables with the required libraries

The BEA Tuxedo system provides two commands that perform both of these operations for client and server modules: `buildclient()` and `buildserver()`, respectively. If you run one of these commands to perform both operations, be sure to specify, on the command line, the libraries with which your files need to be link edited. (For details, see `buildclient(1)` or `buildserver(1)` in *BEA Tuxedo Command Reference*.)

Link editing must be done by running `buildclient` or `buildserver`, but the system allows more flexibility about how compiling is done. If you prefer, you can use the compile command of your choice to compile your files, and then run `buildclient` or `buildserver` to perform the link editing.

This rest of this reference page specifies the header files and environment variables required for various types of programs.

Basic BEA Tuxedo System

In terms of header file sequence, UNIX header files should always be included before any BEA Tuxedo system header files. Commonly used UNIX header files are `stdio.h` and `ctype.h`.

Environment Variables

The following environment variables should be set and exported:

`TUXDIR`

Specifies the topmost directory in which the BEA Tuxedo system software resides.

`PATH`

Should include `$TUXDIR/bin`.

`ULOGPFX`

Prefix of the filename of the central event log; by default, the value of `ULOGPFX` is `ULOG`.

If . . .	**Then you must first set and export the following environment variables . . .**
You want to run • `buildclient(1)` • `buildserver(1)`	• `TUXDIR`—always required for servers; also required for native clients • `CC`—if you want to use a non-default compiler • `CFLAGS`—if you want to specify flags to be passed to the compiler
A default or validation routine references FML fields	• `FIELDTBLS`—a comma-separated list of field table files • `FLDTBLDIR`—a colon-separated list of directories to search for the `FIELDTBLS`
You want to execute a server	`TUXCONFIG`—full pathname of the binary configuration file (default is the current directory)

If . . .	Then you must first set and export the following environment variables . . .
• Security is turned on in your application • You are going to supply input indirectly (that is, from a source other than standard input) for any of the following system-supplied clients: `tmadmin(1)`, `tmconfig` or `wtmconfig` (see `tmconfig, wtmconfig(1)`), or `ud` or `wud` (see `ud, wud(1)`)	• `APP_PW`—application password • `USR_PW`—user password
You want to execute a Workstation client	• `WSENVFILE`—file containing environment variable settings • `WSDEVICE`—network device to use for connection • `WSTYPE`—workstation machine type

Note: More information about these variables can be found in *Programming a BEA Tuxedo ATMI Application Using C*, *Programming a BEA Tuxedo ATMI Application Using COBOL*, and *Setting Up a BEA Tuxedo Application*.

After the system has been built with shared libraries and before you execute a client, you must set a variable that defines the location of the shared libraries.

On this platform . . .	Set the following environment variable . . .
All platforms except HP-UX and AIX	`LD_LIBRARY_PATH=$TUXDIR/lib`
HP-UX	`SHLIB_PATH=$TUXDIR/lib`
AIX	`LIBPATH=$TUXDIR/lib`

Note: More information about options for servers can be found on the `servopts(5)` reference page.

FML Programs

In terms of header file sequence, C programs that call FML functions should include the following header files, in the following order:

```
#include <UNIX_header_files> (if needed by the application)
#include "fml.h"
```

Compilation of FML Programs

To compile a program that contains FML functions, execute:

```
cc pgm.c -I $TUXDIR/include -L $TUXDIR/lib -lfml -lengine -o pgm
```

where `pgm` is the name of the executable file.

If the `-L` option is not locally supported, use the following command, instead:

```
cc pgm.c -I $TUXDIR/include $TUXDIR/lib/libfml.a $TUXDIR/lib/libengine.a -o pgm
```

Note: The order in which the libraries are specified is significant. Use the order given above.

Compiling FML VIEWS

To use the FML view compiler, execute the following:

```
viewc view_file
```

Here *view_file* is a set of one or more files containing source view descriptions.

Note: `viewc` invokes the C compiler. The environment variable `CC` can be used to designate the compiler to use. The environment variable `CFLAGS` can be used to pass a set of parameters to the compiler.

Environment Variables for FML

The following environment variables should be set and exported when running an application that uses FML.

`FIELDTBLS`
: A comma-separated list of field table files.

`FLDTBLDIR`
: A colon-separated list of directories to search for the `FIELDTBLS`.

The following environment variables should be set and exported when executing `viewc`.

`FIELDTBLS`
: A comma-separated list of field table files.

`FLDTBLDIR`
: A colon-separated list of directories to search for the `FIELDTBLS`.

`VIEWDIR`

A directory containing viewfiles; the default is the current directory.

See Also

`buildclient(1)`, `buildserver(1)`, `viewc, viewc32(1)`

`cc`(1), `mc`(1) in a UNIX system reference manual

DMADM(5)

Name

DMADM—Domains administrative server

Synopsis

```
DMADM SRVGRP = "identifier"
SRVID = "number"
REPLYQ = "N"
```

Description

The Domains administrative server (DMADM) is a BEA Tuxedo system-supplied server that provides run-time access to the BDMCONFIG file.

DMADM is described in the SERVERS section of the UBBCONFIG file as a server running within a group, for example, DMADMGRP. There should be only one instance of the DMADM running in this group, and it must not have a reply queue (REPLYQ must be set to “N”).

The following server parameters can also be specified for the DMADM server in the SERVERS section: SEQUENCE, ENVFILE, MAXGEN, GRACE, RESTART, RQPERM, and SYSTEM_ACCESS.

The BDMCONFIG environment variable should be set to the pathname of the file containing the binary version of the DMCONFIG file.

Portability

DMADM is supported as a BEA Tuxedo system-supplied server on all supported server platforms.

Interoperability

DMADM must be installed on BEA Tuxedo release 5.0 or later; other machines in the same domain with a release 5.0 gateway may be release 4.1 or later.

Examples

The following example illustrates the definition of the administrative server and a gateway group in the UBBCONFIG file. This example uses the GWTDOMAIN gateway process to provide connectivity with another BEA Tuxedo domain.

```
#
*GROUPS
DMADMGRP LMID=mach1 GRPNO=1
gwgrp    LMID=mach1 GRPNO=2
```

```
#
*SERVERS
DMADM SRVGRP="DMADMGRP" SRVID=1001 REPLYQ=N RESTART=Y GRACE=0
GWADM SRVGRP="gwgrp" SRVID=1002 REPLYQ=N RESTART=Y GRACE=0
GWTDOMAIN SRVGRP="gwgrp" SRVID=1003 RQADDR="gwgrp" REPLYQ=Y RESTART=Y MIN=1
MAX=1
```

See Also

`dmadmin(1)`, `tmboot(1)`, `DMCONFIG(5)`, `GWADM(5)`, `servopts(5)`, `UBBCONFIG(5)`

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Using the BEA Tuxedo TOP END Domain Gateway with ATMI Applications

DMCONFIG(5)

Name

DMCONFIG—Text version of a Domains configuration file

Description

A Domains configuration is a set of two or more *domains* (business applications) that can communicate and share services with the help of the BEA Tuxedo Domains component. How multiple domains are connected and which services they make accessible to each other are defined in a Domains configuration file for each BEA Tuxedo domain participating in the Domains configuration. The text version of a Domains configuration file is known as the DMCONFIG file, although the configuration file may have any name as long as the content of the file conforms to the format described on this reference page.

The DMCONFIG file is parsed and loaded into a binary version, called BDMCONFIG, by the dmloadcf(1) utility. As with DMCONFIG, the BDMCONFIG file may be given any name; the actual name is the device or system filename specified in the BDMCONFIG environment variable. One BDMCONFIG file is required for each Tuxedo domain participating in a Domains configuration.

The DMCONFIG and BDMCONFIG files are analogous to the UBBCONFIG and TUXCONFIG files used to define a BEA Tuxedo domain. For a description of the UBBCONFIG and TUXCONFIG files, see UBBCONFIG(5).

For additional information pertaining to the DMCONFIG file, including examples, see "DMCONFIG(5) Additional Information" on page 95. For a detailed description of the BEA Tuxedo Domains component for both ATMI and CORBA environments, see *Using the BEA Tuxedo Domains Component*.

Definitions

A BEA Tuxedo domain is defined as the environment described in a single TUXCONFIG file. In BEA Tuxedo terminology, a *domain* is the same as an *application*—a business application.

There is one *Domains administrative server* (DMADM) process running in each BEA Tuxedo domain involved in a Domains configuration. The DMADM is the administrative server for all domain gateway groups running in a particular BEA Tuxedo domain.

A *domain gateway group* consists of a BEA Tuxedo system *gateway administrative server* (GWADM) process and a BEA Tuxedo system domain gateway process.

A BEA Tuxedo system *domain gateway* process provides communication services with a specific type of transaction processing (TP) domain; for example, the GWTDOMAIN process enables BEA

Tuxedo applications to communicate with other BEA Tuxedo applications. A domain gateway relays requests to another domain and receives replies.

A *local domain access point* is a user-specified logical name representing a set of services of the BEA Tuxedo domain that is made available to other domains (remote domains). A local domain access point maps to a domain gateway group; both terms are used as synonyms.

A *remote domain access point* is a user-specified logical name representing a set services of a remote domain that is made available to the local domain. The remote domain may be another BEA Tuxedo application or an application running on another TP system.

A *remote service* is a service provided by a remote domain that is made available to the local domain through a remote domain access point and a local domain access point.

A *local service* is a service of the local domain that is made available to remote domains through a local domain access point.

Configuration File Purpose

You use a `DMCONFIG` file to:

- Define the local domain access points through which application clients on a remote domain can access services on the local domain
- Define the local services available through each local domain access point
- Define the remote domain access points through which application clients on the local domain can access services on a remote domain
- Define the remote services available through each remote domain access point
- Map local domain access points and remote domain access points to specific domain gateway groups and network addresses

Configuration File Format

The `DMCONFIG` file is made up of the following specification sections:

- `DM_LOCAL` (also known as `DM_LOCAL_DOMAINS`)
- `DM_REMOTE` (also known as `DM_REMOTE_DOMAINS`)
- `DM_EXPORT` (also known as `DM_LOCAL_SERVICES`)
- `DM_IMPORT` (also known as `DM_REMOTE_SERVICES`)
- `DM_RESOURCES`

- DM_ROUTING
- DM_ACCESS_CONTROL
- DM_TDOMAIN (section for domain gateways of type TDOMAIN)
- DM_*dom*, where *dom* may be any of the following sections for other domain gateway types: SNACRM, SNASTACKS, SNALINKS, OSITP, OSITPX.

Lines in a DMCONFIG file beginning with an asterisk (*) indicate the beginning of a specification section. Each such line contains the name of the section immediately following the *. The asterisk is required when specifying a section name. The DM_LOCAL section must precede the DM_REMOTE section.

This reference page describes how to configure a domain gateway of type TDOMAIN (the TDomain gateway), which is implemented by the GWTDOMAIN gateway process. For information about how to configure a SNAX, OSITP, or OSITPX domain gateway, see *BEA eLink Documentation* at http://e-docs.bea.com/elink/mainfram/mainfram.htm.

Parameters are generally specified by: *KEYWORD* = *value*; white space (space or tab character) is allowed on either side of the equal sign (=). This format sets *KEYWORD* to *value*. Valid keywords are described below within each section.

Lines beginning with the reserved word DEFAULT contain parameter specifications that apply to all lines that follow them in the section in which they appear. Default specifications can be used in all sections. They can appear more than once in the same section. The format for these lines is:

```
DEFAULT: [KEYWORD1 = value1 [KEYWORD2 = value2 [...]]]
```

The values set on this line remain in effect until reset by another DEFAULT line, or until the end of the section is reached. These values can also be overridden on non-DEFAULT lines by placing the optional parameter setting on the line. If on a non-DEFAULT line, the parameter setting is valid for that line only; lines that follow revert to the default setting. If DEFAULT appears on a line by itself, all previously set defaults are cleared and their values revert to the system defaults.

If a value is *numeric*, standard C notation is used to denote the base, that is, 0x prefix for base 16 (hexadecimal), 0 prefix for base 8 (octal), and no prefix for base 10 (decimal). The range of values acceptable for a numeric parameter are given under the description of that parameter.

If a value is an *identifier* (a string value already known to the BEA Tuxedo Domains component such as TDOMAIN for the TYPE parameter), standard C rules are typically used. A standard C *identifier* starts with an alphabetic character or underscore and contains only alphanumeric characters or underscores. The maximum allowable length of an identifier is 30 bytes (not including the terminating NULL).

There is no need to enclose an identifier in double quotes. A value that is neither an integer number nor an identifier must be enclosed in double quotes.

Input fields are separated by at least one space (or tab) character.

"`#`" introduces a comment. A newline ends a comment.

Blank lines and comments are ignored.

Comments can be freely attached to the end of any line.

Lines are continued by placing at least one tab after the newline. Comments cannot be continued.

Domains Terminology Improvements

For BEA Tuxedo release 7.1 or later, the Domains MIB uses improved class and attribute terminology to describe the interaction between local and remote domains. The improved terminology has been applied to the `DMCONFIG(5)` reference page, section names, parameter names, and error messages, and to the `DM_MIB(5)` reference page, classes, and error messages.

For backwards compatibility, aliases are provided between the `DMCONFIG` terminology used prior to BEA Tuxedo 7.1 and the improved Domains MIB terminology. For BEA Tuxedo release 7.1 or later, both versions of `DMCONFIG` terminology are accepted. The following table shows the mapping of the previous and improved terminology for the `DMCONFIG` file.

Previous Terminology		Improved Terminology	
Section Name	**Parameter Name**	**Section Name**	**Parameter Name**
DM_LOCAL_DOMAINS		DM_LOCAL	
DM_REMOTE_DOMAINS		DM_REMOTE	
	DOMAINID		ACCESSPOINTID
	MAXRDOM		MAXACCESSPOINT
	MAXRDTRAN		MAXRAPTRAN
DM_LOCAL_SERVICES		DM_EXPORT	
DM_REMOTE_SERVICES		DM_IMPORT	
	LDOM		LACCESSPOINT
	RDOM		RACCESSPOINT

For BEA Tuxedo release 7.1 or later, the `dmunloadcf` command generates by default a `DMCONFIG` file that uses the improved domains terminology. Use the `-c` option to print a `DMCONFIG` file that uses the previous domains terminology. For example:

prompt> `dmunloadcf -c > dmconfig_prev`

DM_LOCAL Section

This section, also known as the `DM_LOCAL_DOMAINS` section, defines one or more local domain access point identifiers and their associated gateway groups. The section must have a local domain access point entry for each active gateway group defined in the `UBBCONFIG` file. Each entry specifies the parameters required for the domain gateway process running in that group.

Entries within the `DM_LOCAL` section have the following form:

`*LocalAccessPoint required_parameters* [*optional_parameters*]`

where *`LocalAccessPoint`* is the local domain access point identifier (logical name) that you choose to represent a particular gateway group defined in the `UBBCONFIG` file. *`LocalAccessPoint`* must be unique across the local and remote domains involved in a Domains configuration. As you will see in the description of the `DM_EXPORT` section, you use the local domain access point to associate local services with the gateway group. The local services available through the local domain access point will be available to clients in one or more remote domains.

Required parameters for the DM_LOCAL section

`GWGRP` = *`identifier`*

Specifies the name of the domain gateway group (the name provided in the `GROUPS` section of the `TUXCONFIG` file) representing this local domain access point. There is a one-to-one relationship between a local domain access point and a domain gateway group.

`TYPE` = *`identifier`*

Specifies the type of domain gateway associated with this local domain access point. `TYPE` can be set to one of the following values: `TDOMAIN`, `SNAX`, `OSITP`, or `OSITPX`.

The `TDOMAIN` value indicates that this local domain access point is associated with a `GWTDOMAIN` gateway instance and therefore can communicate with another BEA Tuxedo application.

The `SNAX` value indicates that this local domain access point is associated with a `GWSNAX` gateway instance and therefore can communicate with another TP domain via the SNA protocol.

The `OSITP` or `OSITPX` value indicates that this local domain access point is associated with a `GWOSITP` gateway instance and therefore can communicate with another TP domain via the OSI TP protocol. The `OSITP` value indicates the use of the OSI TP 1.3 protocol, and the `OSITPX` value indicates the use of the OSI TP 4.0 or later protocol. The `OSITPX` value is supported only by BEA Tuxedo 8.0 or later software.

Domain types must be defined in the `DMTYPE` file: `%TUXDIR%\udataobj\DMTYPE` for Windows or `$TUXDIR/udataobj/DMTYPE` for UNIX.

`ACCESSPOINTID` **(also known as** `DOMAINID`**)** = *`string`***[1..30]**

Used to identify the domain gateway group associated with this local domain access point for purposes of security when setting up connections to remote domains. `ACCESSPOINTID` must be unique across all local and remote domain access points.

The value of *`string`* can be a sequence of characters (for example, "`BA.CENTRAL01`"), or a sequence of hexadecimal digits preceded by `0x` (for example, "`0x0002FF98C0000B9D6`"). `ACCESSPOINTID` must be 30 bytes or fewer in length. If the value is a string, it must be 30 characters or fewer (counting the trailing `NULL`).

Optional parameters for the DM_LOCAL section

The following optional parameters for the DM_LOCAL section describe resources and limits used in the operation of domain gateways:

AUDITLOG = *string*[1..256] (up to 78 bytes for BEA Tuxedo 8.0 or earlier)

Specifies the name of the audit log file for this local domain access point. The audit log feature is activated from the dmadmin(1) command and records all the operations for this local domain access point. If the audit log feature is active and this parameter is not specified, the file DM*mmddyy*.LOG (where *mm*=month, *dd*=day, and *yy*=year) is created in the directory specified by the $APPDIR environment variable or the APPDIR parameter of the MACHINES section of the TUXCONFIG file.

BLOCKTIME = *numeric*

Specifies the maximum wait time allowed for a blocking call for this local domain access point. The value is a multiplier of the SCANUNIT parameters specified in the RESOURCES section of the TUXCONFIG file. The value SCANUNIT * BLOCKTIME must be greater than or equal to SCANUNIT and less than 32,768 seconds. If this parameter is not specified, the default is set to the value of the BLOCKTIME parameter specified in the RESOURCES section of the TUXCONFIG file. A blocking timeout condition implies that the affected service request has failed.

Be aware that *interdomain* transactions generate blocking timeout conditions when transaction duration exceeds BLOCKTIME. That is, for an interdomain transaction, if the BLOCKTIME value is less than (a) the TRANTIME timeout value specified in the SERVICES section of the TUXCONFIG file or (b) the timeout value passed in a tpbegin() call to start the transaction, the timeout for the transaction is reduced to the BLOCKTIME value. In contrast, for *intradomain* transactions (that is, transactions handled within a single BEA Tuxedo domain), the BLOCKTIME value specified in the RESOURCES section of the TUXCONFIG file has *no* effect on the timeout of an intradomain transaction.

CONNECTION_POLICY = {ON_DEMAND | ON_STARTUP | INCOMING_ONLY}

Specifies the conditions under which the domain gateway associated with this local domain access point tries to establish connections to remote domains. Supported values are ON_DEMAND, ON_STARTUP, or INCOMING_ONLY. This parameter applies only to domain gateways of type TDOMAIN.

A connection policy of ON_DEMAND means that a domain gateway attempts to establish a connection with a remote domain only when requested by either a client request to a remote service or a dmadmin(1) connect command. The default for CONNECTION_POLICY is ON_DEMAND. Connection retry processing is not allowed when the connection policy is ON_DEMAND.

A connection policy of ON_STARTUP means that a domain gateway attempts to establish a connection with its remote domains at gateway server initialization time. If CONNECTION_POLICY is set to ON_STARTUP, the remote services for a particular remote domain (that is, services advertised by the domain gateway) are advertised only if a connection is successfully established to the remote domain. Thus, if there is no active connection to the remote domain, the remote services are suspended. By default, this connection policy retries failed connections every 60 seconds, but you can specify a different value for this interval using the RETRY_INTERVAL parameter. Also, see the MAXRETRY parameter.

A connection policy of INCOMING_ONLY means that a domain gateway does not attempt an initial connection upon startup and that remote services are initially suspended. The domain gateway is available for incoming connections from remote domains, and remote services are advertised when the domain gateway receives an incoming connection or an administrative connection (using the dmadmin(1) connect command) is made. Connection retry processing is not allowed when the connection policy is INCOMING_ONLY.

Note: For domain gateways of type TDOMAIN running BEA Tuxedo 8.1 or later software, CONNECTION_POLICY can be specified on a per remote domain basis in the DM_TDOMAIN section.

MAXRETRY = **{***numeric* | MAXLONG**}**

Specifies the number of times that the domain gateway associated with this local domain access point tries to establish connections to remote domains. This parameter applies only to domain gateways of type TDOMAIN and is valid only when the CONNECTION_POLICY parameter for this local domain access point is set to ON_STARTUP. For other connection policies, automatic retries are disabled.

The minimum value for MAXRETRY is 0, and the maximum value is MAXLONG (2147483647). MAXLONG, the default, indicates that retry processing will be repeated indefinitely, or until a connection is established. Setting MAXRETRY=0 turns off the automatic retry mechanism.

RETRY_INTERVAL = *numeric*

Specifies the number of seconds that the domain gateway associated with this local domain access point waits between automatic attempts to establish a connection to remote domains. This parameter applies only to domain gateways of type TDOMAIN and is valid only when the CONNECTION_POLICY parameter for this local domain access point is set to ON_STARTUP. For other connection policies, automatic retries are disabled.

The minimum value for RETRY_INTERVAL is 0, and the maximum value is 2147483647. The default is 60. If MAXRETRY is set to 0, setting RETRY_INTERVAL is not allowed.

CONNECTION_PRINCIPAL_NAME = *string***[0..511]**

Specifies the connection principal name identifier, which is the principal name for verifying the identity of the domain gateway associated with this local domain access point when establishing a connection to a remote domain. This parameter applies only to domain gateways of type TDOMAIN running BEA Tuxedo 7.1 or later software.

The CONNECTION_PRINCIPAL_NAME parameter may contain a maximum of 511 characters (excluding the terminating NULL character). If this parameter is not specified, the connection principal name defaults to the ACCESSPOINTID string for this local domain access point.

For default authentication plug-ins, if a value is assigned to the CONNECTION_PRINCIPAL_NAME parameter for this local domain access point, it must be the same as the value assigned to the ACCESSPOINTID parameter for this local domain access point. If these values do not match, the local TDomain gateway process will *not* boot, and the system will generate the following userlog(3c) message: ERROR: Unable to acquire credentials.

DMTLOGDEV = *string***[1..256] (up to 78 bytes for BEA Tuxedo 8.0 or earlier)**

Specifies the BEA Tuxedo filesystem that contains the Domains transaction log (TLOG) for this local domain access point. The TLOG is stored as a BEA Tuxedo system VTOC table on the device. If this parameter is not specified, the domain gateway group associated with this local domain access point is not allowed to process requests in transaction mode. Multiple local domain access points for the same machine can share the same BEA Tuxedo filesystem, but each local domain access point must have its own log (a table in the DMTLOGDEV) named as specified by the DMTLOGNAME parameter.

DMTLOGNAME = *string***[1..30]**

Specifies the name of the TLOG for this local domain access point. This name must be unique when the same BEA Tuxedo filesystem (as specified in DMTLOGDEV) is used for several local domain access points. If this parameter is not specified, the default is the string DMTLOG. The name must be 30 characters or less.

DMTLOGSIZE = *numeric*

Specifies the numeric size, in pages, of the TLOG for this local domain access point. It must be greater than 0 and less than the amount of available space on the BEA Tuxedo filesystem. If this parameter is not specified, the default is 100 pages.

MAXRAPTRAN **(also known as** MAXRDTRAN**)** = *numeric*

Specifies the maximum number of domains that can be involved in a transaction for this local domain access point. It must be greater than 0 and less than 32,768. If this parameter is not specified, the default is 16.

`MAXTRAN` = *`numeric`*

Specifies the maximum number of simultaneous global transactions allowed for this local domain access point. It must be greater than or equal to 0 and less than or equal to the `MAXGTT` parameter specified in the `RESOURCES` section of the `TUXCONFIG` file. If `MAXTRAN` is not specified, the default is the value of `MAXGTT`.

`MTYPE` = *`string`***[1..15]**

Used for grouping domains so that encoding/decoding of messages can be bypassed between the machine associated with this local domain access point and the machines associated with the remote domain access points. This parameter applies only to domain gateways of type `TDOMAIN`.

If `MTYPE` is not specified, the default is to turn encoding/decoding on. If the value set for the `MTYPE` field is the same in both the `DM_LOCAL` and the `DM_REMOTE` section of a `DMCONFIG` file, data encoding/decoding is bypassed. The value set for `MTYPE` can be any string value up to 15 characters in length. It is used only for comparison.

`SECURITY` = **{**`NONE` **|** `APP_PW` **|** `DM_PW`**}**

Specifies the type of application security to be enforced for this local domain access point. The `SECURITY` parameter currently has three valid values for domain gateways of type `TDOMAIN`: `NONE`, `APP_PW`, or `DM_PW`. The value `NONE` (the default) indicates that no security is used. The value `APP_PW` indicates that the application password security is to be enforced when a connection is established from a remote domain; the application password is defined in the `TUXCONFIG` file. The value `DM_PW` indicates that Domains password security is to be enforced when a connection is established from a remote domain; Domains passwords are defined through the `dmadmin(1)` command.

The `SECURITY` parameter does not apply to domain gateways of type `OSITP`. For gateways of type `OSITPX`, the values `NONE` or `DM_PW` can be used. For gateways of type `SNAX`, the values `NONE` or `DM_USER_PW` can be used.

Non-TDomain parameters for the DM_LOCAL section

The following DM_LOCAL section parameters do not apply to domain gateways of type TDOMAIN but are included here for completeness:

- BLOB_SHM_SIZE = *numeric* — applicable to domain gateways of type SNAX
- MAXACCESSPOINT (also known as MAXRDOM) = *numeric* — applicable to domain gateways of type OSITP
- MAXDATALEN = *numeric* — applicable to domain gateways of type OSITP

For detailed descriptions of SNAX and OSITP parameters, see *BEA eLink Documentation* at http://e-docs.bea.com/elink/mainfram/mainfram.htm.

DM_REMOTE Section

This section, also known as the DM_REMOTE_DOMAINS section, defines one or more remote domain access point identifiers and their characteristics.

Entries within the DM_REMOTE section have the following form:

RemoteAccessPoint required_parameters [*optional_parameters*]

where *RemoteAccessPoint* is a remote domain access point identifier (logical name) that you choose to identify each remote domain known to the local BEA Tuxedo application. *RemoteAccessPoint* must be unique across the local and remote domains involved in a Domains configuration. As you will see in the description of the DM_IMPORT section, you use a remote domain access point to associate remote services with a particular remote domain. The remote services available through the remote domain access point will be available to clients in the local domain through a remote domain access point and a local domain access point.

Required parameters for the DM_REMOTE section

TYPE = *identifier*

Specifies the type of local domain gateway needed to communicate with the remote domain associated with this remote domain access point. TYPE can be set to one of the following values: TDOMAIN, SNAX, OSITP, or OSITPX.

The TDOMAIN value indicates that a local instance of the GWTDOMAIN process will communicate with a remote BEA Tuxedo application.

The SNAX value indicates that a local instance of the GWSNAX process will communicate with a remote TP domain via the SNA protocol.

The OSITP value indicates that a local instance of the GWOSITP process will communicate with a remote TP domain via the OSI TP 1.3 protocol.

The OSITPX value indicates that a local instance of the GWOSITP process will communicate with a remote TP domain via the OSI TP 4.0 or later protocol. The OSITPX value is supported only by BEA Tuxedo 8.0 or later software.

ACCESSPOINTID **(also known as** DOMAINID**)** = *string***[1..30]**

Used to identify the remote domain associated with this remote domain access point for purposes of security when setting up a connection to the remote domain. For a local domain gateway of type TDOMAIN, this value may also be used by the TDomain gateway (local instance of the GWTDOMAIN process) as the user ID for incoming requests from this remote domain access point connection. ACCESSPOINTID must be unique across local and remote domain access points.

ACCESSPOINTID must be 30 bytes or fewer in length. If the value is a string, it must be 30 characters or fewer (counting the trailing NULL). The value of *string* can be a sequence of characters or a sequence of hexadecimal digits preceded by 0x.

Optional parameters for the DM_REMOTE section

The following optional parameters for the DM_REMOTE section describe resources and limits used in the operation of the local domain gateways:

ACL_POLICY = **{**LOCAL **|** GLOBAL**}**

Specifies the access control list (ACL) policy for this remote domain access point. This parameter applies only to domain gateways of type TDOMAIN running BEA Tuxedo 7.1 or later software and domain gateways of type OSITPX running BEA Tuxedo 8.0 or later software.

LOCAL means that the local domain *replaces* the credential (identity) of any service request received from the remote domain *with* the principal name specified in the LOCAL_PRINCIPAL_NAME parameter for this remote domain access point. GLOBAL means that the local domain does not replace the credential received with a remote service request; if no credential is received with a remote service request, the local domain forwards the service request to the local service *as is* (which usually fails). If this parameter is not specified, the default is LOCAL.

Note that the ACL_POLICY parameter controls whether or not the local domain replaces the credential of a service request received from a remote domain with the principal name specified in the LOCAL_PRINCIPAL_NAME parameter. The CREDENTIAL_POLICY parameter is related to this parameter and controls whether or not the local domain removes the credential from a local service request before sending the request to a remote domain.

LOCAL_PRINCIPAL_NAME = *string*[0..511]

The local principal name identifier (credential) assigned by the local domain to service requests received from the remote domain when the ACL_POLICY parameter for this remote domain access point is set (or defaulted) to LOCAL. This parameter applies only to domain gateways of type TDOMAIN running BEA Tuxedo 7.1 or later software and domain gateways of type OSITPX running BEA Tuxedo 8.0 or later software.

The LOCAL_PRINCIPAL_NAME parameter may contain a maximum of 511 characters (excluding the terminating NULL character). If this parameter is not specified, the local principal name defaults to the ACCESSPOINTID string for this remote domain access point.

CONNECTION_PRINCIPAL_NAME = *string*[0..511]

Specifies the connection principal name identifier, which is the principal name for verifying the identity of this remote domain access point when establishing a connection to the local domain. This parameter applies only to domain gateways of type TDOMAIN running BEA Tuxedo 7.1 or later software.

The CONNECTION_PRINCIPAL_NAME parameter may contain a maximum of 511 characters (excluding the terminating NULL character). If this parameter is not specified, the connection principal name defaults to the ACCESSPOINTID string for this remote domain access point.

For default authentication plug-ins, if a value is assigned to the CONNECTION_PRINCIPAL_NAME parameter for this remote domain access point, it must be the same as the value assigned to the ACCESSPOINTID parameter for this remote domain access point. If these values do not match, any attempt to set up a connection between the local TDomain gateway and the remote TDomain gateway will fail, and the system will generate the following userlog(3c) message: ERROR: Unable to initialize administration key for domain *domain_name*.

CREDENTIAL_POLICY = {LOCAL | GLOBAL}

Specifies the credential policy for this remote domain access point. This parameter applies only to domain gateways of type TDOMAIN running BEA Tuxedo 8.0 or later software.

LOCAL means that the local domain removes the credential (identity) from a local service request destined for this remote domain access point. GLOBAL means that the local domain does not remove the credential from a local service request destined for this remote domain access point. If this parameter is not specified, the default is LOCAL.

Note that the CREDENTIAL_POLICY parameter controls whether or not the local domain removes the credential from a local service request before sending the request to a remote domain. The ACL_POLICY parameter is related to this parameter and controls whether or not the local domain replaces the credential of a service request received from a remote domain with the principal name specified in the LOCAL_PRINCIPAL_NAME parameter.

MTYPE = *string***[1..15]**

Used for grouping domains so that encoding/decoding of messages can be bypassed between the machine associated with this remote domain access point and the machine associated with the local domain access point. This parameter applies only to domain gateways of type TDOMAIN.

If MTYPE is not specified, the default is to turn encoding/decoding on. If the value set for the MTYPE field is the same in both the DM_LOCAL and the DM_REMOTE section of a DMCONFIG file, data encoding/decoding is bypassed. The value set for MTYPE can be any string value up to 15 characters. It is used only for comparison.

PRIORITY_TYPE = **{**LOCAL_RELATIVE **|** LOCAL_ABSOLUTE **|** GLOBAL**}**

INPRIORITY = *numeric*

Together, the PRIORITY_TYPE and INPRIORITY parameters specify the message priority handling for this remote domain access point. These parameters are supported by BEA Tuxedo 8.0 or later software.

For the PRIORITY_TYPE parameter, the LOCAL_RELATIVE and LOCAL_ABSOLUTE values are valid for all remote domain types; the GLOBAL value is valid only for remote domains of type TDOMAIN. If not set, the PRIORITY_TYPE parameter defaults to LOCAL_RELATIVE.

PRIORITY_TYPE=LOCAL_RELATIVE means that the priority associated with a request from this remote domain access point (for example, via the tpsprio call) is not used by the local domain. Instead, the priority of incoming requests from this remote domain access point is set relative to the INPRIORITY value; this value may be greater than or equal to -99 (lowest priority) and less than or equal to 99 (highest priority), with 0 being the default. The setting of INPRIORITY increments or decrements a service's default priority as follows: up to a maximum of 100 or down to a minimum of 1, depending on its sign, where 100 is the highest priority. For requests to the remote domain access point, the priority associated with a request will accompany the request to the remote domain access point.

PRIORITY_TYPE=LOCAL_ABSOLUTE means that the priority associated with a request from this remote domain access point is not used by the local domain. Instead, the priority of incoming requests from this remote domain access point is set relative to the INPRIORITY value; this value may be greater than or equal to 1 (lowest priority) and less than or equal to 100 (highest priority), with 50 being the default. The setting of `INPRIORITY` increments or decrements a service's default priority as follows: up to a maximum of 100 or down to a minimum of 1, depending on its sign, where 100 is the highest priority. For requests to the remote domain access point, the priority associated with a request will accompany the request to the remote domain access point.

`PRIORITY_TYPE=GLOBAL` means that the priority associated with a request from this remote domain access point is adjusted by the local domain. The priority of incoming requests from this remote domain access point is adjusted relative to the `INPRIORITY` value; this value may be greater than or equal to -99 (lowest priority) and less than or equal to 99 (highest priority), with 0 being the default. If `INPRIORITY` is set, the priority accompanying the incoming request is added to the `INPRIORITY` value to create an absolute priority setting for the incoming request. If `INPRIORITY` is not set or is set to 0, the priority accompanying the incoming request is used *as is* by the local domain. For requests to the remote domain access point, the priority associated with a request will accompany the request to the remote domain access point.

Non-TDomain parameters for the DM_REMOTE section

The following `DM_REMOTE` section parameter does not apply to domain gateways of type `TDOMAIN` but is included here for completeness:

`CODEPAGE = `*`string`* — applicable to domain gateways of type `SNAX` and `OSITPX`

For detailed descriptions of `SNAX` and `OSITPX` parameters, see *BEA eLink Documentation* at `http://e-docs.bea.com/elink/mainfram/mainfram.htm`.

DM_EXPORT Section

This section, also known as the `DM_LOCAL_SERVICES` section, provides information on the services exported by each local domain access point. If this section is absent, or is present but empty, all local domain access points defined in the `DM_LOCAL` section accept remote requests to all services advertised by the local BEA Tuxedo application. If this section is specified, it should be used to restrict the set of local services that can be requested from a remote domain.

A *local service* is a service made available to one or more remote domains through a local domain access point.

Entries within the `DM_EXPORT` section have the following form:

`service` `[`*`optional_parameters`*`]`

where *service* is the identifier name of a particular local service; it must be 15 characters or fewer in length. This name is advertised by one or more servers running within the local BEA Tuxedo application.

A local service made available to one or more remote domains inherits many of its properties from the SERVICES section of the TUXCONFIG file, or their defaults. Some of the properties that may be inherited are LOAD, PRIO, AUTOTRAN, ROUTING, BUFTYPE, and TRANTIME.

Optional parameters for the DM_EXPORT section

LACCESSPOINT **(also known as** LDOM**)** = *identifier*

Specifies the name of the local domain access point exporting this service. If this parameter is not specified, all local domain access points defined in the DM_LOCAL section accept remote requests to this local service.

ACL = *identifier*

Specifies the name of the access control list (ACL) to be used by the local domain access point to restrict requests made to this local service by remote domains. The name of the ACL is defined in the DM_ACCESS_CONTROL section.

CONV = **{**Y **|** N**}**

Specifies whether (Y) or not (N) this local service is a conversational service. The default is N.

RNAME = *string***[1..30]**

Specifies an alternative identity, or "alias," for the name of this local service to the remote domains. This name will be used by the remote domains to request this service. If this parameter is not specified, the actual name of this local service name—the *service* identifier—is the name used by the remote domains to request this service.

Non-TDomain parameters for the DM_EXPORT section

The following DM_EXPORT section parameters do not apply to domain gateways of type TDOMAIN but are included here for completeness.

- INBUFTYPE = *string* — applicable to domain gateways of type SNAX, OSITP, and OSITPX
- OUTBUFTYPE = *string* — applicable to domain gateways of type SNAX, OSITP, and OSITPX
- COUPLING = {TIGHT | LOOSE} — applicable to domain gateways of type OSITPX
- INRECTYPE = *string* — applicable to domain gateways of type OSITPX

- OUTRECTYPE = *string* — applicable to domain gateways of type OSITPX

For detailed descriptions of SNAX, OSITP, and OSITPX parameters, see *BEA eLink Documentation* at http://e-docs.bea.com/elink/mainfram/mainfram.htm.

DM_IMPORT Section

This section, also known as the DM_REMOTE_SERVICES section, provides information on services imported and available to the local domain through remote domain access points defined in the DM_REMOTE section. If the DM_IMPORT section is absent, or is present but empty, no remote services are available to the local domain.

A *remote service* is a service made available to the local domain through a remote domain access point and a local domain access point.

Entries within the DM_IMPORT section have the following form:

service [*optional_parameters*]

where *service* is the identifier name advertised by the local BEA Tuxedo application for a particular remote service; it must be 15 characters or fewer in length. A remote service may be imported from one or more remote domains.

A remote BEA Tuxedo service made available to the local domain inherits many of its properties from the SERVICES section of the remote TUXCONFIG file, or their defaults. Some of the properties that may be inherited are LOAD, PRIO, AUTOTRAN, ROUTING, BUFTYPE, and TRANTIME.

Optional parameters for the DM_IMPORT section

RACCESSPOINT **(also known as** RDOM**)** =
  identifier1[,*identifier2*][,*identifier3*][,*identifier4*]

Specifies the remote domain access point through which this service is imported. If a remote domain access point is specified for this service *and* a local domain access point is specified (using the LACCESSPOINT parameter) for this service, only the named local domain access point is allowed to send local requests to this remote service through the named remote domain access point.

If a remote domain access point is specified for this service but no local domain access point is specified, any local domain access point defined in the DM_LOCAL section having the same gateway type (TDOMAIN, ...) as the remote domain access point is allowed to send local requests to this remote service through the named remote domain access point.

If no remote domain access point is specified for this service and no local domain access point is specified, any local domain access point defined in the DM_LOCAL section may send requests to this service through any remote domain access point defined in the `DM_REMOTE` section.

If you want to configure alternate remote domain access points with the *`identifier2`*, *`identifier3, identifier4`* arguments, you must specify `ON_STARTUP` as the value of the `CONNECTION_POLICY` parameter in the `DM_LOCAL` section. (`CONNECTION_POLICY` may also be specified in the `DM_TDOMAIN` section for a BEA Tuxedo 8.1 or later application.) If *`identifier2`* is configured, it is used for failover: When the remote domain associated with *`identifier1`* is unavailable, the remote domain associated with *`identifier2`* is used. Similarly, if *`identifier3 ND identifier4 are`* configured, they are used for failover: When the remote domains associated with *`identifier1`*, *`identifier2`* and *`identifier3`* are unavailable, the remote domain associated with *`identifier4`* is used.

`LACCESSPOINT` **(also known as** `LDOM`**)** = *`identifier`*

Specifies the name of a local domain access point that is allowed to send requests to this remote service. The gateway group associated with this local domain access point advertises the name—the *`service`* identifier—of the remote service in the BEA Tuxedo system bulletin board.

`BLOCKTIME` *`numeric_value`*

Specifies the nontransactional client blocking time value, in seconds, per service indicating the minimum amount of time a blocking API call will delay before timing out for a particular service. The blocktime value is controlled by the local domain.

This parameter lets the client know that (after a specified time in seconds), no reply has been received by the server while the service request is still processing.

`numeric_value` can be between 0 and 32,767 inclusive. If not specified, the default is 0 which indicates that the system-wide `BLOCKTIME` value specified in the `UBBCONFIG RESOURCES` section is used for the service.

`CONV` = **{**`Y` **|** `N`**}**

Specifies whether (`Y`) or not (`N`) this remote service is a conversational service. The default is `N`.

`LOAD` = *`numeric`*

Specifies the service load for this remote service. The value must be greater than or equal to 1 and less than or equal to 32767. The default is 50. Interface loads are used for load balancing purposes, that is, queues with higher enqueued workloads are less likely to be chosen for a new request.

RNAME = *string*[1..30]

Specifies an alternative identity, or “alias,” for the name of this remote service to the local domain. This name will be used by the local domain to request this service. If this parameter is not specified, the actual name of this remote service name—the *service* identifier—is the name used by the local domain to request this service.

ROUTING = *identifier*

Specifies the name of the routing criteria table used for data-dependent routing for this remote service. When more than one remote domain access point offers the same service, a local domain access point can perform data-dependent routing if this optional parameter is specified. If this parameter is not specified, data-dependent routing is not used for this service.

The *identifier* is a *ROUTING_CRITERIA_NAME* defined in the DM_ROUTING section. The value of *identifier* must be 15 characters or less in length. If multiple entries for the same service name are included with different remote domain access points (specified using the RACCESSPOINT parameter), the value of the ROUTING parameter should be the same for all of these entries.

Non-TDomain parameters for the DM_IMPORT section

The following DM_IMPORT section parameters do not apply to domain gateways of type TDOMAIN but are included here for completeness:

- INBUFTYPE = *string* — applicable to domain gateways of type SNAX, OSITP, and OSITPX
- OUTBUFTYPE = *string* — applicable to domain gateways of type SNAX, OSITP, and OSITPX
- AUTOPREPARE = {Y | N} — applicable to domain gateways of type OSITPX
- INRECTYPE = *string* — applicable to domain gateways of type OSITPX
- OUTRECTYPE = *string* — applicable to domain gateways of type OSITPX
- TPSUT_TYPE = {INTEGER | PRINTABLESTRING} — applicable to domain gateways of type OSITPX
- REM_TPSUT = *string* — applicable to domain gateways of type OSITPX

For detailed descriptions of SNAX, OSITP, and OSITPX parameters, see *BEA eLink Documentation* at http://e-docs.bea.com/elink/mainfram/mainfram.htm.

DM_RESOURCES

This optional section is used for defining global Domains configuration information, specifically a user-supplied configuration version string. This field is not checked by the software.

The only parameter for the `DM_RESOURCES` section is:

`VERSION` = *`string`*

where *`string`* is a field in which users can enter a version number for the current `DMCONFIG` file.

DM_ROUTING Section

This section provides information for data-dependent routing of local service requests using FML, FML32, VIEW, VIEW32, X_C_TYPE, X_COMMON, or XML typed buffers to one of several remote domains offering the same service.

Entries within the `DM_ROUTING` section have the following form:

`ROUTING_CRITERIA_NAME required_parameters`

where *`ROUTING_CRITERIA_NAME`* is the *`identifier`* name assigned to the `ROUTING` parameter for the particular service entry in the `DM_IMPORT` section. *`ROUTING_CRITERIA_NAME`* must be 15 characters or less in length.

Required parameters for the DM_ROUTING section

`FIELD` = *`identifier`*

Specifies the name of the routing field. It must be 30 characters or less. It is assumed that the value of *`identifier`* is one of the following: a field name that is identified in an FML field table (for FML and FML32 buffers); an XML element or element attribute (for XML buffers); or an FML view table (for VIEW, X_C_TYPE, or X_COMMON buffers). Two environment variables, `FLDTBLDIR` and `FIELDTBLS` *or* `FLDTBLDIR32` and `FIELDTBLS32`, are used to locate FML field tables. Similarly, two environment variables, `VIEWDIR` and `VIEWFILES` *or* `VIEWDIR32` and `VIEWFILES32`, are used to locate FML view tables. If a field in an FML or FML32 buffer is used for routing, the value of that field must be a number less than or equal to 8191.

An XML element content encoded in UTF-8 can be used for routing. When used for routing, the element content cannot contain character references, entity references, or CDATA sections. An XML element attribute encoded in UTF-8 can also be used for routing if the element to which the attribute belongs is defined.

When XML documents are being routed on the basis of element content or element attribute, the `FIELD` parameter must be defined with the following syntax:

`FIELD = "`*`root_element`*`[/`*`child_element`*`][/`*`child_element`*`][/. . .][/@`*`attribute_name`*`]"`

The value of `FIELD` specifies the name of a routing element or an element attribute. It is assumed that the value of *`root_element`* is an element type (or name) or an element attribute name for an XML document or datagram. This information is used to identify the element content or element attribute value for data-dependent routing while sending a document or datagram. The element name and attribute name combined may contain no more than 30 characters. Because indexing is not supported, the BEA Tuxedo system recognizes only the first occurrence of a given element type when processing an `XML` buffer for data-dependent routing.

XML strictly defines the set of characters that may be used in an attribute name. An attribute name must be a string consisting of a single letter, underscore, or colon, followed by one or more name characters. Both element names and attribute names are case-sensitive.

You can find more information about XML on the World Wide Web Consortium Web site at `http://www.w3c.org/XML`.

`FIELDTYPE = `*`type`*

Indicates the type of routing field specified in the `FIELD` parameter. This parameter is used only for routing XML buffers. The value *`type`* can be set to one of the following: `CHAR`, `SHORT`, `LONG`, `FLOAT`, `DOUBLE`, or `STRING`. The default type of the routing field is `STRING`.

An XML element content and attribute value encoded in UTF-8 can be used for routing if they can be converted to the data type specified by the `FIELDTYPE` parameter.

`RANGES = "`*`string`***[1..4096]**`"`

Specifies the ranges and associated remote domain access point names for the routing field. *`string`* must be enclosed in double quotes. The format of *`string`* is a comma-separated ordered list of pairs, where each pair consists of a range and a remote domain access point separated by a colon (:); for example,
`RANGES = "MIN-1000:b01,1001-3000:b02,*:b03".`

A range is either a single value (a signed numeric value or a character string enclosed in single quotes), or a range of the form *`lower`* - *`upper`* (where *`lower`* and *`upper`* are both signed numeric values or character strings in single quotes). Note that the value of *`lower`* must be less than or equal to the value of *`upper`*.

To embed a single quote in a character string value (as in `O'Brien`, for example), you must precede it with two backslashes (`O\\'Brien`).

The value `MIN` can be used to indicate the minimum value for the data type of the associated `FIELD`; for strings and carrays, it is the `NULL` string; for character fields, it is 0; for numeric values, it is the minimum numeric value that can be stored in the field.

The value `MAX` can be used to indicate the maximum value for the data type of the associated `FIELD`; for strings and carrays, it is effectively an unlimited string of octal-255 characters; for a character field, it is a single octal-255 character; for numeric values, it is the maximum numeric value that can be stored in the field. Thus, "`MIN - -5`" is all numbers less than or equal to -5 and "`6 - MAX`" is all numbers greater than or equal to 6. The meta-character `*` (wildcard) in the position of a range indicates any values not covered by the other ranges previously seen in the entry; only one wildcard range is allowed per entry and it should be last (ranges following it will be ignored).

A numeric routing field must have numeric range values and a string routing field must have string range values. String range values for string, carray, and character field types must be placed inside a pair of single quotes and cannot be preceded by a sign. Short and long integer values are a string of digits, optionally preceded by a plus or minus sign. Floating point numbers are of the form accepted by the C compiler or `atof(3)`: an optional sign, then a string of digits optionally containing a decimal point, then an optional `e` or `E` followed by an optional sign or space, followed by an integer.

When a field value matches a range, the associated remote domain access point indicates the remote domain to which the request should be routed. A remote domain access point value of "`*`" indicates that the request can go to any remote domain known by the gateway group.

`BUFTYPE = "`*`type1`*`[`**:**`subtype1`**`[`**`,` *`subtype2`* **. . .]][;**_`type2`_**[:**_`subtype3`_**[, . . .]]] . . .**`"`

A list of types and subtypes of data buffers for which this routing entry is valid. The types are restricted to `FML`, `FML32`, `VIEW`, `VIEW32`, `X_C_TYPE`, `X_COMMON`, or `XML`. No subtype can be specified for type `FML`, `FML32`, or `XML`; subtypes are required for types `VIEW`, `VIEW32`, `X_C_TYPE`, and `X_COMMON` ("`*`" is not allowed). Duplicate type/subtype pairs cannot be specified for the same routing criteria name; more than one routing entry can have the same criteria name as long as the type/subtype pairs are unique. This parameter is required. If multiple buffer types are specified for a single routing entry, the data types of the routing field for each buffer type must be the same.

If the field value is not set (for FML or FML32 buffers), or does not match any specific range and a wildcard range has not been specified, an error is returned to the application process that requested the execution of the remote service.

DM_ACCESS_CONTROL Section

This section specifies one or more access control list (ACL) names and associates one or more remote domain access points with each specified ACL name. You can use the `ACL` parameter in the `DM_EXPORT` section by setting `ACL=`*`ACL_NAME`* to restrict access to a local service exported through a particular local domain access point to just those remote domain access points associated with the *`ACL_NAME`*.

Entries within the `DM_ACCESS_CONTROL` section have the following form:

`ACL_NAME required_parameters`

where *`ACL_NAME`* is an identifier value used to specify an access control list; it may contain no more than 15 characters.

The only required parameter for the `DM_ACCESS_CONTROL` section is:

`ACLIST` = *`identifier`*[`,`*`identifier`*]

where an `ACLIST` is composed of one or more remote domain access point names separated by commas. The wildcard character (`*`) can be used to specify that all remote domain access points defined in the `DM_REMOTE` section can access a particular local service exported through a particular local domain access point.

DM_TDOMAIN Section

This section defines the network-specific information for TDomain gateways. The `DM_TDOMAIN` section should have an entry per local domain access point if requests from remote domains to local services are accepted through that local domain access point, and at least one entry per remote domain access point if requests from the local domain to remote services are accepted through that access point.

The `DM_TDOMAIN` section is used to configure the following network properties for an access point entry:

- For a local domain access point entry, specify the network address to be used for listening for incoming connections.
- For a remote domain access point entry, specify the destination network address to be used when connecting to the remote domain associated with that access point.
- For a local or remote domain access point entry, specify the conditions under which the TDomain gateway tries to establish connections. This optional configuration is available only to BEA Tuxedo 8.1 or later applications.

- For a local or remote domain access point entry, specify whether the TDomain gateway sends keepalive messages on the connection to the remote domain. This optional configuration is available only to BEA Tuxedo 8.1 or later applications.

Entries within the `DM_TDOMAIN` section have the following form:

`AccessPoint required_parameters` `[`*`optional_parameters`*`]`

where *`AccessPoint`* is an identifier value used to identify either a local domain access point or a remote domain access point. The *`AccessPoint`* identifier must match a previously defined local domain access point in the `DM_LOCAL` section or a previously defined remote domain access point in the `DM_REMOTE` section.

Required parameters for the DM_TDOMAIN section

`NWADDR` = *`string`***[1..256] (up to 78 bytes for BEA Tuxedo 8.0 or earlier)**

Specifies the network address associated with this local or remote domain access point. For a local domain access point, this parameter supplies the address to be used for listening for incoming connections from other BEA Tuxedo applications. For a remote domain access point, this parameter supplies the destination address to be used when connecting to the BEA Tuxedo application associated with the remote domain access point. The value of this parameter must be unique across all `DM_TDOMAIN` entries.

If *`string`* has the form "`0x`*`hex-digits`*" or "`\\x`*`hex-digits`*", it must contain an even number of valid hexadecimal digits. These forms are translated internally into a character array containing TCP/IP addresses. The value of *`string`* may also be represented in either of the following forms:

```
"//hostname:port_number"
"//#.#.#.#:port_number"
```

In the first of these formats, *`hostname`* is resolved to a TCP/IP host address at the time the address is bound using the locally configured name resolution facilities accessed via `gethostbyname`(3c). The string `#.#.#.#` is the dotted decimal format where each `#` represents a decimal number in the range 0 to 255.

`Port_number` is a decimal number in the range 0 to 65535.

Note: Some port numbers may be reserved for the underlying transport protocols (such as TCP/IP) used by your system. Check the documentation for your transport protocols to find out which numbers, if any, are reserved on your system.

Optional parameters for the DM_TDOMAIN section

`NWDEVICE` = *`string`***[1..78]**

Specifies the network device to be used when binding to the network address of this local or remote domain access point. For a local domain access point, this attribute specifies the device to be used for listening. For a remote domain access point, this attribute specifies the device to be used when connecting to the remote domain access point.

The `NWDEVICE` parameter is not required. In earlier releases, if the networking functionality is TLI-based, the network device name must be an absolute pathname.

`CMPLIMIT` = *`numeric`*

Specifies the compression threshold to be used when sending data to this remote domain access point. This parameter is relevant only to remote domain access points. Its minimum value is 0, and its maximum value is 2147483647. The default is 2147483647. Application buffers larger than the `CMPLIMIT` value are compressed.

`MINENCRYPTBITS` = **{**`0` **|** `40` **|** `56` **|** `128`**}**

Specifies the minimum level of encryption required when establishing a network link to the remote domain associated with this remote domain access point. This parameter is relevant only to remote domain access points.

A value of `0` means no encryption, while a value of `40`, `56`, or `128` specifies the encryption key length (in bits). (The value of `40` bits is provided for backward compatibility.) The default is `0`. If the minimum level of encryption cannot be met, link establishment fails.

`MAXENCRYPTBITS` = **{**`0` **|** `40` **|** `56` **|** `128`**}**

Specifies the maximum level of encryption allowed when establishing a network link to the remote domain associated with this remote domain access point. This parameter is relevant only to remote domain access points.

A value of `0` means no encryption, while a value of `40`, `56`, or `128` specifies the encryption key length (in bits). (The value of `40` bits is provided for backward compatibility.) The default is `128`.

`CONNECTION_POLICY` = **{**`LOCAL` **|** `ON_DEMAND` **|** `ON_STARTUP` **|** `INCOMING_ONLY`**}**

Specifies the conditions under which the TDomain gateway associated with this local or remote domain access point tries to establish connections. Supported values are `LOCAL`, `ON_DEMAND`, `ON_STARTUP`, or `INCOMING_ONLY`. `LOCAL` is relevant only to remote domain access points.

The `CONNECTION_POLICY` parameter is available in the `DM_TDOMAIN` section when running BEA Tuxedo 8.1 or later software. Its value in the `DM_TDOMAIN` section for a particular local or remote domain access point takes precedence over its global value in the DM_LOCAL section. The ability to override the global connection policy enables you to configure connection policy on a per TDomain session basis.

Specifying no connection policy for a *local domain access point* defaults to the global connection policy specified in the DM_LOCAL section. If you choose to specify a global connection policy in the DM_TDOMAIN section, do not specify a global connection policy in the DM_LOCAL section.

A connection policy of LOCAL means that a remote domain access point accepts the global connection policy defined in the DM_LOCAL section. LOCAL is the default connection policy for remote domain access points. Excluding LOCAL, the connection policy value for a remote domain access point takes precedence over the connection policy value for a local domain access point.

A connection policy of ON_DEMAND means that the TDomain gateway attempts a connection only when requested by either a client request to a remote service or a dmadmin(1) connect command. Connection retry processing is not allowed when the connection policy is ON_DEMAND.

A connection policy of ON_STARTUP means that the TDomain gateway attempts to establish a connection at gateway server initialization time. For ON_STARTUP, the remote services for a particular remote domain (that is, services advertised by the TDomain gateway) are advertised only if a connection is successfully established to the remote domain. Thus, if there is no active connection to the remote domain, the remote services are suspended. By default, this connection policy retries failed connections every 60 seconds, but you can specify a different value for this interval using the RETRY_INTERVAL parameter in the DM_TDOMAIN section. Also, see the MAXRETRY parameter in this section.

A connection policy of INCOMING_ONLY means that the TDomain gateway does not attempt an initial connection upon startup and that remote services are initially suspended. The TDomain gateway is available for incoming connections from a remote domain, and remote services are advertised when the gateway receives an incoming connection or an administrative connection (using the dmadmin(1) connect command) is made. Connection retry processing is not allowed when the connection policy is INCOMING_ONLY.

FAILOVERSEQ = **-1 <=** *num* **<= 32767**

Specifies the failover sequence and establishes the primary record for a TDomain session between remote and local access points in Tuxedo release 9.0 and later. The TDomain session record with the lowest FAILOVERSEQ number is the primary record for that session. If not specified, FAILOVERSEQ defaults to -1.

There is only one primary record for a TDomain session, all remaining records for the same TDomain session are called secondary/backup records. With the exceptions of NWADDR, NWDEVICE, and FAILOVERSEQ, the primary record is the source for all TDomain session configuration parameters and attributes. All other parameters and attributes listed in secondary/backup records are ignored.

Based on the CONNECTION_POLICY attribute you select, the local domain will try to connect to a TDomain session's primary record. If the primary record fails to connect, it will then try to connect to the next sequential secondary/backup record. If all secondary record connections fail, it will retry the primary record information at a later time as determined by RETRY_INTERVAL until MAXRETRY is exhausted.

LACCESSPOINT **(also known as** LDOM**)** = **"***string*"**[1..30]**

Specifies the name of a local domain access point listed in the DM_LOCAL section of the DMCONFIG file in Tuxedo release 9.0 and later. The LACCESSPOINT parameter is used exclusively to define TDomain session gateways and can contain only one local domain access point as its value.

If not specified, LACCESSPOINT defaults to"*" and the TDomain session will connect to all local domain access points listed in the DM_LOCAL section. You can substitute LDOM for the LACCESSPOINT parameter.

Note: LACCESSPOINT can also use regular expression values to define multiple local domain access points. When the DMCONFIG file is compiled using dmloadcf, the regular expression values are expanded to their full local domain names in the BDMCONFIG file. LACCESSPOINT can only use regular expressions in the DMCONFIG file.

[MAXRETRY = **{***numeric* | MAXLONG**}**

Specifies the number of times that the TDomain gateway associated with this local or remote domain access point tries to establish a connection. This parameter is available in the DM_TDOMAIN section when running BEA Tuxedo 8.1 or later software, and is valid when the CONNECTION_POLICY parameter for this access point is set to ON_STARTUP. For other connection policies, automatic retries are disabled.

The minimum value for MAXRETRY is 0, and the maximum value is MAXLONG (2147483647). MAXLONG, the default, indicates that retry processing will be repeated indefinitely, or until a connection is established.

RETRY_INTERVAL = *numeric*

Specifies the number of seconds that the TDomain gateway associated with this local or remote domain access point waits between automatic attempts to establish a connection. This parameter is available in the DM_TDOMAIN section when running BEA Tuxedo 8.1 or later software, and is valid when the CONNECTION_POLICY parameter for this access point is set to ON_STARTUP. For other connection policies, automatic retries are disabled.

The minimum value for RETRY_INTERVAL is 0, and the maximum value is 2147483647. The default is 60. If MAXRETRY is set to 0, setting RETRY_INTERVAL is not allowed.

TCPKEEPALIVE = **{**LOCAL | NO | YES**}**

Enables TCP-level keepalive for this local or remote domain access point. Supported values are LOCAL, N (no), or Y (yes). LOCAL is relevant only to remote domain access points.

The TCPKEEPALIVE parameter applies only to domain gateways of type TDOMAIN running BEA Tuxedo 8.1 or later software. Its value for a remote domain access point takes precedence over its value for a local domain access point. The ability to override the local domain access point value enables you to configure TCP-level keepalive on a per remote domain basis.

A value of LOCAL means that a remote domain access point accepts the TCP-level keepalive value defined for the local domain access point. LOCAL is the default TCP-level keepalive value for remote domain access points.

A value of NO means that TCP-level keepalive is disabled for this access point. N is the default TCP-level keepalive value for local domain access points.

A value of YES means that TCP-level keepalive is enabled for this access point. When TCP-level keepalive is enabled for a connection, the keepalive interval used for the connection is the system-wide value configured for the operating system's TCP keepalive timer. This interval is the maximum time that the TDomain gateway will wait without receiving any traffic on the connection. If the maximum time is exceeded, the gateway sends a TCP-level keepalive request message. If the connection is still open and the remote TDomain gateway is still alive, the remote gateway responds by sending an acknowledgement. If the local TDomain gateway does not receive an acknowledgement within a fixed period of time of sending the request message, it assumes that the connection is broken and releases any resources associated with the connection.

Not only does TCP-level keepalive keep BEA Tuxedo interdomain connections open during periods of inactivity, but it also enable TDomain gateways to quickly detect connection failures.

Note: The TCPKEEPALIVE and DMKEEPALIVE parameters are *not* mutually exclusive, meaning that you can configure an interdomain connection using both parameters.

`DMKEEPALIVE` = *`numeric`*

Controls application-level keepalive for this local or remote domain access point. This value must be greater than or equal to -1 and less than or equal to 2147483647. The value -1 is relevant only to remote domain access points.

The `DMKEEPALIVE` parameter applies only to domain gateways of type `TDOMAIN` running BEA Tuxedo 8.1 or later software. Its value for a remote domain access point takes precedence over its value for a local domain access point. The ability to override the local domain access point value enables you to configure application-level keepalive on a per remote domain basis.

A value of -1 means that a remote domain access point accepts the application-level keepalive value defined for the local domain access point. -1 is the default application-level keepalive value for remote domain access points.

A value of 0 means that application-level keepalive is disabled for this access point. 0 is the default application-level keepalive value for local domain access points.

A value greater than or equal to 1 and less than or equal to 2147483647, in milliseconds, currently rounded up to the nearest second by the Domains software, means that application-level keepalive is enabled for this access point. The time that you specify is the maximum time that the TDomain gateway will wait without receiving any traffic on the connection. If the maximum time is exceeded, the gateway sends an application-level keepalive request message. If the connection is still open and the remote TDomain gateway is still alive, the remote gateway responds by sending an acknowledgement. If the local TDomain gateway does not receive an acknowledgement within a configurable period of time (see the `DMKEEPALIVEWAIT` parameter) of sending the request message, it assumes that the connection is broken and releases any resources associated with the connection.

Not only does application-level keepalive keep BEA Tuxedo interdomain connections open during periods of inactivity, but it also enable TDomain gateways to quickly detect connection failures.

Note: The `DMKEEPALIVE` and `TCPKEEPALIVE` parameters are *not* mutually exclusive, meaning that you can configure an interdomain connection using both parameters.

`DMKEEPALIVEWAIT` = *`numeric`*

Specifies the maximum time for this local or remote domain access point that the TDomain gateway will wait without receiving an acknowledgement to a sent keepalive message. This value must be greater than or equal to 0 and less than or equal to 2147483647, in milliseconds, currently rounded up to the nearest second by the Domains software. The default is 0. This parameter applies only to domain gateways of type TDOMAIN running BEA Tuxedo 8.1 or later software.

If DMKEEPALIVE is 0 (keepalive disabled) for this access point, setting DMKEEPALIVEWAIT has no effect.

If DMKEEPALIVE is enabled for this access point and DMKEEPALIVEWAIT is set to a value greater than DMKEEPALIVE, the local TDomain gateway will send more than one application-level keepalive message before the DMKEEPALIVEWAIT timer expires. This combination of settings is allowed.

If DMKEEPALIVE is enabled for this access point and DMKEEPALIVEWAIT is set to 0, receiving an acknowledgement to a sent keepalive message is unimportant: any such acknowledgement is ignored by the TDomain gateway. The gateway continues to send keepalive messages every time the DMKEEPALIVE timer times out. *Use this combination of settings to keep an idle connection open through a firewall.*

Multiple entries for the same access point in the DM_TDOMAIN section

If this DM_TDOMAIN entry is a local domain access point (as specified in the DM_LOCAL section), its NWADDR is a network address to be used to listen for incoming connections. Entries associated with a local domain access point can be specified more than once in the DM_TDOMAIN section, to allow for migration of the services associated with a local access point to another machine in the BEA Tuxedo domain.

Entries associated with a remote domain access point (as specified in the DM_REMOTE section) can also be specified more than once in the DM_TDOMAIN section. If FAILOVERSEQ is not specified, the first entry is considered to be the primary address, which means its NWADDR is the first network address tried when a connection is being attempted to the remote domain access point. The second entry is considered to be the secondary address, which means its NWADDR is the second network address tried when a connection cannot be established using the primary address.

Note: If the FAILOVERSEQ parameter is used, it determines the primary and secondary addresses for TDomain session connection policies.

If this DM_TDOMAIN entry is another occurrence of a remote domain access point, the entry points to a secondary remote gateway that must reside in a different BEA Tuxedo domain than the BEA Tuxedo domain in which the primary remote gateway resides. The secondary and primary remote gateways must have the same ACCESSPOINTID defined in the DM_LOCAL section of their associated DMCONFIG files; this arrangement is often referred to as a *mirrored* gateway. This feature is not recommended for use with transactions or conversations. In addition, the mirrored gateway is not recommended for use when the primary remote gateway is available.

Note: For multiple entries of a local or remote domain access point in the `DM_TDOMAIN` section, only the multiple instances of the `NWADDR` parameter are read by the Domains software. For multiple instances of any other parameter, only the first instance of the parameter is read by the Domains software; all other instances are ignored.

DMCONFIG(5) Additional Information

Files

The `BDMCONFIG` environment variable is used to find the `BDMCONFIG` configuration file.

Example 1

The following Domains configuration file defines a five-site Domains configuration. The example shows four Bank Branch domains communicating with a Central Bank Branch. Three of the Bank Branches run within other BEA Tuxedo domains. The fourth Branch runs under the control of another TP domain. OSI TP is used for communication between that domain and the Central Bank. The example shows the Domains configuration file from the Central Bank point of view.

```
# BEA Tuxedo Domains Configuration File for the Central Bank
#
#
*DM_LOCAL
#
DEFAULT: SECURITY = NONE

c01  GWGRP = bankg1
     TYPE = TDOMAIN
     ACCESSPOINTID = "BA.CENTRAL01"
     DMTLOGDEV = "/usr/apps/bank/DMTLOG"
     DMTLOGNAME = "DMTLG_C01"

c02  GWGRP = bankg2
     TYPE = OSITP
     ACCESSPOINTID = "BA.CENTRAL02"
     DMTLOGDEV = "/usr/apps/bank/DMTLOG"
     DMTLOGNAME = "DMTLG_C02"

#
*DM_REMOTE
#
b01  TYPE = TDOMAIN
     ACCESSPOINTID = "BA.BANK01"

b02  TYPE = TDOMAIN
```

```
     ACCESSPOINTID = "BA.BANK02"

b03  TYPE = TDOMAIN
     ACCESSPOINTID = "BA.BANK03"

b04  TYPE = OSITP
     ACCESSPOINTID = "BA.BANK04"

*DM_TDOMAIN
#
# local network addresses
c01  NWADDR = "//newyork.acme.com:65432"  NWDEVICE ="/dev/tcp"

# remote network addresses
b01  NWADDR = "//192.11.109.5:1025"  NWDEVICE = "/dev/tcp"
b02  NWADDR = "//dallas.acme.com:65432"  NWDEVICE = "/dev/tcp"
b03  NWADDR = "//192.11.109.156:4244"  NWDEVICE = "/dev/tcp"

*DM_OSITP
#
c02  APT = "BA.CENTRAL01"
     AEQ = "TUXEDO.R.4.2.1"
     AET = "{1.3.15.0.3},{1}"
     ACN = "XATMI"
b04  APT = "BA.BANK04"
     AEQ = "TUXEDO.R.4.2.1"
     AET = "{1.3.15.0.4},{1}"
     ACN = "XATMI"

*DM_EXPORT
#
open_act ACL = branch
close_act ACL = branch
credit
debit
balance
loan   LACCESSPOINT = c02  ACL = loans

*DM_IMPORT
#
tlr_add LACCESSPOINT = c01  ROUTING = ACCOUNT
tlr_bal LACCESSPOINT = c01  ROUTING = ACCOUNT
tlr_add RACCESSPOINT = b04  LACCESSPOINT = c02  RNAME ="TPSU002"
tlr_bal RACCESSPOINT = b04  LACCESSPOINT = c02  RNAME ="TPSU003"
tlr_bal RACCESSPOINT = b02,b03”  LACCESSPOINT = c02

*DM_ROUTING
#
ACCOUNT FIELD = branchid BUFTYPE = “VIEW:account”
```

```
   RANGES = “MIN-1000:b01,1001-3000:b02,*:b03”

*DM_ACCESS_CONTROL
#
branch ACLIST = “b01,b02,b03”
loans  ACLIST = b04
```

Example 2

This example shows the BEA Tuxedo Domains configuration file for one of the Bank Branches (BANK01).

```
#
#BEA Tuxedo Domains Configuration file for a Bank Branch
#
#
*DM_LOCAL
#
b01  GWGRP = auth
     TYPE = TDOMAIN
     ACCESSPOINTID = "BA.BANK01"
     DMTLOGDEV = "/usr/apps/bank/DMTLOG"

*DM_REMOTE
#
c01  TYPE = TDOMAIN
     ACCESSPOINTID = "BA.CENTRAL01"

*DM_TDOMAIN
#
b01  NWADDR = "//192.11.109.156:4244"  NWDEVICE = "/dev/tcp"
c01  NWADDR = "//newyork.acme.com:65432"  NWDEVICE ="/dev/tcp"
*DM_EXPORT
#
tlr_add   ACL = central
tlr_bal   ACL = central

*DM_IMPORT
#

OPA001   RNAME = "open_act"
CLA001   RNAME = "close_act"
CRD001   RNAME = "credit"
DBT001   RNAME = "debit"
BAL001   RNAME = "balance"

*DM_ACCESS_CONTROL
#
central   ACLIST = c01
```

Network Addresses

Suppose the local machine on which a TDomain is being run is using TCP/IP addressing and is named `backus.company.com`, with address `155.2.193.18`. Further suppose that the port number at which the TDomain should accept requests is `2334`. Assume that port number `2334` has been added to the network services database under the name `bankapp-gwtaddr`. The address can be represented in the following ways:

```
//155.2.193.18:bankapp-gwtaddr
```

```
//155.2.193.18:2334
```

```
//backus.company.com:bankapp-gwtaddr
```

```
//backus.company.com:2334
```

```
0x0002091E9B02C112
```

The last of these representations is hexadecimal format. The `0002` is the first part of a TCP/IP address. The `091E` is the port number `2334` translated into a hexadecimal number. After that each element of the IP address `155.2.193.12` is translated into a hexadecimal number. Thus the `155` becomes `9B`, `2` becomes `02` and so on.

See Also

`dmadmin(1)`, `dmloadcf(1)`, `dmunloadcf(1)`, `tmboot(1)`, `tmshutdown(1)`, `DMADM(5)`, `GWADM(5)`, `GWTDOMAIN(5)`

Setting Up a BEA Tuxedo Application

Administering a BEA Tuxedo Application at Run Time

Using the BEA Tuxedo Domains Component

Programming a BEA Tuxedo ATMI Application Using C

DM_MIB(5)

Name

DM_MIB—Management Information Base for Domains

Synopsis

```
#include <fml32.h>
#include <tpadm.h> /* MIB Header, includes DOMAINS */
```

Domains Terminology Improvements

For BEA Tuxedo release 7.1 or later, the Domains MIB uses improved class and attribute terminology to describe the interaction between local and remote domains. This improved terminology has also been applied to DMCONFIG file syntax.

These terminology improvements eliminate multiple uses of the term "domain" and introduce terms that more clearly describe the actions that occur. For example, the term *access point* defines an object through which you gain access to another object. Therefore, you access a remote domain through a remote domain access point, and remote domains gain access to a local domain through a local domain access point. The following table reflects the DMCONFIG section name changes that result from eliminating multiple uses of the term "domain."

This DMCONFIG section name. . .	Has changed to. . .
DM_LOCAL_DOMAINS	DM_LOCAL
DM_REMOTE_DOMAINS	DM_REMOTE

Within these sections, the following parameter names have changed.

This parameter name. . .	Has changed to. . .
DOMAINID	ACCESSPOINTID
MAXRDOM	MAXACCESSPOINT
MAXRDTRAN	MAXRAPTRAN

The equivalent DM_MIB classes for these DMCONFIG sections are T_DM_LOCAL and T_DM_REMOTE, respectively.

In certain configurations, both available services and resources, such as queue spaces and queue names, need to be imported and exported. As such, the DMCONFIG section names DM_LOCAL_SERVICES and DM_REMOTE_SERVICES no longer accurately describe the necessary activity. Replacing these section names with DM_EXPORT and DM_IMPORT, respectively, clearly describes the actions that occur; that is, from the perspective of a single BEA Tuxedo domain, resources are exported from the domain through local access points and imported into the domain through remote domain access points. These DMCONFIG section name changes are shown in the following table.

This DMCONFIG section name. . .	Has changed to. . .
DM_LOCAL_SERVICES	DM_EXPORT
DM_REMOTE_SERVICES	DM_IMPORT

Within these sections, the following parameter names have changed.

This parameter name. . .	Has changed to. . .
LDOM	LACCESSPOINT
RDOM	RACCESSPOINT

The equivalent DM_MIB classes for these DMCONFIG sections are T_DM_EXPORT and T_DM_IMPORT, respectively.

Backwards Compatibility

The improved Domains terminology introduced in BEA Tuxedo release 7.1 has been applied to the DM_MIB reference page, classes, and error messages, and to the DMCONFIG reference page, section names, parameter names, and error messages.

For backwards compatibility, aliases are provided between the DMCONFIG terminology used prior to BEA Tuxedo 7.1 and the improved Domains MIB terminology. For BEA Tuxedo release 7.1 or later, dmloadcf accepts both versions of the DMCONFIG terminology. dmunloadcf, however, generates a DMCONFIG file that uses the improved domains terminology by default. Use the -c option of dmunloadcf to generate a DMCONFIG file that uses the previous domains terminology.

Description

The Domains MIB defines the set of classes through which a domain may import or export services using domain gateways and domain gateway administrative servers. This reference page assumes the reader is familiar with the BEA Tuxedo System Domains component, which is described in *Using the BEA Tuxedo Domains Component*.

Use `DM_MIB(5)` in combination with the generic MIB reference page `MIB(5)` to format administrative requests and interpret administrative replies.

Requests formatted as described in `MIB(5)` using classes and attributes described in `DM_MIB` may be used to request an administrative service using existing ATMI interfaces in an active application. For additional information pertaining to all `DM_MIB(5)` class definitions, see "DM_MIB(5) Additional Information" on page 169.

`DM_MIB(5)` consists of the following classes:

Table 11 DM_MIB Classes

Class Name	Attributes
`T_DM_ACL`	Domain access control list
`T_DM_CONNECTION`	Connection status between two domains
`T_DM_EXPORT`	Exported resource
`T_DM_IMPORT`	Imported resource
`T_DM_LOCAL`	Local access point
`T_DM_OSITP`	OSI TP 1.3 specific configuration for an access point
`T_DM_OSITPX`	OSI TP 4.0 or later specific configuration for an access point
`T_DM_PASSWORD`	Domain password entry
`T_DM_PRINCIPAL_MAP`	Principal mapping entry
`T_DM_REMOTE`	Remote access point
`T_DM_RESOURCES`	Global Domains configuration information
`T_DM_ROUTING`	Access point routing criteria
`T_DM_RPRINCIPAL`	Remote principal entry

Table 11 DM_MIB Classes

Class Name	Attributes
`T_DM_SNACRM`	SNA-CRM-specific configuration for a local access point
`T_DM_SNALINK`	SNAX-specific configuration for a remote domain access point
`T_DM_SNASTACK`	SNA stack to be used by a specific SNA CRM
`T_DM_TDOMAIN`	TDomain-specific configuration for an access point
`T_DM_TRANSACTION`	Transaction entry associated with a local access point

Each class description consists of four sections:

- Overview—high level description of the attributes associated with the class.
- Attribute Table—a table that lists the name, type, permissions, values, and default for each attribute in the class. The format of the attribute table is described below.
- Attribute Semantics—defines the interpretation of each attribute that is part of the class.
- Limitations—limitations in the access to and interpretation of this class.

Attribute Table Format

The attribute table is a reference guide to the attributes within a class and how they may used by administrators, operators, and general users to interface with an application.

There are five components to each attribute description in an attribute table: name, type, permissions, values, and default. Each of these components is discussed in `MIB(5)`.

TA_FLAGS Values

`MIB(5)` defines the generic `TA_FLAGS` attribute which is a long-valued field containing both generic and component MIB-specific flag values. At this time, there are no `DM_MIB`-specific flag values defined.

FML32 Field Tables

The field tables for the attributes described in this reference page are found in the file `udataobj/tpadm` relative to the root directory of the BEA Tuxedo System software installed on the system. The directory `${TUXDIR}/udataobj` should be included by the application in the colon-separated list specified by the `FLDTBLDIR` environment variable. The field table name tpadm should be included in the comma-separated list specified by the FIELDTBLS environment variable.

Interoperability

Access to the header files and field tables for this MIB is provided only on BEA Tuxedo release 7.1 sites and later, both native and Workstation. If a release 5.0 or earlier site is active in the application, global information updates ("SET" operations) are not allowed to gateway groups on those sites.

Local information access for release 5.0 and earlier sites is not available. If the class accessed also has global information, only the global information is returned. Otherwise, an error is returned.

Portability

The existing FML32 and ATMI functions necessary to support administrative interaction with BEA Tuxedo System MIBs, as well as the header file and field tables defined in this reference page, are available on all supported native and Workstation platforms.

T_DM_ACL Class Definition

Overview

The T_DM_ACL class represents access control information for domains.

Attribute Table

Table 12 DM_MIB(5): T_DM_ACL Class Definition Attribute Table

Attribute	Type	Permissions	Values	Default
TA_DMACLNAME (r) (k) (*)	string	rw-r--r--	*string* [1..15]	N/A
TA_DMRACCESSPOINTLIST (*)	string	rw-r--r--	*string* [0..1550]	" "
TA_STATE(r)	string	rw-r--r--	GET: "VAL"	N/A
			SET: "{NEW | INV}"	N/A

(r)—required when a new object is created
(k)—a key field for object retrieval
(*)—a required key field for all SET operations on the class

Attribute Semantics

TA_DMACLNAME**:** *string* **[1..15]**

The access control list name, unique within the scope of the T_DM_ACL entry names in the Domains configuration.

TA_DMRACCESSPOINTLIST**:** *string* **[0..1550]**

The list of remote domain access points associated with this access control list. TA_DMRACCESSPOINTLIST is a comma-separated list of remote domain access point names (that is, the value of the TA_DMRACCESSPOINT attribute of a valid T_DM_REMOTE object). The list can contain up to 50 remote domain access point identifier elements. Setting this attribute to "*" means that all the remote domains in the configuration are associated with this entry. "" means no remote domain access points are associated with this entry. The default is "".

TA_STATE**:**

GET: "{VALid}"

A GET operation retrieves configuration information for the T_DM_ACL object. The following state indicates the meaning of a TA_STATE attribute value returned in response to a GET request. States not listed are not returned.

"VALid"	The object is defined and inactive. This is the only valid state for this class. ACL groups are never active.

SET: "{NEW | INValid}"

A SET operation updates configuration information for the selected T_DM_ACL object. The following states indicate the meaning of a TA_STATE set in a SET request. States not listed may not be set.

"NEW"	A new object is created. A state change is allowed only when in the "INValid" state. A successful return leaves the object in the "VALid" state.
unset	Modify an existing object. This combination is not allowed in the "INValid" state. A successful return leaves the object state unchanged.
"INValid"	The object is deleted. A state change is allowed only when in the "VALid" state. A successful return leaves the object in the "INValid" state.

Limitations

None.

T_DM_CONNECTION Class Definition

Overview

The T_DM_CONNECTION class represents the status of connections between domain access points.

Attribute Table

Table 13 DM_MIB(5): T_DM_CONNECTION Class Definition Attribute Table

Attribute	Type	Permissions	Values	Default
TA_DMLACCESSPOINT(k)(*)	string	rw-r--r--	*string*[1..30]	N/A
TA_DMRACCESSPOINT(k)	string	rw-r--r--	*string*[1..30]	N/A
TA_DMTYPE	string	r--r--r--	"{TDOMAIN }"	N/A
TA_STATE(k)(*)	string	rwxr-xr--	GET: "{ACT | SUS | INI | INA | UNK}" SET: "{ACT | INA}"	N/A N/A
Attributes available when TA_DMTYPE=TDOMAIN:				
TA_DMCURENCRYPTBITS	string	r--------	"{0 | 40 | 56 | 128}"Note1	"0"
(k)—a key field for object retrieval (*)—a required key field for all SET operations on the class				

Note 1The link-level encryption value of 40 bits is provided for backward compatibility.

Attribute Semantics

TA_DMLACCESSPOINT: *string*[1..30]

The name of the local domain access point identifying the connection between the domains.

On GET and SET operations, a specific local domain access point must be specified for this attribute.

TA_DMRACCESSPOINT: *string*[1..30]

The name of the remote domain access point identifying the connection between the domains.

On GET and SET operations, if TA_DMRACCESSPOINT is absent, all the T_DM_CONNECTION entries for the local access point specified by TA_DMLACCESSPOINT are selected.

TA_DMTYPE: "{TDOMAIN }"

The type of domain, which can be "TDOMAIN".

TA_STATE:

GET: "{ACTive | SUSpended | INItializing | INActive | UNKnown}"

A GET operation retrieves run-time information for the connection. The following states indicate the meaning of a TA_STATE attribute value returned in response to a GET request. States not listed are not returned.

"ACTive"	The connection is active.
"SUSpended"	The connection is awaiting retry.
"INItializing"	The connection is initializing.
"INActive"	The specified domain access points are disconnected. (This state is only returned by gateways running BEA Tuxedo release 7.1 or later.)
"UNKnown"	The connection state of the specified domain access points cannot be determined.

SET: "{ACTive | INActive}"

A SET operation updates run-time information for the connection. The following states indicate the meaning of a TA_STATE in a SET request. States not listed may not be set.

"ACTive"	Connect the specified domain access points. If the current state is "SUSpended" or "INActive", SET:"ACTive" places the connection into the state "INItializing", otherwise there is no change.
"INActive"	Disconnect the specified domain access points and destroy the object.

Attributes available when TA_DMTYPE=TDOMAIN

TA_DMCURENCRYPTBITS: "**{**0 | 40 | 56 | 128**}**"

The level of encryption in use on this connection. "0" means no encryption, while "40", "56", and "128" specify the encryption length (in bits). This attribute is valid only for gateways running BEA Tuxedo release 7.1 or higher. For all other gateways, this value is set to "0".

Note: The link-level encryption value of 40 bits is provided for backward compatibility.

Limitations

The Domain gateway administration (GWADM) server and the domain gateway supporting the local domain access point specified in the TA_DMLACCESSPOINT attribute must be active in order to perform GET or SET operations on connections to that access point.

T_DM_EXPORT Class Definition

Overview

The T_DM_EXPORT class represents local resources that are exported to one or more remote domains through a local access point.

Attribute Table

Table 14 DM_MIB(5): T_DM_EXPORT Class Definition Attribute Table

Attribute	Type	Permissions	Values	Default
TA_DMRESOURCENAME(r)(k)(*)	string	rw-r--r--	*string*[1..15]	N/A
TA_DMLACCESSPOINT(k)(*)	string	rw-r--r--	*string*[1..30]	* (meaning all)

Table 14 DM_MIB(5): T_DM_EXPORT Class Definition Attribute Table (Continued)

Attribute	Type	Permissions	Values	Default
TA_STATE(r)	string	rw-r--r--	GET: "VAL"	N/A
			SET: "{NEW | INV}"	N/A
TA_DMACLNAME	string	rw-r--r--	*string*[1..15]	N/A
TA_DMCONV	string	rw-r--r--	"{Y | N}"	"N"
TA_DMREMOTENAME	string	rw-r--r--	*string*[1..30]	N/A
Attributes available from remote domain access points of TA_DMTYPE=SNAX|OSITP|OSITPX:				
TA_DMINBUFTYPE	string	rw-r--r--	*string*[0..513]	N/A
TA_DMOUTBUFTYPE	string	rw-r--r--	*string*[0..513]	N/A
Attributes available from remote domain access points of TA_DMTYPE=OSITPX:				
TA_DMCOUPLING(r)	string	rw-r--r--	"{TIGHT | LOOSE}"	"LOOSE"
TA_DMINRECTYPE(r)	string	rw-r--r--	*string*[0..78]	""
TA_DMOUTRECTYPE(r)	string	rw-r--r--	*string*[0..78]	""

(r)—required when a new object is created
(k)—a key field for object retrieval
(*)—a required key field for all SET operations on the class

Attribute Semantics

TA_DMRESOURCENAME: *string*[1..15]
: The local resource name for entries of resource type SERVICE (the service name), QSPACE (the queue space name), and QNAME (the queue name). For a SERVICE entry, the value of this attribute corresponds to the value of the TA_SERVICENAME attribute of an active T_SVCGRP object. This resource is exported to remote domains with the same name or with the alias defined in the TA_DMREMOTENAME or TA_DMTE* attributes.

TA_DMLACCESSPOINT: *string*[1..30]
: The local access point name through which this local resource is available. Setting this attribute to "*" means the resource is available at all local access points.

TA_STATE:

GET: "{VALid}"

A GET operation retrieves configuration information for the T_DM_EXPORT object. The following state indicates the meaning of a TA_STATE attribute value returned in response to a GET request. States not listed are not returned.

"VALid"	The object exists.

SET: "{NEW | INValid}"

A SET operation updates configuration information for the selected T_DM_EXPORT object. The following states indicate the meaning of a TA_STATE set in a SET request. States not listed may not be set.

"NEW"	A new object is created.
unset	Modify an existing object. This combination is not allowed in the "INValid" state. A successful return leaves the object state unchanged.
"INValid"	The object is deleted.

TA_DMACLNAME: *string*[1..15]

The name of a T_DM_ACL object to use for security for this local resource. This attribute is not permitted if TA_DMRESOURCETYPE="QNAME".

TA_DMCONV: "{Y | N}"

Specifies whether this local resource is conversational.

TA_DMREMOTENAME: *string*[1..30]

Specifies the name of this local resource exported through the remote domain access points. If this attribute is not specified, the name of the local resource defaults to the name specified in TA_DMRESOURCENAME.

Attributes available from remote domain access points of TA_DMTYPE=SNAX|OSITP|OSITPX

TA_DMINBUFTYPE: *string*[0..513]

type[:*subtype*]—Specifies the input buffer type, optionally followed by the subtype, for this local resource. If this attribute is present, it defines the buffer type [and subtype] accepted. This attribute should be defined for entries of

TA_DMRESOURCETYPE="SERVICE" when using SNAX, or when access is permitted from remote domain access points using OSITP or OSITPX with the UDT application context.

TA_DMOUTBUFTYPE: *string*[0..513]
: *type*[:*subtype*]– Specifies the output buffer type, optionally followed by subtype, for this local resource. If this attribute is present, it defines the buffer type [and subtype] output by the service. This attribute should be defined for entries of TA_DMRESOURCETYPE="SERVICE" when using SNAX, or when access is permitted from remote domain access points using OSITP or OSITPX with the UDT application context.

Attributes available from remote domain access points of TA_DMTYPE=OSITPX

TA_DMCOUPLING: *string*"{TIGHT | LOOSE}"
: Specifies whether the transaction coupling is to be tight or loose when requests for this local service come through the same remote domain access point. The default is "LOOSE". Setting TA_DMCOUPLING="LOOSE" means that database updates made by the first request to this local service cannot be seen by the second request to the local service even though both requests are involved in the same global transaction. Setting TA_DMCOUPLING="TIGHT" means that multiple calls to the same local service through the same remote domain access point are tightly coupled: database updates made by the first request can be seen by the second request.

TA_DMCOUPLING="TIGHT" applies only when duplicate service requests come through the same remote domain access point. When the service requests are through different remote domain access points, the requests are always loosely coupled.

TA_DMINRECTYPE: *string*[1..78]
: *type*[:*subtype*]—Specifies the type, optionally followed by subtype, and in some case the format of the reply buffer that a particular client requires for this local service. This attribute can be omitted if the local service sends a buffer that is identical in type and structure to the buffer that the remote client expects. If you do not specify TA_DMINRECTYPE, the type of buffer is unchanged.

TA_DMOUTRECTYPE: *string*[1..78]
: *type*[:*subtype*]—Specifies the type, optionally followed by subtype, of the buffer sent by the remote client for this local service. This attribute is used to enforce stronger type checking.

Limitations

On SET operations that add or update an instance of this class, and where a specific local domain access point is specified in the TA_DMLACCESSPOINT attribute, the access point must exist in the

T_DM_LOCAL class. If it does not, a "not defined" error is returned for the TA_DMLACCESSPOINT attribute, and the operation fails.

T_DM_IMPORT Class Definition

Overview

The T_DM_IMPORT class represents remote resources that are imported through one or more remote domain access points and made available to the local domain through one or more local domain access points.

Attribute Table

Table 15 DM_MIB(5): T_DM_IMPORT Class Definition Attribute Table

Attribute	Type	Permissions	Values	Default
TA_DMRESOURCENAME(r)(k)(*)	string	rw-r--r--	*string*[1..15]	
TA_DMRACCESSPOINTLIST(k)(*)	string	rw-r--r--	*string*[1..92]	* (meaning all)
TA_DMLACCESSPOINT(k)(*)	string	rw-r--r--	*string*[1..30]	* (meaning all)
TA_STATE(r)	string	rwxr-xr--	GET: "VAL"	N/A
			SET: "{NEW | INV}"	N/A
TA_DMBLOCKTIME	long	rwyr--r--	0 <= *num* <= 32,767	0
TA_DMCONV	string	rw-r--r--	"{Y | N}"	"N"
TA_DMLOAD	short	rw-r--r--	1 <= *num* <= 32,767	50
TA_DMREMOTENAME	string	rw-r--r--	*string*[1..30]	N/A
TA_DMRESOURCETYPE	string	rw-r--r--	"{SERVICE | QSPACE | QNAME}"	"SERVICE"
TA_DMROUTINGNAME	string	rw-r--r--	*string*[1..15]	N/A
Attributes available from remote domain access points of TA_DMTYPE=SNAX|OSITP|OSITPX:				
TA_DMINBUFTYPE	string	rw-r--r--	*string*[0..256]	N/A

Table 15 DM_MIB(5): T_DM_IMPORT Class Definition Attribute Table (Continued)

Attribute	Type	Permissions	Values	Default
TA_DMOUTBUFTYPE	string	rw-r--r--	*string*[0..256]	N/A
Attributes available from remote domain access points of TA_DMTYPE=OSITPX:				
TA_DMAUTOPREPARE(r)	string	rw-r--r--	"{Y | N}"	"N"
TA_DMINRECTYPE(r)	string	rw-r--r--	*string*[0..78]	""
TA_DMOUTRECTYPE(r)	string	rw-r--r--	*string*[0..78]	""
TA_DMTPSUTTYPE(r)	string	rw-r--r--	"{INTEGER | PRINTABLESTRING}"	""
TA_DMREMTPSUT(r)	string	rw-r--r--	*string*[0..64]	""

(r)—required when a new object is created
(k)—a key field for object retrieval
(*)—a required key field for all SET operations on the class

Attribute Semantics

TA_DMRESOURCENAME: *string*[1..15]

The remote resource name used for entries of resource type SERVICE (the service name), QSPACE (the queue space name), and QNAME (the queue name). This resource is imported from remote domains with the same name or with the alias defined in the TA_DMREMOTENAME or TA_DMTE* attributes.

TA_DMRACCESSPOINTLIST: *string*[1..92]

Identifies the remote domain access point through which this remote resource should be imported. TA_DMRACCESSPOINTLIST is a comma-separated failover domain list; it can contain up to three remote domain access points of up to 30 characters each. If this attribute is set to "*", the resource can be imported from all remote domain access points.

TA_DMLACCESSPOINT: *string*[1..30]

The name of the local domain access point through which this remote resource should be made available. If this attribute is set to "*", the resource is made available through all local domain access points.

TA_STATE:

GET: "{VALid}"

A GET operation retrieves configuration information for the T_DM_IMPORT object. The following states indicate the meaning of a TA_STATE attribute value returned in response to a GET request. States not listed are not returned.

"VALid"	The object exists.

SET: "{NEW | INValid}"

A SET operation updates the configuration information for the selected T_DM_IMPORT object. The following states indicate the meaning of TA_STATE in a SET request. States not listed may not be set.

"NEW"	A new object is created. A state change is allowed in the state "INValid" and results in the state "ACTive".
unset	Modify an existing object. This combination is not allowed in the "INValid" state. A successful return leaves the object state unchanged.
"INValid"	The object is deleted. A state change is allowed in the state "ACTive" and results in the state "INValid".

TA_DMBLOCKTIME: **0** <= *num* <= **32,767**

Blocktime limit, in seconds, indicating the minimum amount of time a blocking API call will delay before timing out for a particular service. This attribute lets the client know that (after a specified time in seconds), no reply has been received by the server while the service request is still processing.

If not specified, the default is 0 which indicates that the system-wide BLOCKTIME value specified in the UBBCONFIG RESOURCES section is used for the service.

TA_DMCONV: "**{**Y | N**}**"

A boolean value ("Y" or "N") specifying whether this remote resource is conversational.

TA_DMLOAD: **1 <=** *num* **<= 32,767**

The service load for this remote resource. Interface loads are used for load balancing purposes, that is, queues with higher enqueued workloads are less likely to be chosen for a new request.

TA_DMREMOTENAME: *string*[1..30]

Specifies the name of this remote resource imported through the remote domain access points. If this attribute is not specified, the name of the remote resource defaults to the name specified in TA_DMRESOURCENAME.

TA_DMROUTINGNAME: *string*[1..15]

The name of a T_DM_ROUTING object to use for routing criteria for this remote resource ("SERVICE" or "QSPACE").

Attributes available from remote domain access points of TA_DMTYPE=SNAX|OSITP|OSITPX

TA_DMINBUFTYPE: *string*[0..256]

type[:*subtype*]—Specifies the input buffer type, optionally followed by subtype, for this remote resource. If this attribute is present, it defines the buffer type [and subtype] accepted. This attribute should be defined for entries of DMRESOURCETYPE="SERVICE" when using SNAX, or when access is permitted to remote domain access points using OSITP or OSITPX with the UDT application context.

TA_DMOUTBUFTYPE: *string*[0..256]

type[:*subtype*]—Specifies the output buffer type, optionally followed by subtype, for this remote resource. If this attribute is present, it defines the buffer type [and subtype] output by the service. This attribute should be defined for entries of DMTYPE="SERVICE" when using SNAX, or when access is permitted to remote domain access points using OSITP or OSITPX with the UDT application context.

Attributes available from remote domain access points of TA_DMTYPE=OSITPX

TA_DMAUTOPREPARE: *string*"{Y | N}"

Allows a single tpcall() involved in a global transaction to this remote service to automatically prepare the call. This optimization reduces the two-phase commit process to a single step. The remote OSITP domain must support this feature. The default is "N".

TA_DMINRECTYPE: *string*[1..78]

type[:*subtype*]—Specifies the type, optionally followed by subtype, and in some case the format of the request buffer that this remote service requires. This attribute can be omitted if the local client sends a buffer that is identical in type and structure to the buffer that this remote service expects. If you do not specify TA_DMINRECTYPE, the type of buffer is unchanged.

TA_DMOUTRECTYPE: *string*[1..78]
: *type*[:*subtype*]—Specifies the type, optionally followed by subtype, of the buffer sent by this remote service. This attribute is used to enforce stronger type checking.

TA_DMTPSUTTYPE: *string*"{INTEGER | PRINTABLESTRING}"
: Specifies the type of encoding to be performed on the TA_DMREMTPSUT value for this remote service. "INTEGER" and "PRINTABLESTRING" are ASN.1 types. The default is "PRINTABLESTRING".

TA_DMREMTPSUT: *string*[1..64]
: Identifies the TP service user title for the remote system providing this remote service. Some users of OSI TP implementations require this attribute. It is not required for OS 2200 OLTP-TM2200, OpenTI, A Series Open/OLTP, or BEA eLink OSI TP. If the TA_DMTPSUTTYPE value is "PRINTABLESTRING", the maximum length is 60 characters, which must comply with the ASN.1 type of PRINTABLESTRING. If the TA_DMTPSUTTYPE value is "INTEGER", the maximum length must fit into a LONG. The value must be defined prior to defining the remote TPSUT.

Limitations

None.

T_DM_LOCAL Class Definition

Overview

The T_DM_LOCAL class defines a local domain access point. A local domain access point is used to control access to local services exported to remote domains and to control access to remote services imported from remote domains.

Attribute Table

Table 16 DM_MIB(5): T_DM_LOCAL Class Definition Attribute Table

Attribute	Type	Permissions	Values	Default
TA_DMACCESSPOINT(r)(k)(*)	string	rw-r--r--	*string*[1..30]	N/A
TA_DMACCESSPOINTID(r)	string	rw-r--r--	*string*[1..30]	N/A

Table 16 DM_MIB(5): T_DM_LOCAL Class Definition Attribute Table (Continued)

Attribute	Type	Permissions	Values	Default
TA_DMSRVGROUP(r)	string	rw-r--r--	*string*[1..30]	N/A
TA_DMTYPE	string	rw-r--r--	"{TDOMAIN | SNAX | OSITP | OSITPX}"	"TDOMAIN"
TA_STATE(r)	string	rw-r--r--	GET: "VAL" SET: "{NEW | INV}"	N/A N/A
TA_DMAUDITLOG	string	rw-r--r--	*string*[1..256] Note 3	N/A
TA_DMBLOCKTIME	short	rw-r--r--	0 <= *num* <= 32,767	TA_BLOCKTIME in T_DOMAIN Note 1
TA_DMTLOGDEV	string	rw-r--r--	*string*[1..256] Note 3	N/A
TA_DMTLOGNAME	string	rw-r--r--	*string*[1..30]	"DMTLOG"
TA_DMTLOGSIZE	long	rw-r--r--	1 <= *num* <= 2048	100
TA_DMMAXRAPTRAN	short	rw-r--r--	0 <= *num* <= 32,767	16
TA_DMMAXTRAN	short	rw-r--r--	0 <= *num* <= 32,767	TA_MAXGTT in T_DOMAIN Note 2
TA_DMSECURITY	string	rw-r--r--	"{NONE | APP_PW | DM_PW | DM_USER_PW | CLEAR | SAFE | PRIVATE}"	"NONE"

Table 16 DM_MIB(5): T_DM_LOCAL Class Definition Attribute Table (Continued)

Attribute	Type	Permissions	Values	Default
Attributes available when TA_DMTYPE=TDOMAIN:				
TA_DMCONNECTION_POLICY	string	rwxr--r--	"{ON_DEMAND | ON_STARTUP | INCOMING_ONLY}"	"ON_DEMAND"
TA_DMMAXRETRY	long	rwxr--r--	0 <= *num* <= MAXLONG	0
TA_DMRETRY_INTERVAL	long	rwxr--r--	0 <= *num* <= MAXLONG	60
Attributes available when TA_DMTYPE=TDOMAIN:				
TA_DMCONNPRINCIPALNAME	string	rwxr--r--	*string*[0..511]	""
TA_DMMACHINETYPE	string	rw-r--r--	*string*[0..15]	""
Attributes available when TA_DMTYPE=SNAX:				
TA_DMBLOB_SHM_SIZE	long	rw-r--r--	1 <= *num* <= MAXLONG	1000000
(r)—required when a new object is created (k)—a key field for object retrieval (*)—a required key field for all SET operations on the class				

Note 1 Current value of TA_BLOCKTIME in the T_DOMAIN class.
Note 2 Current value of TA_MAXGTT in the T_DOMAIN class.
Note 3 Maximum string length for this attribute is 78 bytes for BEA Tuxedo 8.0 or earlier.

Attribute Semantics

TA_DMACCESSPOINT**:** *string***[1..30]**

The name of this T_DM_LOCAL entry—a user-specified local domain access point identifier (logical name) unique within the scope of the T_DM_LOCAL and T_DM_REMOTE access point names in this Domains configuration.

TA_DMACCESSPOINTID**:** *string***[1..30]**

The identifier of the domain gateway group associated with this local domain access point for purposes of security when setting up connections to remote domains. This identifier is unique across all local and remote domain access points.

TA_DMSRVGROUP: *string*[1..30]

The group name of the domain gateway group (the name provided in the GROUPS section of the TUXCONFIG file) representing this local domain access point. There is a one-to-one relationship between a local domain access point and a gateway server group.

TA_DMTYPE: "{TDOMAIN | SNAX | OSITP | OSITPX}"

The type of domain for this local domain access point: "TDOMAIN" for a BEA Tuxedo domain, "SNAX" for an SNA domain, "OSITP" for an OSI TP 1.3 domain, or "OSITPX" for an OSI TP 4.0 or later domain. The presence or absence of other attributes depends on the value of this attribute.

Setting TA_DMTYPE="OSITPX" is supported only by BEA Tuxedo 8.0 or later software.

TA_STATE:

GET: "{VALid}"

A GET operation retrieves configuration information for the T_DM_LOCAL object. The following state indicates the meaning of a TA_STATE attribute value returned in response to a GET request. States not listed are not returned.

"VALid"	The object exists.

SET: "{NEW | INValid}"

A SET operation updates configuration information for the selected T_DM_LOCAL object. The following states indicate the meaning of a TA_STATE set in a SET request. States not listed may not be set.

"NEW"	A new object is created. This state change is allowed in the state "INValid" and results in the state "VALid".
unset	Modify an existing object. This combination is not allowed in the "INValid" state. A successful return leaves the object state unchanged.
"INValid"	The object is deleted. This state change is allowed in the state "VALid" and results in the state "INValid".

TA_DMAUDITLOG:*string*[1..256] **(up to 78 bytes for BEA Tuxedo 8.0 or earlier)**

The name of the audit log file for this local domain access point.

TA_DMBLOCKTIME: **0 <=** *num* **<= 32,767**

Specifies the maximum wait time allowed for a blocking call for this local domain access point. The value is a multiplier of the SCANUNIT parameters specified in the T_DOMAIN object. The value SCANUNIT * TA_BLOCKTIME must be greater than or equal to SCANUNIT and less than 32,768 seconds. If this attribute is not specified, the default is set to the value of the TA_BLOCKTIME attribute specified for the T_DOMAIN object. A blocking timeout condition implies that the affected service request has failed.

Be aware that *interdomain* transactions generate blocking timeout conditions when transaction duration exceeds the value of the TA_DMBLOCKTIME attribute. That is, for an interdomain transaction, if the value of the TA_DMBLOCKTIME attribute is less than (a) the value of the TA_TRANTIME attribute specified for the T_SERVICE object or (b) the timeout value passed in the tpbegin() call to start the transaction, the timeout for the transaction is reduced to the TA_DMBLOCKTIME value. In contrast, for *intradomain* transactions (that is, transactions handled within a single BEA Tuxedo domain), the value of the TA_BLOCKTIME attribute specified for the T_DOMAIN object has *no* effect on the timeout value of an intradomain transaction.

TA_DMTLOGDEV: *string***[1..256] (up to 78 bytes for BEA Tuxedo 8.0 or earlier)**

The device (raw slice) or file containing the Domains transaction log (TLOG) for this local domain access point. The TLOG is stored as a BEA Tuxedo System VTOC table on the device. For reliability, the use of a device (raw slice) is recommended.

If this attribute is not specified, the domain gateway group associated with this local domain access point is not allowed to process requests in transaction mode. Multiple local domain access points for the same machine can share the same BEA Tuxedo filesystem, but each local domain access point must have its own log (a table in the TA_DMTLOGDEV) named as specified by the TA_DMTLOGNAME keyword.

TA_DMTLOGNAME: *string***[1..30]**

The TLOG name for this local domain access point. If more than one TLOG exists on the same device, each TLOG must have a unique name.

TA_DMTLOGSIZE: **1 <=** *num* **<= 2048**

The size in pages of the TLOG for this local domain access point. This size is constrained by the amount of space available on the device identified in TA_DMTLOGDEV.

TA_DMMAXRAPTRAN: **0 <=** *num* **<= 32,767**

The maximum number of remote domain access points that can be involved in a single transaction for this local domain access point.

TA_DMMAXTRAN: **0 <=** *num* **<= 32,767**

The maximum number of simultaneous transactions allowed for this local domain access point. This number must be greater than or equal to the T_DOMAIN:TA_MAXGTT attribute value.

TA_DMSECURITY: "**{**NONE | APP_PW | DM_PW | DM_USER_PW **}**"

The type of security enabled for the domain gateway associated with this local domain access point. This attribute must be set to one of the following values:

"NONE"

No security is enabled.

"APP_PW"

Valid only when TA_DMTYPE="TDOMAIN". Application password-based security is enabled.

"DM_PW"

Valid only when TA_DMTYPE="TDOMAIN" or "OSITPX". Domain password-based security is enabled.

"DM_USER_PW"

Valid only when TA_DMTYPE="SNAX". Translation of principal names is enabled.

Attributes available when TA_DMTYPE=TDOMAIN

TA_DMCONNECTION_POLICY:"**{**ON_DEMAND | ON_STARTUP | INCOMING_ONLY**}**"

Specifies the conditions under which the domain gateway associated with this local domain access points tries to establish connections to remote domains. Supported values are "ON_DEMAND", "ON_STARTUP", or "INCOMING_ONLY".

"ON_DEMAND"

Means that a connection is attempted only when requested by either a client request to a remote service or a dmadmin(1) connect command. The default setting for TA_DMCONNECTION_POLICY attribute is "ON_DEMAND". The "ON_DEMAND" policy provides the equivalent behavior to previous releases, in which the TA_DMCONNECTION_POLICY attribute was not explicitly available. Connection retry processing is not allowed with this policy.

"ON_STARTUP"

Means that a domain gateway attempts to establish a connection with its remote domains at gateway server initialization time. Remote services for a particular remote domain (that is, services advertised by the domain gateway) are advertised only if a connection is successfully established to the remote domain. Therefore, if there is no active connection to a remote domain, the remote services are suspended. By default, this connection policy retries failed connections every 60 seconds; however, you can specify a different value for this interval using the `TA_DMRETRY_INTERVAL` attribute. Also, see the `TA_DMMAXRETRY` attribute.

`"INCOMING_ONLY"`
: Means that a domain gateway does not attempt an initial connection to remote domains upon startup and that remote services are initially suspended. The domain gateway is available for incoming connections from remote domains, and remote services are advertised when the domain gateway receives an incoming connection or an administrative connection (using the `dmadmin(1) connect` command) is made. Connection retry processing is not allowed when the connection policy is `"INCOMING_ONLY"`.

`TA_DMMAXRETRY:` **0** <= *num* <= `MAXLONG`
: The number of times that the domain gateway associated with this local domain access point tries to establish connections to remote domains. The minimum value is 0 and the maximum is `MAXLONG` (2147483647). `MAXLONG` indicates that retry processing is repeated indefinitely, or until a connection is established. For a connection policy of `"ON_STARTUP"`, the default setting for `TA_DMMAXRETRY` is `MAXLONG`. Setting this attribute to 0 turns off the automatic retry mechanism. For other connection policies, automatic retries are disabled.

  The `TA_DMMAXRETRY` attribute is valid only when the connection policy is `"ON_STARTUP"`.

`TA_DMRETRY_INTERVAL:` **0** <= *num* <= `MAXLONG`
: The number of seconds that the domain gateway associated with this local domain access point waits between automatic attempts to establish a connection to remote domains. The minimum value is 0 and the maximum value is `MAXLONG` (2147483647). The default is 60. If `TA_DMMAXRETRY` is set to 0, setting `TA_DMRETRY_INTERVAL` is not allowed.

  This attribute is valid only when the `TA_DMCONNECTION_POLICY` attribute is set to `"ON_STARTUP"`. For other connection policies, automatic retries are disabled.

Attributes available when TA_DMTYPE=TDOMAIN

`TA_DMCONNPRINCIPALNAME`**:** `string`**[0..511]**
: The connection principal name identifier, which is the principal name used for verifying the identity of the domain gateway associated with this local domain access point when establishing a connection to a remote domain. This attribute applies only to domain gateways of type `TDOMAIN` running BEA Tuxedo 7.1 or later software.

  The `TA_DMCONNPRINCIPALNAME` attribute may contain a maximum of 511 characters (excluding the terminating `NULL` character). If this attribute is not specified, the connection principal name defaults to the TA_DMACCESSPOINTID string for this local domain access point.

For default authentication plug-ins, if a value is assigned to the TA_DMCONNPRINCIPALNAME attribute for this local domain access point, it must be the same as the value assigned to the TA_DMACCESSPOINTID attribute for this local domain access point. If these values do not match, the local domain gateway process will *not* boot, and the system will generate the following userlog(3c) message: `ERROR: Unable to acquire credentials`.

TA_DMMACHINETYPE: *string***[0..15]**

Used for grouping domains so that encoding/decoding of messages can be bypassed between the machine associated with this local domain access point and the machines associated with the remote domain access points. This attribute applies only to domain gateways of type TDOMAIN.

If TA_DMMACHINETYPE is not specified, the default is to turn encoding/decoding on. If the value set for the TA_DMMACHINETYPE attribute is the same in both the T_DM_LOCAL and T_DM_REMOTE classes for a connection, data encoding/decoding is bypassed. The value set for TA_DMMACHINETYPE can be any string value up to 15 characters in length. It is used only for comparison.

Attributes available when TA_DMTYPE=SNAX

TA_DMBLOB_SHM_SIZE**: 1** <= *num* <= MAXLONG

Specifies the shared memory allocated to storing binary large object log information specific to this SNAX local domain access point. This attribute applies only to local domain access points and domain gateways of type SNAX.

Limitations

When the Domain gateway administration (GWADM) server supporting the local domain access point specified in the TA_DMLACCESSPOINT attribute is active, you cannot SET the TA_STATE to INValid or update the following attributes: TA_DMACCESSPOINTID, TA_DMSRVGROUP, TA_DMTYPE, TA_DMTLOGDEV, TA_DMTLOGNAME, TA_DMTLOGSIZE, TA_DMMAXRAPTRAN, TA_DMMAXTRAN, or TA_DMMACHINETYPE.

T_DM_OSITP Class Definition

Overview

The `T_DM_OSITP` class defines the OSI TP 1.3 protocol related configuration information for a specific local or remote domain access point.

Attribute Table

Table 17 DM_MIB(5): T_DM_OSITP Class Definition Attribute Table

Attribute	Type	Permissions	Values	Default
`TA_DMACCESSPOINT`(r)(k)(*)	string	`rw-r--r--`	*string*[1..30]	N/A
`TA_STATE`(r)	string	`rw-r--r--`	GET: "`VAL`"	N/A
			SET: "{`NEW` | `INV`}"	N/A
`TA_DMAPT`(r)	string	`rw-r--r--`	*string*[1..78]	N/A
`TA_DMAEQ`(r)	string	`rw-r--r--`	*string*[1..78]	N/A
`TA_DMNWDEVICE`	string	`rw-r--r--`	*string*[1..78]	N/A
`TA_DMACN`	string	`rw-r--r--`	"{`XATMI` | `UDT`}"	"`XATMI`"
`TA_DMAPID`	short	`rw-r--r--`	0 <= *num* <= 32767	N/A
`TA_DMAEID`	short	`rw-r--r--`	0 <= *num* <= 32767	N/A
`TA_DMURCH`	string	`rw-r--r--`	*string*[0..30]	N/A
`TA_DMMAXLISTENINGEP`	short	`rw-r--r--`	1 <= *num* <= 32767	3
`TA_DMXATMIENCODING`	string	`rw-r--r--`	"{`CAE` | `PRELIMINARY` | `OLTP_TM2200`}"	"`CAE`"

(r) - required when a new object is created
(k) - a key field for object retrieval
(*) - a required key field for all `SET` operations on the class

Attribute Semantics

`TA_DMACCESSPOINT`**:** *`string`***[1..30]**

The local or remote domain access point name for which this entry provides the protocol-specific configuration information. This field matches the domain access point name given in the `T_DM_LOCAL` or `T_DM_REMOTE` entry that defines the protocol independent configuration of the domain access point.

`TA_STATE`**:**

`GET: "{VALid}"`

A `GET` operation retrieves configuration information for the `T_DM_OSITP` object. The following state indicates the meaning of a `TA_STATE` attribute value returned in response to a `GET` request. States not listed are not returned.

`"VALid"`	The object exists.

`SET: "{NEW | INValid}"`

A `SET` operation updates configuration information for the selected `T_DM_OSITP` object. The following states indicate the meaning of `TA_STATE` in a `SET` request. States not listed may not be set.

`"NEW"`	A new object is created. This state change is allowed in the state `"INValid"` and results in the state `"VALid"`.
`unset`	Modify an existing object. This combination is not allowed in the `"INValid"` state. A successful return leaves the object state unchanged.
`"INValid"`	The object is deleted. This state change is allowed in the state `"VALid"` and results in the state `"INValid"`.

`TA_DMAPT`**:** *`string`***[1..78]**

The application process title of this local or remote domain access point in object identifier form.

`TA_DMAEQ`**:** *`string`***[1..78]**

The application entity qualifier of this local or remote domain access point in integer form.

`TA_DMNWDEVICE`: *`string`*[1..78]
: Specifies the network device to be used for this local domain access point. This attribute is relevant only when defining a local domain access point; it is ignored for a remote domain access point.

`TA_DMACN`: "{`XATMI` | `UDT`}"
: The application context name to use with this local or remote domain access point. When establishing a dialogue to a remote domain access point, the application context name from the remote domain access point is used, if it is present. If it is absent, the application context name from the local domain access point is used. The value "`XATMI`" selects the use of the X/Open defined XATMI Application Service Element (ASE) and encoding. The value "`UDT`" selects the use of the ISO/IEC 10026-5 User Data Transfer encoding.

`TA_DMAPID`: **0 <=** *`num`* **<= 32767**
: This optional attribute defines the application process invocation identifier to be used on this local or remote domain access point.

`TA_DMAEID`: **0 <=** *`num`* **<= 32767**
: This optional attribute defines the application entity invocation identifier to be used on this local or remote domain access point.

`TA_DMURCH`: *`string`*[0..30]
: Specifies the user portion of the OSI TP recovery context handle for this local domain access point. It may be required by an OSI TP provider in order to perform recovery of distributed transactions after a communications line or system failure.

  This attribute is relevant only when defining a local domain access point; it is ignored for a remote domain access point.

`TA_DMMAXLISTENINGEP`: **0 <=** *`num`* **<= 32767**
: Specifies the number of endpoints awaiting incoming OSI TP dialogues for this local domain access point. This attribute is relevant only when defining a local domain access point; it is ignored for a remote domain access point.

`TA_DMXATMIENCODING`: "{`CAE` | `PRELIMINARY` | `OLTP_TM2200`}"
: Specifies the version of the XATMI protocol used to communicate with a remote system. This attribute is valid only when describing a remote domain access point. Valid values are:

  "`CAE`" (default)

  "`PRELIMINARY`" (used with Unisys MCP OLTP systems)

  "`OLTP_TM2200`" (used with Unisys TM 2200 systems)

Limitations

Deleting or updating an instance of this class is not permitted in the following scenarios:

- The instance of the class corresponds to a local domain access point and the domain gateway group associated with the local domain access point is active.
- The instance of the class corresponds to a remote domain access point and the domain gateway group associated with the remote domain access point is active.

On `SET` operations that add or update an instance of this class, the specific local or remote domain access point specified in the `TA_DMACCESSPOINT` attribute must exist in the `T_DM_LOCAL` class or the `T_DM_REMOTE` class. If the domain access point does not exist, a "not defined" error is returned for the `TA_DMACCESSPOINT` attribute, and the operation fails.

T_DM_OSITPX Class Definition

Overview

The `T_DM_OSITPX` class defines the OSI TP 4.0 or later protocol related configuration information for a specific local or remote domain access point. The `T_DM_OSITPX` class is supported only by BEA Tuxedo 8.0 or later software.

Attribute Table

Table 18 DM_MIB(5): T_DM_OSITPX Class Definition Attribute Table

Attribute	Type	Permissions	Values	Default
`TA_DMACCESSPOINT`(r)(k)(*)	string	`rw-r--r--`	*`string`*[1..30]	N/A
`TA_STATE`(r)	string	`rw-r--r--`	`GET: "VAL"`	N/A
			`SET: "{NEW	INV}"`	N/A
`TA_DMAET`(r)	string	`rw-r--r--`	*`string`*[1..78]	N/A
`TA_DMNWADDR`(r)	string	`rw-r--r--`	*`string`*[1..631]	N/A
`TA_DMTSEL`	string	`rw-r--r--`	*`string`*[1..66]	N/A
`TA_DMDNSRESOLUTION`	string	`rw-r--r--`	`"{STARTUP	RUNTIME}"`	`"STARTUP"`
`TA_DMPSEL`	short	`rw-r--r--`	*`string`*[1..10]	`""`

Table 18 DM_MIB(5): T_DM_OSITPX Class Definition Attribute Table (Continued)

Attribute	Type	Permissions	Values	Default
TA_DMSSEL	short	rw-r--r--	*string*[1..34]	""
TA_DMTAILORPATH	short	rw-r--r--	*string*[1..78]	""
TA_DMXATMIENCODING	string	rw-r--r--	"{CAE | PRELIMINARY | OLTP_TM2200 | NATIVE_A_SERIES}"	"CAE"
TA_DMEXTENSIONS	short	rw-r--r--	*string*[1..78]	""
TA_DMOPTIONS	short	rw-r--r--	"{SECURITY_SUPPORTED}"	""

(r)—required when a new object is created
(k)—a key field for object retrieval
(*)—a required key field for all SET operations on the class

Attribute Semantics

TA_DMACCESSPOINT**:** *string***[1..30]**

The local or remote domain access point name for which this entry provides the protocol-specific configuration information. This field matches the domain access point name given in the T_DM_LOCAL or T_DM_REMOTE entry that defines the protocol-independent configuration of the domain access point.

TA_STATE**:**

GET: "{VALid}"

A GET operation retrieves configuration information for the T_DM_OSITPX object. The following state indicates the meaning of a TA_STATE attribute value returned in response to a GET request. States not listed are not returned.

"VALid"	The object exists.

SET: "{NEW | INValid}"

A SET operation updates configuration information for the selected T_DM_OSITPX object. The following states indicate the meaning of TA_STATE in a SET request. States not listed may not be set.

"NEW"	A new T_DM_OSITPX object is created. This state change is allowed in the state "INValid" and results in the state "VALid".
unset	Modify an existing T_DM_OSITPX object. This combination is not allowed in the "INValid" state. A successful return leaves the object state unchanged.
"INValid"	The T_DM_OSITPX object is deleted. This state change is allowed in the state "VALid" and results in the state "INValid".

TA_DMAET**:** *string***[1..78]**

The application entity title of this local or remote domain access point. This address must be unique among all hosts communicating in the OSI TP network; it matches the local AE Title on the remote (OLTP) node.

The value of this attribute consists of the application process title as an object identifier form followed by the application entity qualifier as an integer, using the following form: `"{`*`object identifier`*`},{`*`integer qualifier`*`}"`. The braces are part of the syntax and must be included within the quotes.

`TA_DMNWADDR`: *`string`*[1..631]

The semicolon-separated list of network addresses to use for this local or remote domain access point. A network address may be either an IP address, if using TCP/IP networks, or a DNS name. The network address takes one of the following forms:

`"#.#.#.#:`*`port_number`*`"` IP Address
`"//`*`hostname`*`:`*`port_number`*`"` DNS Name
`"//`*`hostname`*`:`*`port_number`*`;//`*`hostname`*`:`*`port_number`*`; ..."`

If the port_number component is absent, the default port 102 is used.

For a local domain access point, the value of this attribute contains a semicolon-separated list of up to eight addresses on which to listen for connection requests. For a remote domain access point, the value of this attribute contains the preferred address for the destination domain followed by up to seven alternative addresses (in preference order) to be tried if the first is unavailable.

`TA_DMTSEL`: *`string`*[1..66]

The Transport Service Access Point address to be used for this local or remote domain access point. The value may be one to 32 ASCII non-control characters (those represented by the hexadecimal numbers 20 to 7E), one to 32 hexadecimal octets preceded by `0x`, or `"NONE"`—the `NULL` string.

`TA_DMDNRESOLUTION`: `"`**{**`STARTUP` | `RUNTIME`**}**`"`

Specifies when the DNS name for the network address defined by the `TA_DMNWADDR` attribute should be resolved for the domain gateway (`GWOSITP`) associated with this local domain access point. If this attribute is set (or defaulted) to `"STARTUP"`, the resolution of hostname to an actual IP address takes place at gateway startup. If this attribute is set to `"RUNTIME"`, the resolution of hostname to an actual IP address takes place at gateway run time.

This attribute is relevant only when defining a local domain access point; it is ignored for a remote domain access point. On `GET` calls for remote domain access point instances, this attribute is set to the `NULL` string.

TA_DMPSEL: *string*[1..10]
: The Presentation Service Access Point address to be used for this local or remote domain access point. Values may be one to four ASCII non-control characters (those represented by the hexadecimal numbers 20 to 7E), one to four hexadecimal octets preceded by `0x`, or "`NONE`" (default).

TA_DMSSEL: *string*[1..34]
: The Session Service Access Point address to be used for this local or remote domain access point. Values may be one to 16 ASCII non-control characters (those represented by the hexadecimal numbers 20 to 7E), one to 16 hexadecimal octets preceded by `0x`, or "`NONE`" (default).

TA_DMTAILORPATH: *string*[1..78]
: Indicates the full pathname of the optional OSI TP tailor file used for tuning the OSI TP stack for this local domain access point. Double quotes are required. If no value is supplied or the value is set to the `NULL` string, the OSI TP stack will run using defaults for tuning parameters.

: This attribute is relevant only when defining a local domain access point; it is ignored for a remote domain access point.

TA_DMXATMIENCODING: "{CAE | PRELIMINARY | OLTP_TM2200 | NATIVE_A_SERIES}"
: Specifies the version of the `XATMI` protocol used to communicate with a remote system. This attribute is valid only when describing a remote domain access point. Valid values are:

: "`CAE`" (default)

: "`PRELIMINARY`" (used with Unisys MCP OLTP systems)

: "`OLTP_TM2200`" (used with Unisys TM 2200 systems)

: "`NATIVE_A_SERIES`" (used with Unisys MCP OLTP systems that support this encoding type)

TA_DMEXTENSIONS: *string*[1..78]
: Controls operations for the remote domain associated with this remote domain access point. Valid values are separated by a semicolon (`;`) and include "`ONLINE=N/Y`" (`Y` is the default) and "`RdomAssocRetry=`*nn*", where *nn* is the number of seconds to retry connecting to the online remote domain. This attribute defaults to the `RdomAssocRetry` tailor parameter if present, or 60 seconds if `RdomAssocRetry` is not present and *nn* is not specified.

TA_DMOPTIONS: "{SECURITY_SUPPORTED}"

Indicates optional parameters for this remote domain access point. The "SECURITY_SUPPORTED" value indicates that the remote domain associated with this remote domain access point supports the OSITP security extension. This attribute provides backward compatibility; it is valid only when describing a remote domain access point.

Limitations

Deleting or updating an instance of this class is not permitted in the following scenarios:

- The instance of the class corresponds to a local domain access point and the domain gateway group associated with the local domain access point is active.
- The instance of the class corresponds to a remote domain access point and the domain gateway group associated with the remote domain access point is active.

On SET operations that add or update an instance of this class, the specific local or remote domain access point specified in the TA_DMACCESSPOINT attribute must exist in the T_DM_LOCAL class or the T_DM_REMOTE class. If the domain access point does not exist, a "not defined" error is returned for the TA_DMACCESSPOINT attribute, and the operation fails.

T_DM_PASSWORD Class Definition

Overview

The T_DM_PASSWORD class represents configuration information for interdomain authentication through access points of type TDOMAIN.

Attribute Table

Table 19 DM_MIB(5): T_DM_PASSWORD Class Definition Attribute Table

Attribute	Type	Permissions	Values	Default
TA_DMLACCESSPOINT(r)(k)(*)	string	rw-r--r--	*string*[1..30]	N/A
TA_DMRACCESSPOINT(r)(k)(*)	string	rw-r--r--	*string*[1..30]	N/A
TA_DMLPWD(r)	string	-w-------	*string*[1..30]	N/A
TA_DMRPWD(r)	string	-w-------	*string*[1..30]	N/A

Table 19 DM_MIB(5): T_DM_PASSWORD Class Definition Attribute Table

Attribute	Type	Permissions	Values	Default
TA_STATE(r)	string	`rw-r--r--`	GET: "VAL" SET: "{NEW | INV | REC}"	N/A N/A

(r)—required when a new object is created
(k)—a key field for object retrieval
(*)—a required key field for all SET operations on the class

Attribute Semantics

TA_DMLACCESSPOINT: *string*[1..30]
The name of the local domain access point to which the password applies.

TA_DMRACCESSPOINT: *string*[1..30]
The name of the remote domain access point to which the password applies.

TA_DMLPWD: *string*[1..30]
The local password to be used to authenticate connections between the local domain access point identified by TA_DMLACCESSPOINT and the remote domain access point identified by TA_DMRACCESSPOINT.

TA_DMRPWD: *string*[1..30]
The remote password to be used to authenticate connections between the local domain access point identified by TA_DMLACCESSPOINT and the remote domain access point identified by TA_DMRACCESSPOINT.

TA_STATE:

GET: "{VALid}"
A GET operation retrieves configuration information for the selected T_DM_PASSWORD object. The following state indicates the meaning of a TA_STATE attribute value returned in response to a GET request. States not listed are not returned.

"VALid"	The object exists.

SET: "{NEW | INValid | RECrypt}"

A SET operation updates configuration information for the selected T_DM_PASSWORD object. The following states indicate the meaning of TA_STATE in a SET request. States not listed may not be set.

"NEW"	A new object is created. A state change is allowed in the state "INValid" and results in the state "VALid".
unset	Modify an existing object. This combination is not allowed in the state "INValid".
"INValid"	The object is deleted. A state change is allowed in the state "VALid" and results in the state "INValid".
"RECrypt"	Re-encrypt all passwords using a new encryption key. Applies to all password instances in the T_DM_PASSWORD classes.

Limitations

Passwords cannot be re-encrypted (SET TA_STATE to "RECrypt") when any domain gateway administration server (GWADM) is running.

T_DM_PRINCIPAL_MAP Class Definition

Overview

The T_DM_PRINCIPAL_MAP class represents configuration information for mapping principal names to and from external principal names across access points of type SNAX.

Attribute Table

Table 20 DM_MIB(5): T_DM_PRINCIPAL_MAP Class Definition Attribute Table

Attribute	Type	Permissions	Values	Default
TA_DMLACCESSPOINT(r)(k)(*)	string	rw-r--r--	*string*[1..30]	N/A
TA_DMRACCESSPOINT(r)(k)(*)	string	rw-r--r--	*string*[1..30]	N/A
TA_DMPRINNAME(r)(k)(*)	string	rw-------	*string*[1..30]	N/A

Table 20 DM_MIB(5): T_DM_PRINCIPAL_MAP Class Definition Attribute Table

Attribute	Type	Permissions	Values	Default
TA_DMRPRINNAME(r)(k)(*)	string	rw-------	*string*[1..30]	N/A
TA_DMDIRECTION(k)	string	rw-r-----	"{IN | OUT | BOTH}"	"BOTH"
TA_STATE(r)	string	rw-r--r--	GET:"VAL"	N/A
			SET:"{NEW | INV}"	N/A

(r)—required when a new object is created
(k)—a key field for object retrieval
(*)—a required key field for all SET operations on the class

Attribute Semantics

TA_DMLACCESSPOINT: *string*[1..30]
The local domain access point to which the principal mapping applies.

TA_DMRACCESSPOINT: *string*[1..30]
The remote domain access point to which the principal mapping applies.

TA_DMPRINNAME: *string*[1..30]
The local principal name in the principal mapping.

TA_DMRPRINNAME: *string*[1..30]
The remote principal name in the principal mapping.

TA_DMDIRECTION: "{IN | OUT | BOTH}"
The direction to which the principal mapping applies.

"IN"
Is INcoming to this BEA Tuxedo domain through the given remote domain access point and local domain access point.

"OUT"
Is OUTgoing from this BEA Tuxedo domain through the given local domain access point and remote domain access point.

"BOTH"
Applies to both INcoming and OUTgoing.

TA_STATE:

GET: "{VALid}"

A GET operation retrieves configuration information for the selected T_DM_PRINCIPAL entry. The following state indicates the meaning of a TA_STATE attribute value returned in response to a GET request. States not listed are not returned.

"VALid"	The object exists.

SET: "{NEW | INValid}"

A SET operation updates configuration information for the selected T_DM_PRINCIPAL entry. The following states indicate the meaning of TA_STATE in a SET request. States not listed may not be set.

"NEW"	A new object is created. A state change is allowed in the state "INValid" and results in the state "VALid".
unset	Modify an existing object. This combination is not allowed in the state "INValid".
"INValid"	The object is deleted. A state change is allowed in the state "VALid" and results in the state "INValid".

Limitations

In BEA Tuxedo release 7.1 or later, the T_DM_PRINCIPAL_MAP class applies only to the SNAX domain gateway type.

T_DM_REMOTE Class Definition

Overview

The T_DM_REMOTE class represents remote domain access point configuration information. Local resources that may be exported through one or more local domain access points are made accessible to a remote domain through a remote domain access point. Similarly, remote resources are imported from a remote domain through a remote domain access point.

Attribute Table

Table 21 DM_MIB(5): T_DM_REMOTE Class Definition Attribute Table

Attribute	Type	Permissions	Values	Default
TA_DMACCESSPOINT(r)(k)(*)	string	rw-r--r--	*string*[1..30]	N/A
TA_DMACCESSPOINTID(r)	string	rw-r--r--	*string*[1..30]	N/A
TA_DMTYPE(k)	string	rw-r--r--	"{TDOMAIN | SNAX | OSITP | OSITPX}"	"TDOMAIN"
TA_STATE(r)	string	rw-r--r--	GET: "VAL" SET: "{NEW | INV}"	N/A N/A
TA_DMPRIORITY_TYPE	string	rw-r--r--	"{LOCAL_RELATIVE | LOCAL_ABSOLUTE | GLOBAL}"	"LOCAL_ RELATIVE"
TA_DMINPRIORITY	string	rw-r--r--	-99 <= *num* <= 100	0 or 50
Attributes available when TA_DMTYPE=TDOMAIN | OSITPX:				
TA_DMACLPOLICY	string	rwxr--r--	"{LOCAL | GLOBAL}"	"LOCAL"
TA_DMLOCALPRINCIPALNAME	string	rwxr--r--	*string*[0..511]	" "
Attributes available when TA_DMTYPE=TDOMAIN:				
TA_DMCONNPRINCIPALNAME	string	rwxr--r--	*string*[0..511]	" "
TA_DMCREDENTIALPOLICY	string	rwxr--r--	"{LOCAL | GLOBAL}"	"LOCAL"
TA_DMMACHINETYPE	string	rw-r--r--	*string*[0..15]	" "
Attributes available when TA_DMTYPE=SNAX | OSITPX:				
TA_DMCODEPAGE	string	rw-r--r--	*string*[1..20]	N/A

(r)—required when a new object is created
(k)—a key field for object retrieval
(*)—a required key field for all SET operations on the class

Attribute Semantics

TA_DMACCESSPOINT**:** *string***[1..30]**

The name of this T_DM_REMOTE entry—a user-specified remote domain access point identifier (logical name) unique within the scope of the T_DM_LOCAL and T_DM_REMOTE access point names in this Domains configuration.

TA_DMACCESSPOINTID**:** *string***[1..30]**

The identifier for the remote domain associated with this remote domain access point for purposes of security when setting up a connection to the remote domain. This identifier is unique across all local and remote domain access points.

TA_DMTYPE**:** "**{**TDOMAIN | SNAX | OSITP | OSITPX**}**"

The type of domain for this remote domain access point: "TDOMAIN" for a BEA Tuxedo domain, "SNAX" for an SNA domain, "OSITP" for an OSI TP 1.3 domain, or "OSITPX" for an OSI TP 4.0 or later domain. The presence or absence of other attributes depends on the value of this attribute.

Setting TA_DMTYPE="OSITPX" is supported only by BEA Tuxedo 8.0 or later software.

TA_STATE**:**

GET: "{VALid}"

A GET operation retrieves configuration information for the T_DM_REMOTE object. The following state indicates the meaning of a TA_STATE attribute value returned in response to a GET request. States not listed are not returned.

"VALid"	The object exists.

SET: "{NEW | INValid}"

A SET operation updates configuration information for the selected T_DM_REMOTE object. The following states indicate the meaning of TA_STATE in a SET request. States not listed may not be set.

"NEW"	A new object is created.
unset	Modify an existing object. This combination is not allowed in the "INValid" state. A successful return leaves the object state unchanged.
"INValid"	The object is deleted.

TA_DMPRIORITY_TYPE = "**{**LOCAL_RELATIVE | LOCAL_ABSOLUTE | GLOBAL**}**"

TA_DMINPRIORITY = **-99 <=** *num* **<= 100**

Together, the TA_DMPRIORITY_TYPE and TA_DMINPRIORITY attributes specify the message priority handling for this remote domain access point. These attributes are supported by BEA Tuxedo 8.0 or later software.

For the TA_DMPRIORITY_TYPE attribute, the "LOCAL_RELATIVE" and "LOCAL_ABSOLUTE" values are valid for all remote domain types; the "GLOBAL" value is valid only for remote domains of type TDOMAIN. If not set, the TA_DMPRIORITY_TYPE attribute defaults to "LOCAL_RELATIVE".

TA_DMPRIORITY_TYPE="LOCAL_RELATIVE" means that the priority associated with a request from this remote domain access point (for example, via the tpsprio call) is not used by the local domain. Instead, the priority of incoming requests from this remote domain access point is set relative to the TA_DMINPRIORITY value; this value may be greater than or equal to -99 (lowest priority) and less than or equal to 99 (highest priority), with 0 being the default. The setting of TA_DMINPRIORITY increments or decrements a service's default priority as follows: up to a maximum of 100 or down to a minimum of 1, depending on its sign, where 100 is the highest priority. For requests to the remote domain access point, the priority associated with a request will accompany the request to the remote domain access point.

TA_DMPRIORITY_TYPE="LOCAL_ABSOLUTE" means that the priority associated with a request from this remote domain access point is not used by the local domain. Instead, the priority of incoming requests from this remote domain access point is set relative to the TA_DMINPRIORITY value; this value may be greater than or equal to 1 (lowest priority) and less than or equal to 100 (highest priority), with 50 being the default. The setting of TA_DMINPRIORITY increments or decrements a service's default priority as follows: up to a maximum of 100 or down to a minimum of 1, depending on its sign, where 100 is the highest priority. For requests to the remote domain access point, the priority associated with a request will accompany the request to the remote domain access point.

TA_DMPRIORITY_TYPE="GLOBAL" means that the priority associated with a request from this remote domain access point is adjusted by the local domain. The priority of incoming requests from this remote domain access point is adjusted relative to the TA_DMINPRIORITY value; this value may be greater than or equal to -99 (lowest priority) and less than or equal to 99 (highest priority), with 0 being the default. If TA_DMINPRIORITY is set, the priority accompanying the incoming request is added to the TA_DMINPRIORITY value to create an absolute priority setting for the incoming request. If TA_DMINPRIORITY is not set or is set to 0, the priority accompanying the incoming request is used *as is* by the local domain. For requests to the remote domain access point, the priority associated with a request will accompany the request to the remote domain access point.

Attributes available when TA_DMTYPE=TDOMAIN|OSITPX

TA_DMACLPOLICY: **{**LOCAL | GLOBAL**}**

The access control list (ACL) policy for this remote domain access point. This attribute applies only to domain gateways of type TDOMAIN running BEA Tuxedo 7.1 or later software and domain gateways of type OSITPX running BEA Tuxedo 8.0 or later software.

LOCAL means that the local domain *replaces* the credential (identity) of any service request received from the remote domain *with* the principal name specified in the TA_DMLOCALPRINCIPALNAME attribute for this remote domain access point. GLOBAL means that the local domain does not replace the credential received with a remote service request; if no credential is received with a remote service request, the local domain forwards the service request to the local service *as is* (which usually fails). If this attribute is not specified, the default is LOCAL.

Note that the TA_DMACLPOLICY attribute controls whether or not the local domain replaces the credential of a service request received from a remote domain with the principal name specified in the TA_DMLOCALPRINCIPALNAME attribute. The TA_DMCREDENTIALPOLICY attribute is related to this attribute and controls whether or not the local domain removes the credential from a local service request before sending the request to a remote domain.

TA_DMLOCALPRINCIPALNAME: string**[0..511]**

The local principal name identifier (credential) assigned by the local domain to service requests received from the remote domain when the TA_DMACLPOLICY attribute for this remote domain access point is set (or defaulted) to LOCAL. This attribute applies only to domain gateways of type TDOMAIN running BEA Tuxedo 7.1 or later software and domain gateways of type OSITPX running BEA Tuxedo 8.0 or later software.

The TA_DMLOCALPRINCIPALNAME attribute may contain a maximum of 511 characters (excluding the terminating NULL character). If this attribute is not specified, the local principal name defaults to the TA_DMACCESSPOINTID string for this remote domain access point.

Attributes available when TA_DMTYPE=TDOMAIN

TA_DMCONNPRINCIPALNAME: string**[0..511]**

The connection principal name identifier, which is the principal name used for verifying the identity of this remote domain access point when establishing a connection to the local domain access point. This attribute applies only to domain gateways of type TDOMAIN running BEA Tuxedo 7.1 or later software.

The TA_DMCONNPRINCIPALNAME attribute may contain a maximum of 511 characters (excluding the terminating NULL character). If this attribute is not specified, the connection principal name defaults to the TA_DMACCESSPOINTID string for this remote domain access point.

For default authentication plug-ins, if a value is assigned to the TA_DMCONNPRINCIPALNAME attribute for this remote domain access point, it must be the same as the value assigned to the TA_DMACCESSPOINTID attribute for this remote domain access point. If these values do not match, any attempt to set up a connection between the local domain gateway and the remote domain gateway will fail, and the system will generate the following userlog(3c) message: `ERROR: Unable to initialize administration key for domain` *domain_name*.

TA_DMCREDENTIALPOLICY: **{**LOCAL **|** GLOBAL**}**

The credential policy for this remote domain access point. This attribute applies only to domain gateways of type TDOMAIN running BEA Tuxedo 8.0 or later software.

LOCAL means that the local domain removes the credential (identity) from a local service request destined for this remote domain access point. GLOBAL means that the local domain does not remove the credential from a local service request destined for this remote domain access point. If this attribute is not specified, the default is LOCAL.

Note that the TA_DMCREDENTIALPOLICY attribute controls whether or not the local domain removes the credential from a local service request before sending the request to a remote domain. The TA_DMACLPOLICY attribute controls whether or not the local domain replaces the credential of a service request received from a remote domain with the principal name specified in the TA_DMLOCALPRINCIPALNAME attribute.

TA_DMMACHINETYPE**:** *string***[0..15]**

Used for grouping domains so that encoding/decoding of messages can be bypassed between the machine associated with this remote domain access point and the machine associated with the local domain access point. If TA_DMMACHINETYPE is not specified, the default is to turn encoding/decoding on. If the value set for the TA_DMMACHINETYPE attribute is the same in both the T_DM_LOCAL and T_DM_REMOTE classes for a connection, data encoding/decoding is bypassed. The value set for TA_DMMACHINETYPE can be any string value up to 15 characters in length. It is used only for comparison.

Attributes available when TA_DMTYPE=SNAXIOSITPX

TA_DMCODEPAGE**:** *string***[1..20]**

The name of the default translation tables to use in translating requests and replies sent through this remote domain access point.

Limitations

When any gateway administrative server (GWADM) *supporting a local domain access point of the same domain type as this request* is active, you cannot SET the TA_STATE to INValid or update the following attributes: TA_DMACCESSPOINTID, TA_DMTYPE, TA_DMMACHINETYPE, or TA_DMCODEPAGE.

You cannot delete an instance of the T_DM_REMOTE class if it is referenced by any instances of the following classes: T_DM_ACL, T_DM_IMPORT, T_DM_OSITP, T_DM_OSITPX, T_DM_ROUTING, or T_DM_TDOMAIN.

T_DM_RESOURCES Class Definition

Overview

The T_DM_RESOURCES class represents Domains-specific configuration information.

Attribute Table

Table 22 DM_MIB(5): T_DM_RESOURCES Class Definition Attribute Table

Attribute	Type	Permissions	Values	Default
TA_DMVERSION(r)	string	rw-r--r--	*string*[1..30]	N/A

(r)—required when a new object is created
(k)—a key field for object retrieval
(*)—a required key field for all SET operations on the class

Attribute Semantics

TA_DMVERSION**:** *string***[1..30]**

A user-supplied identifier for the Domains configuration.

Limitations

None.

T_DM_ROUTING Class Definition

Overview

The T_DM_ROUTING class represents routing criteria information for routing requests to a domain through a remote domain access point.

Attribute Table

Table 23 DM_MIB(5): T_DM_ROUTING Class Definition Attribute Table

Attribute	Type	Permissions	Values	Default
TA_DMROUTINGNAME(r)(k)(*)	string	rw-r--r--	*string*[1..15]	N/A
TA_DMBUFTYPE(r)(k)(*)	string	rw-r--r--	*string*[1..256]	N/A
TA_DMFIELD(r)	string	rw-r--r--	*string*[1..30]	N/A
TA_DMFIELDTYPE	string	rw-r--r--	"{CHAR | SHORT | LONG | FLOAT | DOUBLE | STRING}"	N/A
TA_DMRANGES(r)	string	rw-r--r--	*string*[1..4096]	N/A
TA_STATE(r)	string	rw-r--r--	GET: "VAL" SET: "{NEW | INV}"	N/A N/A

(r)—required when a new object is created
(k)—a key field for object retrieval
(*)—a required key field for all SET operations on the class

Attribute Semantics

TA_DMROUTINGNAME: *string*[**1..15]**

The name of the routing criteria table entry—an identifier unique within the scope of T_DM_ROUTING entries in the Domains configuration.

TA_DMBUFTYPE: *string*[**1..256]**

"*type1*[:*subtype1*[,*subtype2* . . .]][;*type2*[:*subtype3*[,*subtype4* . . .]] . . .]"
List of types and subtypes of data buffers for which this routing entry is valid. A maximum of 32 type/subtype combinations is allowed. The types are restricted to the following: FML, FML32, XML, VIEW, VIEW32, X_C_TYPE, or X_COMMON. No subtype can be specified for type FML, FML32, or XML; subtypes are required for types VIEW, VIEW32, X_C_TYPE, and

X_COMMON ("*" is not allowed). Note that subtype names should not contain semicolon, colon, comma, or asterisk characters. Duplicate type/subtype pairs cannot be specified for the same routing criterion name; more than one routing entry can have the same criterion name as long as the type/subtype pairs are unique. If multiple buffer types are specified for a single routing entry, the data types of the routing field for each buffer type must be the same.

TA_DMFIELD: *string*[1..30]

The name of the field to which routing is applied.

For FML (and FML32) buffer types, TA_DMFIELD contains an FML field name that must be defined in an FML field table. When routing is performed, the field name is retrieved using the FLDTBLDIR and FIELDTBLS (FLDTBLDIR32 and FIELDTBLS32 for FML32) environment variables.

For VIEW (and VIEW32) buffer types, TA_DMFIELD contains a VIEW field name that must be defined in an FML VIEW table. When routing is performed, the field name is retrieved using the VIEWDIR and VIEWFILES (VIEWDIR32 and VIEWFILES32 for VIEW32) environment variables.

When routing a buffer to its correct remote domain access point, the appropriate table is used to get the data-dependent routing field value within a buffer.

For an XML buffer type, TA_DMFIELD contains either a routing element type (or name) or a routing element attribute name.

The syntax of the TA_DMFIELD attribute for an XML buffer type is as follows:

"*root_element*[/*child_element*][/*child_element*]
    [/. . .][/@*attribute_name*]"

The element is assumed to be an XML document or datagram element type. Indexing is not supported. Therefore, the BEA Tuxedo system recognizes only the first occurrence of a given element type when processing an XML buffer for data-dependent routing. This information is used to get the associated element content for data-dependent routing while sending a message. The content must be a string encoded in UTF-8.

The attribute is assumed to be an XML document or datagram attribute of the defined element. This information is used to get the associated attribute value for data-dependent routing while sending a message. The value must be a string encoded in UTF-8.

The combination of element name and attribute name may contain up to 30 characters.

The type of the routing field can be specified by the TA_DMFIELDTYPE attribute.

TA_DMFIELDTYPE: "{CHAR | SHORT | LONG | FLOAT | DOUBLE | STRING}"

The type of the routing field specified in the TA_DMFIELD attribute. The type can be CHAR, SHORT, LONG, FLOAT, DOUBLE, or STRING; only one type is allowed. This attribute is required if TA_DMBUFTYPE is XML; it must be absent if TA_DMBUFTYPE is FML, VIEW, X_C_TYPE, or X_COMMON.

TA_DMRANGES: *string*[1..4096]

The ranges and associated remote domain access points for the TA_DMFIELD routing field. The format of the string is a comma-separated, ordered list of range/group name pairs. A range/group name pair has the following format:

"*lower*[-*upper*]:*raccesspoint*"

lower and *upper* are signed numeric values or character strings in single quotes. *lower* must be less than or equal to *upper*. To embed a single quote in a character string value, it must be preceded by two backslashes (for example, 'O\\'Brien'). The value MIN can be used to indicate the minimum value for the data type of the associated field on the machine. The value MAX can be used to indicate the maximum value for the data type of the associated field on the machine. Thus, "MIN--5" is all numbers less than or equal to -5, and "6-MAX" is all numbers greater than or equal to 6.

The meta-character "*" (wildcard) in the position of a range indicates any values not covered by the other ranges previously seen in the entry. Only one wildcard range is allowed per entry and it should be last (ranges following it are ignored).

A numeric routing field must have numeric range values, and a string routing field must have string range values.

String range values for string, carray, and character field types must be placed inside a pair of single quotes and cannot be preceded by a sign. Short and long integer values are a string of digits, optionally preceded by a plus or minus sign. Floating point numbers are of the form accepted by the C compiler or atof(3): an optional sign, then a string of digits optionally containing a decimal point, then an optional e or E followed by an optional sign or space, followed by an integer.

The *raccesspoint* parameter indicates the remote domain access point to which the request is routed if the field matches the range. A *raccesspoint* of "*" indicates that the request can go to any remote domain access point that imports the desired service.

TA_STATE:

GET: "{VALid}"

A GET operation retrieves configuration information for the T_DM_ROUTING object. The following state indicates the meaning of a TA_STATE attribute value returned in response to a GET request. States not listed are not returned.

"VALid"	The object exists.

SET: "{NEW | INVAlid}"

A SET operation updates configuration information for the selected T_DM_ROUTING object. The following states indicate the meaning of TA_STATE in a SET request. States not listed may not be set.

"NEW"	A new object is created.
unset	Modify an existing object. This combination is not allowed in the "INValid" state. Successful return leaves the object state unchanged.
"INValid"	The object is deleted.

Limitations

You cannot delete an instance of the T_DM_ROUTING class if it is referenced by an instance of the T_DM_IMPORT class.

T_DM_RPRINCIPAL Class Definition

Overview

The T_DM_RPRINCIPAL class represents password configuration information for remote principal names.

Attribute Table

Table 24 DM_MIB(5): T_DM_RPRINCIPAL Class Definition Attribute Table

Attribute	Type	Permissions	Values	Default
TA_DMRACCESSPOINT(r)(k)(*)	string	rw-r--r--	*string*[1..30]	N/A
TA_DMRPRINNAME(r)(k)(*)	string	rw-------	*string*[1..30]	N/A
TA_DMRPRINPASSWD(r)(*)	string	-w-------	*string*[0..8]	N/A
TA_STATE(r)	string	rw-r--r--	GET: "VAL"	N/A
			SET: "{NEW | INV}"	N/A

(r)—required when a new object is created
(k)—a key field for object retrieval
(*)—a required key field for all SET operations on the class

Attribute Semantics

TA_DMRACCESSPOINT: *string*[1..30]
The remote domain access point to which the principal is applicable.

Note: The combination of TA_DMRACCESSPOINT and TA_DMRPRINNAME must be unique within the scope of TA_DM_RPRINCIPAL entries in the Domains configuration.

TA_DMRPRINNAME: *string*[1..30]
The remote principal name.

Note: The combination of TA_DMRACCESSPOINT and TA_DMRPRINNAME must be unique within the scope of TA_DM_RPRINCIPAL entries in the Domains configuration.

TA_DMRPRINPASSWD: *string*[0..8]
The remote password to be used for the principal name when communicating through the remote domain access point identified in TA_DMRACCESSPOINT.

TA_STATE:

GET: "{VALid}"
A GET operation retrieves configuration information for the T_DM_RPRINCIPAL object. The following state indicates the meaning of a TA_STATE attribute value returned in response to a GET request. States not listed are not returned.

`"VALid"`	The object exists.

`SET`: `"{NEW | INValid}"`

A `SET` operation updates configuration information for the selected `T_DM_RPRINCIPAL` object. The following states indicate the meaning of `TA_STATE` in a `SET` request. States not listed may not be set.

`"NEW"`	A new object is created. A state change is allowed in the state `"INValid"` and results in the state `"VALid"`.
`unset`	Modify an existing object. This combination is not allowed in state `"INValid"`.
`"INValid"`	The object is deleted. A state change is allowed in the state `"VALid"` and results in the state `"INValid"`.

Limitations

In BEA Tuxedo release 7.1 or later, the `T_DM_RPRINCIPAL` class applies only to the `SNAX` domain gateway type.

T_DM_SNACRM Class Definition

Overview

The `T_DM_SNACRM` class defines the SNA-CRM-specific configuration for the named local domain access point.

Attribute Table

Table 25 DM_MIB(5): T_DM_SNACRM Class Definition Attribute Table

Attribute	Type	Permissions	Values	Default
`TA_DMSNACRM`(k)(r)(*)	string	`rw-r--r--`	*`string`*[1..30]	N/A
`TA_DMLACCESSPOINT`(k)(r)	string	`rw-r--r--`	*`string`*[1..30]	N/A

Table 25 DM_MIB(5): T_DM_SNACRM Class Definition Attribute Table

Attribute	Type	Permissions	Values	Default
TA_STATE(r)	string	rw-r--r--	GET: "VAL"	N/A
			SET: "{NEW | INV}"	N/A
TA_DMNWADDR(r)	string	rw-r--r--	*string*[1..78]	N/A
TA_DMNWDEVICE(r)	string	rw-r--r--	*string*[1..78]	N/A

(r)—required when a new object is created
(k)—a key field for object retrieval
(*)—a required key field for all SET operations on the class

Attribute Semantics

TA_DMSNACRM: *string*[1..30]
: The name of this T_DM_SNACRM entry. TA_DMSNACRM is an identifier unique within the scope of the SNA CRM entries within the Domains configuration used to identify this SNA CRM entry.

TA_DMLACCESSPOINT: *string*[1..30]
: The name of the local domain access point entry with which this SNA CRM is used.

TA_STATE:

GET: "{VALid}"
: A GET operation retrieves configuration information for the T_DM_SNACRM object. The following state indicates the meaning of a TA_STATE attribute value returned in response to a GET request. States not listed are not returned.

"VALid"	The object exists.

SET: "{NEW | INVALid}"
: A SET operation updates configuration information for the selected T_DM_SNACRM object. The following states indicate the meaning of a TA_STATE set in a SET request. States not listed may not be set.

"NEW"	A new object is created. This state change is allowed in the state "INValid" and results in the state "VALid".
unset	Modify an existing entry. This combination is not allowed in the state "INValid".
"INValid"	The object is deleted. This state change is allowed in the state "VALid" and results in the state "INValid".

TA_DMNWADDR: *string*[1..78]
: Specifies the network address for communication between the domain gateway for the local domain access point and the SNA CRM.

TA_DMNWDEVICE: *string*[1..78]
: Specifies the network device to be used for communication between the domain gateway for the local domain access point and the SNA CRM.

Limitations

Deleting or updating an instance of the T_DM_SNACRM class is not permitted if the Domain gateway administration (GWADM) server for the referenced local access point is active.

On SET operations that add or update an instance of this class, the local domain access point specified in the TA_DMLACCESSPOINT must exist in the T_DM_LOCAL class. If the access point does not exist, a "not defined" error is returned for the TA_DMLACCESSPOINT attribute, and the operation fails.

T_DM_SNALINK Class Definition

Overview

The T_DM_SNALINK class represents SNAX-specific configuration information for a remote domain access point.

Attribute Table

Table 26 DM_MIB(5): T_DM_SNALINK Class Definition Attribute Table

Attribute	Type	Permissions	Values	Default
TA_DMSNALINK(r)(k)(*)	string	rw-r--r--	*string*[1..30]	N/A
TA_DMSNASTACK(r)(k)	string	rw-r--r--	*string*[1..30]	N/A
TA_DMRACCESSPOINT(r)(k)	string	rw-r--r--	*string*[1..30]	N/A
TA_DMLSYSID(r)	string	rw-r--r--	*string*[1..4]	N/A
TA_DMRSYSID(r)	string	rw-r--r--	*string*[1..4]	N/A
TA_DMLUNAME(r)	string	rw-r--r--	*string*[1..8]	N/A
TA_DMMINWIN(r)	short	rw-r--r--	0 <= *num* <= 32767	N/A
TA_DMMODENAME(r)	string	rw-r--r--	*string*[1..8]	N/A
TA_STATE(r)	string	rw-r--r--	GET: "VAL" SET: "{NEW | INV}"	N/A N/A
TA_DMSECTYPE	string	rw-r--r--	"{LOCAL | IDENTIFY | VERIFY | PERSISTENT | MIXIDPE}"	"LOCAL"
TA_DMSTARTTYPE	string	rw-r--r--	"{AUTO | COLD}"	"AUTO"
TA_DMMAXSNASESS	short	rw-r--r--	0 <= *num* <= 32767	64
TA_DMMAXSYNCLVL	short	r--r--r--	0 <= *num* <= 2	0

(r)—required when a new object is created
(k)—a key field for object retrieval
(*)—a required key field for all SET operations on the class

Attribute Semantics

TA_DMSNALINK: *string*[1..30]

The name of the T_DM_SNALINK entry. An identifier, unique within the scope of the SNA LINK entries within the Domains configuration, used to identify this TA_DMSNALINK entry.

TA_DMSNASTACK: *string*[1..30]
The name of the SNAX stack entry to be used to reach this remote domain access point.

TA_DMRACCESSPOINT: *string*[1..30]
Identifies the remote domain access point name for which this entry provides the SNAX configuration data.

TA_DMLSYSID: *string*[1..4]
The local SYSID to be used when establishing an SNA link to the remote logical unit (LU).

TA_DMRSYSID: *string*[1..4]
The remote SYSID to be used when establishing an SNA link to the remote LU.

TA_DMLUNAME: *string*[1..8]
Specifies the LU name associated with the remote domain access point.

TA_DMMINWIN: **0 <=** *num* **<= 32767**
The minimum number of winner sessions to the remote LU.

TA_DMMODENAME: *string*[1..8]
Specifies the name associated with the session characteristics for sessions to the remote LU.

TA_STATE:

GET: "{VALid}"
A GET operation retrieves configuration information for the T_DM_SNALINK object. The following state indicates the meaning of a TA_STATE attribute value returned in response to a GET request. States not listed are not returned.

"VALid"	The object exists.

SET: "{NEW | INValid}"
A SET operation updates configuration information for the selected T_DM_SNALINK object. The following states indicate the meaning of a TA_STATE set in a SET request. States not listed may not be set.

"NEW"	A new object is created.

unset	Modify an existing object. This combination is not allowed in state "INValid".
"INValid"	The object is deleted.

TA_DMSECTYPE**:** "**{**LOCAL **|** IDENTIFY **|** VERIFY **|** PERSISTENT **|** MIXIDPE**}**"
: Specifies the type of SNA security to be used on sessions to the remote LU. Valid values for this attribute are "LOCAL", "IDENTIFY", "VERIFY", "PERSISTENT", and "MIXIDPE".

TA_DMSTARTTYPE**:** "**{**AUTO **|** COLD**}**"
: Specifies the type of session start-up for the destination LU. Setting this attribute to "COLD" forces a COLDSTART with the LU. If set to "AUTO", the SNACRM in conjunction with the domain gateway choose whether to COLDSTART or WARMSTART the LU.

TA_DMMAXSNASESS**: 0 <=** *num* **<= 32767**
: Specifies maximum number of sessions to establish with the remote LU.

TA_DMMAXSYNCLVL**: 0 <=** *num* **<= 2**
: The maximum SYNC LEVEL that can be supported to this remote LU.

Limitations

Deleting or updating an instance of the T_DM_SNALINK class that refers to a T_DM_SNASTACK class instance is not permitted under the following condition: the T_DM_SNASTACK class instance refers to a T_DM_SNACRM class instance that references a local domain access point for which the Domain gateway administration (GWADM) server is active.

On SET operations that add or update an instance of this class:

- The remote domain access point specified in the TA_DMRACCESSPOINT attribute must exist in the T_DM_REMOTE class. If the access point does not exist, a "not defined" error is returned for the TA_DMRACCESSPOINT attribute, and the operation fails.
- The SNA stack reference name specified in the TA_DMSNASTACK attribute must exist in the T_DM_SNASTACK class. If the reference name does not exist, a “not defined” error is returned for the TA_DMSNASTACK attribute, and the operation fails.

T_DM_SNASTACK Class Definition

Overview

The T_DM_SNASTACK class defines an SNA stack to be used by a specific SNA CRM.

Attribute Table

Table 27 DM_MIB(5): T_DM_SNASTACK Class Definition Attribute Table

Attribute	Type	Permissions	Values	Default
TA_DMSNASTACK(r)(k)(*)	string	rw-r--r--	*string*[1..30]	N/A
TA_DMSNACRM(r)(k)	string	rw-r--r--	*string*[1..30]	N/A
TA_DMSTACKTYPE(r)	string	rw-r--r--	*string*[1..30]	N/A
TA_DMLUNAME(r)	string	rw-r--r--	*string*[1..8]	N/A
TA_DMTPNAME(r)	string	rw-r--r--	*string*[1..8]	N/A
TA_DMSTACKPARMS(r)	string	rw-r--r--	*string*[1..128]	N/A
TA_STATE(r)	string	rw-r--r--	GET: "VAL"	N/A
			SET: "{NEW | INV}"	N/A

(r)—required when a new object is created
(k)—a key field for object retrieval
(*)—a required key field for all SET operations on the class

Attribute Semantics

TA_DMSNASTACK: *string*[1..30]
The name of this T_DM_SNASTACK entry. TA_DMSNASTACK is an identifier unique within the scope of T_DM_SNASTACK entry names in the Domains configuration.

TA_DMSNACRM: *string*[1..30]
Identifies the T_DM_SNACRM entry of the SNA CRM in which this SNA protocol stack definition is used.

TA_DMSTACKTYPE: *string*[1..30]
Identifies the protocol stack to be used.

TA_DMLUNAME: *string*[1..8]
Specifies the LU name to be used on sessions established using this stack definition.

TA_DMTPNAME: *string*[1..8]
Specifies the TP name associated with the SNA stack. A value of "*" means accept any TP name.

TA_DMSTACKPARMS: *string*[1..128]
Provides protocol stack specific parameters.

TA_STATE:

GET: "{VALid}"
A GET operation retrieves configuration information for the T_DM_SNASTACK object. The following state indicates the meaning of a TA_STATE attribute value returned in response to a GET request. States not listed are not returned.

"VALid"	The object exists.

SET: "{NEW | INValid}"
A SET operation updates configuration information for the selected T_DM_SNASTACK object. The following states indicate the meaning of TA_STATE in a SET request. States not listed may not be set.

"NEW"	A new object is created. This state change is allowed in the state "INValid" and results in the state "VALid".
unset	Modify an existing object. This combination is not allowed in the state "INValid".
"INValid"	The object is deleted. This state change is allowed in the state "VALid" and results in the state "INValid".

Limitations

Deleting or updating an instance of this class is not permitted if the instance of the class references a T_DM_SNACRM object which references a local domain access point for which the Domain gateway administration (GWADM) server is active.

On SET operations that add or update an instance of this class, the SNA CRM name specified in the TA_DMSNACRM attribute must exist in the T_DM_SNACRM class. If the name does not exist, a "not defined" error is returned for the TA_DMSNACRM attribute, and the operation fails.

T_DM_TDOMAIN Class Definition

Overview

The T_DM_TDOMAIN class defines the TDomain specific configuration for a local or remote domain access point.

Attribute Table

Table 28 DM_MIB(5): T_DM_TDOMAIN Class Definition Attribute Table

Attribute	Type	Permissions	Values	Default
TA_DMACCESSPOINT(r)(k)(*)	string	rw-r--r--	*string*[1..30]	N/A
TA_DMNWADDR(r)(k)(*)	string	rw-r--r--	*string*[1..256] Note 1	N/A
TA_STATE(r)	string	rw-r--r--	GET: "VAL" SET: "{NEW | INV}"	N/A N/A
TA_DMNWDEVICE	string	rw-r--r--	*string*[1..78]	N/A
TA_DMCMPLIMIT	long	rw-rw-r--	0 <= *num* <= MAXLONG	MAXLONG
TA_DMMINENCRYPTBITS	string	rw-------	"{0 | 40 | 56 | 128}" Note 2	"0"
TA_DMMAXENCRYPTBITS	string	rw-------	"{0 | 40 | 56 | 128}" Note 2	"128"
TA_DMCONNECTION_POLICY	string	rwxr--r--	"{LOCAL | ON_DEMAND | ON_STARTUP | INCOMING_ONLY}"	"LOCAL" Note 3 (Also see Note 5)
TA_DMMAXRETRY	long	rwxr--r--	0 <= *num* <= MAXLONG	0
TA_DMRETRY_INTERVAL	long	rwxr--r--	0 <= *num* <= MAXLONG	60
TA_DMTCPKEEPALIVE	string	rwxr--r--	"{LOCAL | NO | YES}"	"LOCAL" Note 3 "NO" Note 4

Table 28 DM_MIB(5): T_DM_TDOMAIN Class Definition Attribute Table (Continued)

Attribute	Type	Permissions	Values	Default
TA_DMKEEPALIVE	long	rwxr--r--	-1 <= *num* <= 2147483647	-1 Note 3 0 Note 4
TA_DMKEEPALIVEWAIT	long	rwxr--r--	0 <= *num* <= 2147483647	0
TA_DMLACCESSPOINT(r)(k)(*)	string	rw-r--r--	*string*[1..30]	"*"
TA_DMFAILOVERSEQ	short	rw-r--r--	-1 <= *num* <= 32767	-1

(r)—required when a new object is created
(k)—a key field for object retrieval
(*)—a required key field for all SET operations on the class

Note 1 Maximum string length for this attribute is 78 bytes for BEA Tuxedo 8.0 or earlier.
Note 2 Link-level encryption value of 40 bits is provided for backward compatibility.
Note 3 Default for remote domain access points.
Note 4 Default for local domain access points.
Note 5 Default TA_DMCONNECTION_POLICY value for a local domain access point is the TA_DMCONNECTION_POLICY value specified in the T_DM_LOCAL class.

Attribute Semantics

TA_DMACCESSPOINT**:** *string***[1..30]**

The local or remote domain access point name for which this entry provides the TDomain-specific configuration data.

When Domains link-level failover is in use, more than one T_DM_TDOMAIN class entry can be defined with the same TA_DMACCESSPOINT attribute value.

TA_DMNWADDR**:** *string***[1..256] (up to 78 bytes for BEA Tuxedo 8.0 or earlier)**

Specifies the network address associated with the access point. For a local domain access point, this attribute supplies the address to be used for listening for incoming connections. For a remote domain access point, this attribute supplies the destination address to be used when connecting to a remote domain access point. The value of this field must be unique across all T_DM_TDOMAIN entries.

TA_STATE:

GET: "{VALid}"

A GET operation retrieves configuration information for the T_DM_TDOMAIN object. The following state indicates the meaning of a TA_STATE attribute value returned in response to a GET request. States not listed are not returned.

"VALid"	The object exists.

SET: "{NEW | INValid}"

A SET operation updates configuration information for the selected T_DM_TDOMAIN object. The following states indicate the meaning of a TA_STATE set in a SET request. States not listed may not be set.

"NEW"	A new object is created. This state change is allowed in the state "INValid" and results in the state "VALid".
unset	Modify an existing object. This combination is not allowed in state "INValid".
"INValid"	The object is deleted. This state change is allowed in the state "VALid" and results in the state "INValid".

TA_DMNWDEVICE: *string*[1..78]

Specifies the network device to be used. For a local domain access point, this attribute specifies the device to be used for listening. For a remote domain access point, this attribute specifies the device to be used when connecting to the remote domain access point.

TA_DMCMPLIMIT: 0 <= *num* <= MAXLONG

Relevant to remote domain access points only. Threshold message at which compression occurs for traffic to this access point.

TA_DMMINENCRYPTBITS: "{0 | 40 | 56 | 128}"

Relevant to remote domain access points only. When establishing a connection to this access point, this attribute specifies the minimum level of encryption required. "0" means no encryption, while "40", "56", and "128" specify the encryption length (in bits). If this minimum level of encryption is not met, link establishment fails. The default is "0".

The value of 40 bits is provided for backward compatibility.

Note: Modifications to this attribute do not affect established connections.

TA_DMMAXENCRYPTBITS: "{0 | 40 | 56 | 128}"

Relevant to remote domain access points only. When establishing a network link to this access point, this attribute specifies the maximum level of encryption allowed. "0" means no encryption, while "40", "56", and "128" specify the encryption length (in bits). The default is "128".

The value of 40 bits is provided for backward compatibility.

Note: Modifications to this attribute do not affect established connections.

TA_DMCONNECTION_POLICY = "{LOCAL | ON_DEMAND | ON_STARTUP | INCOMING_ONLY}"

Specifies the conditions under which the TDomain gateway associated with this local or remote domain access point tries to establish connections. Supported values are "LOCAL", "ON_DEMAND", "ON_STARTUP", or "INCOMING_ONLY". "LOCAL" is relevant only to remote domain access points.

The TA_DMCONNECTION_POLICY attribute is available in the T_DM_TDOMAIN class when running BEA Tuxedo 8.1 or later software. Its value in the T_DM_TDOMAIN class for a particular local or remote domain access point takes precedence over its global value in the T_DM_LOCAL class. The ability to override the global connection policy enables you to configure connection policy on a per remote domain basis.

Specifying no connection policy for a *local domain access point* defaults to the global connection policy specified in the T_DM_LOCAL class. If you choose to specify a global connection policy in the T_DM_TDOMAIN class, do not specify a global connection policy in the T_DM_LOCAL class.

"LOCAL"

A connection policy of "LOCAL" means that a remote domain access point accepts the global connection policy specified in the T_DM_LOCAL class. "LOCAL" is the default connection policy for remote domain access points. Excluding "LOCAL", the connection policy value for a remote domain access point takes precedence over the connection policy value for a local domain access point.

"ON_DEMAND"

A connection policy of "ON_DEMAND" means that the TDomain gateway attempts a connection only when requested by either a client request to a remote service or a dmadmin(1) connect command. Connection retry processing is not allowed when the connection policy is "ON_DEMAND".

"ON_STARTUP"

A connection policy of "ON_STARTUP" means that the TDomain gateway attempts to establish a connection at gateway server initialization time. For "ON_STARTUP", the remote services for a particular remote domain (that is, services advertised by the TDomain gateway) are advertised only if a connection is successfully established to the remote domain. Thus, if there is no active connection to the remote domain, the remote services are suspended. By default, this connection policy retries failed connections every 60 seconds, but you can specify a different value for this interval using the `TA_DMRETRY_INTERVAL` attribute in the `T_DM_TDOMAIN` class. Also, see the `TA_DMMAXRETRY` attribute in this class.

`"INCOMING_ONLY"`

A connection policy of `"INCOMING_ONLY"` means that the TDomain gateway does not attempt an initial connection upon startup and that remote services are initially suspended. The TDomain gateway is available for incoming connections from a remote domain, and remote services are advertised when the gateway receives an incoming connection or an administrative connection (using the `dmadmin(1) connect` command) is made. Connection retry processing is not allowed when the connection policy is `"INCOMING_ONLY"`.

`TA_DMFAILOVERSEQ =` **-1 <=** *`num`* **<= 32767**

Specifies or requests failover sequences and primary records for a TDomain session record in the `BDMCONFIG` file. If a `DM_MIB SET` request does not specify a `TA_DMFAILOVERSEQ` value or a `DM_MIB SET TA_DMFAILOVERSEQ` request is from Tuxedo releases prior to 9.0, the output TDomain session record in the `BDMCOMFIG` file uses the default `FAILOVERSEQ =` -1.

The record with the lowest `FAILOVERSEQ` value is the primary record for that TDomain session. There is only one primary record for a TDomain session, all remaining records for the same TDomain session are called secondary/backup records. With the exceptions of `NWADDR`, `NWDEVICE`, and `FAILOVERSEQ`, the primary record is the source for all TDomain session configuration parameters and attributes. All other parameters and attributes listed in secondary/backup records are ignored.

Based on the `CONNECTION_POLICY` attribute you select, the local domain will try to connect to a TDomain session's primary record. If the primary record has a failover, it will then try to connect to the next sequential secondary/backup record. If all secondary record connections fail, it will retry the primary record information at a later time as determined by `RETRY_INTERVAL` until `MAXRETRY` is exhausted.

`TA_DMLACCESSPOINT`**:** *`string`***[1..30]**

Specifies or requests a local domain access point found in the `DM_LOCAL` section for a TDomain session record in the `BDMCONFIG` file. The `TA_DMLACCESSPOINT` parameter is used exclusively to define TDomain session gateways and can contain only one local domain accesspoint as its value.

If a DM_MIB SET request does not specify a TA_DMLACCESSPOINT value or a DM_MIB SET TA_DMLACCESSPOINT request is from Tuxedo releases prior to 9.0, the output TDomain session record in the BDMCOMFIG file uses the default LACCESPOINT ="*".

Note: DM_MIB *does not* allow regular expression use with TA_DMLACCESSPOINT.

TA_DMMAXRETRY: **0** <= *num* <= MAXLONG

The number of times that the TDomain gateway associated with this local or remote domain access point tries to establish a connection. This attribute is available in the T_DM_TDOMAIN class when running BEA Tuxedo 8.1 or later software, and is valid when the TA_DMCONNECTION_POLICY attribute for this access point is set to "ON_STARTUP". For other connection policies, automatic retries are disabled.

The minimum value for TA_DMMAXRETRY is 0, and the maximum value is MAXLONG (2147483647). MAXLONG, the default, indicates that retry processing will be repeated indefinitely, or until a connection is established.

TA_DMRETRY_INTERVAL: **0** <= *num* <= MAXLONG

The number of seconds that the TDomain gateway associated with this local or remote domain access point waits between automatic attempts to establish a connection. This attribute is available in the T_DM_TDOMAIN class when running BEA Tuxedo 8.1 or later software, and is valid when the TA_DMCONNECTION_POLICY attribute for this access point is set to "ON_STARTUP". For other connection policies, automatic retries are disabled.

The minimum value for TA_DMRETRY_INTERVAL is 0, and the maximum value is MAXLONG (2147483647). The default is 60. If TA_DMMAXRETRY is set to 0, setting TA_DMRETRY_INTERVAL is not allowed.

TA_DMTCPKEEPALIVE = "**{**LOCAL | NO | YES**}**"

Enables TCP-level keepalive for this local or remote domain access point. Supported values are "LOCAL", "NO", or "YES". "LOCAL" is relevant only to remote domain access points.

The TA_DMTCPKEEPALIVE attribute applies only to domain gateways of type TDOMAIN running BEA Tuxedo 8.1 or later software. Its value for a remote domain access point takes precedence over its value for a local domain access point. The ability to override the local domain access point value enables you to configure TCP-level keepalive on a per remote domain basis.

A value of "LOCAL" means that a remote domain access point accepts the TCP-level keepalive value defined for the local domain access point. "LOCAL" is the default TCP-level keepalive value for remote domain access points.

A value of `"NO"` means that TCP-level keepalive is disabled for this access point. `"NO"` is the default TCP-level keepalive value for local domain access points.

A value of `"YES"` means that TCP-level keepalive is enabled for this access point. When TCP-level keepalive is enabled for a connection, the keepalive interval used for the connection is the system-wide value configured for the operating system's TCP keepalive timer. This interval is the maximum time that the TDomain gateway will wait without receiving any traffic on the connection. If the maximum time is exceeded, the gateway sends a TCP-level keepalive request message. If the connection is still open and the remote TDomain gateway is still alive, the remote gateway responds by sending an acknowledgement. If the local TDomain gateway does not receive an acknowledgement within a fixed period of time of sending the request message, it assumes that the connection is broken and releases any resources associated with the connection.

Not only does TCP-level keepalive keep BEA Tuxedo interdomain connections open during periods of inactivity, but it also enable TDomain gateways to quickly detect connection failures.

Note: The `TA_DMTCPKEEPALIVE` and `TA_DMKEEPALIVE` attributes are *not* mutually exclusive, meaning that you can configure an interdomain connection using both attributes.

`TA_DMKEEPALIVE` **= -1 <=** *`num`* **<= 2147483647**

Controls application-level keepalive for this local or remote domain access point. This value must be greater than or equal to -1 and less than or equal to 2147483647. The value -1 is relevant only to remote domain access points.

The `TA_DMKEEPALIVE` attribute applies only to domain gateways of type `TDOMAIN` running BEA Tuxedo 8.1 or later software. Its value for a remote domain access point takes precedence over its value for a local domain access point. The ability to override the local domain access point value enables you to configure application-level keepalive on a per remote domain basis.

A value of -1 means that a remote domain access point accepts the application-level keepalive value defined for the local domain access point. -1 is the default application-level keepalive value for remote domain access points.

A value of 0 means that application-level keepalive is disabled for this access point. 0 is the default application-level keepalive value for local domain access points.

A value greater than or equal to 1 and less than or equal to 2147483647, in milliseconds, currently rounded up to the nearest second by the Domains software, means that application-level keepalive is enabled for this access point. The time that you specify is the maximum time that the TDomain gateway will wait without receiving any traffic on the connection. If the maximum time is exceeded, the gateway sends an application-level keepalive request message. If the connection is still open and the remote TDomain gateway is still alive, the remote gateway responds by sending an acknowledgement. If the local TDomain gateway does not receive an acknowledgement within a configurable period of time (see the `TA_DMKEEPALIVEWAIT` attribute) of sending the request message, it assumes that the connection is broken and releases any resources associated with the connection.

Not only does application-level keepalive keep BEA Tuxedo interdomain connections open during periods of inactivity, but it also enable TDomain gateways to quickly detect connection failures.

Note: The `TA_DMKEEPALIVE` and `TA_DMTCPKEEPALIVE` attributes are *not* mutually exclusive, meaning that you can configure an interdomain connection using both attributes.

`TA_DMKEEPALIVEWAIT` = **0 <=** *num* **<= 2147483647**

Specifies the maximum time for this local or remote domain access point that the TDomain gateway will wait without receiving an acknowledgement to a sent keepalive message. This value must be greater than or equal to 0 and less than or equal to 2147483647, in milliseconds, currently rounded up to the nearest second by the Domains software. The default is 0. This attribute applies only to domain gateways of type `TDOMAIN` running BEA Tuxedo 8.1 or later software.

If `TA_DMKEEPALIVE` is 0 (keepalive disabled) for this access point, setting `TA_DMKEEPALIVEWAIT` has no effect.

If `TA_DMKEEPALIVE` is enabled for this access point and `TA_DMKEEPALIVEWAIT` is set to a value greater than `TA_DMKEEPALIVE`, the local TDomain gateway will send more than one application-level keepalive message before the `TA_DMKEEPALIVEWAIT` timer expires. This combination of settings is allowed.

If `TA_DMKEEPALIVE` is enabled for this access point and `TA_DMKEEPALIVEWAIT` is set to 0, receiving an acknowledgement to a sent keepalive message is unimportant: any such acknowledgement is ignored by the TDomain gateway. The gateway continues to send keepalive messages every time the `TA_DMKEEPALIVE` timer times out. *Use this combination of settings to keep an idle connection open through a firewall.*

Limitations

Deleting an instance of this class or updating the `TA_DMNWDEVICE` attribute of an instance of this class is not permitted in the following scenarios:

- If the instance of the class corresponds to a local domain access point and the Domain gateway administration (GWADM) server for the local access point is active.
- The instance of the class corresponds to a remote domain access point and any TDomain Domain gateway administration (GWADM) server is active.

T_DM_TRANSACTION Class Definition

Overview

The T_DM_TRANSACTION class represents run-time information about transactions that span domains. This object can be used to find out what remote domain access points are involved in the transaction, the parent domain access point, the transaction state, and other information.

For GET operations, the attributes TA_DMTPTRANID, TA_DMTXACCESSPOINT and TA_DMTXNETTRANID may be supplied to select a particular transaction.

Attribute Table

Table 29 DM_MIB(5): T_DM_TRANSACTION Class Definition Attribute Table

Attribute	Type	Permissions	Values	Default
TA_DMLACCESSPOINT(k)(*)	string	rw-r--r--	*string*[1..30]	N/A
TA_DMTPTRANID(k)	string	rw-r--r--	*string*[1..78]	N/A
TA_STATE(r)(k)	string	rwxr-xr--	GET: "{ABD | ABY | ACT | COM | DEC | DON | HAB | HCO | HEU | REA | UNK}"	N/A
			SET: "INV"	N/A
TA_DMTXACCESSPOINT(k)	string	r--r--r--	*string*[1..30]	N/A
TA_DMTXNETTRANID(k)	string	r--r--r--	*string*[1..78]	N/A
TA_DMBRANCHCOUNT	long	r--r--r--	0 <= *num*	N/A
TA_DMBRANCHINDEX	long	r--r--r--	0 <= *num*	N/A
Per branch attributes:				
TA_DMBRANCHNO	long	r--r--r--	0 <= *num*	N/A
TA_DMRACCESSPOINT	string	r--r--r--	*string*[1..30]	N/A

Table 29 DM_MIB(5): T_DM_TRANSACTION Class Definition Attribute Table (Continued)

Attribute	Type	Permissions	Values	Default
TA_DMNETTRANID	string	r--r--r--	*string*[1..78]	N/A
TA_DMBRANCHSTATE	string	r--r--r--	GET: "{ABD | ABY | ACT | COM | DEC | DON | HAB | HCO | HHZ | HMI | REA | UNK}"	N/A

(r)—required when a new object is created
(k)—a key field for object retrieval
(*)—a required key field for all SET operations on the class

Attribute Semantics

TA_DMLACCESSPOINT: *string*[1..30]
Name of the local domain access point with which the transaction is associated. This is a required field for GET operations. For SET operations, TA_DMLACCESSPOINT must be specified.

TA_DMTPTRANID: *string*[1..78]
Transaction identifier returned from tpsuspend(3c) mapped to a string representation. The data in this field should not be interpreted directly by the user except for equality comparison.

TA_STATE:

GET: "{ABorteD | ABortonlY | ACTive | COMcalled | DECided | DONe | HABort | HCOmmit | HEUristic | REAdy | UNKnown}"
A GET operation retrieves run-time information for the T_DM_TRANSACTION object. The following states indicate the meaning of a TA_STATE attribute value returned in response to a GET request. States not listed are not returned.

"ABorteD"	The transaction is being rolled back.
"ABortonlY"	The transaction has been identified for rollback.
"ACTive"	The transaction is active.
"COMcalled"	The transaction has initiated the first phase of commitment.

`"DECided"`	The transaction has initiated the second phase of commitment.
`"DONe"`	The transaction has completed the second phase of commitment.
`"HABort"`	The transaction has been heuristically rolled back.
`"HCOmmit"`	The transaction has been heuristically committed.
`"HEUristic"`	The transaction commitment or rollback has completed heuristically. The branch state may give further detail on which branch has completed heuristically.
`"REAdy"`	The transaction has completed the first phase of a two phase commit. All the participating groups and remote domains have completed the first phase of commitment and are ready to be committed.
`"UNKnown"`	It was not possible to determine the state of the transaction.

`SET:"{INValid}"`

A `SET` operation updates run-time information for the selected `T_DM_TRANSACTION` object or objects. The following state indicates the meaning of a `TA_STATE` set in a `SET` request. States not listed may not be set.

`"INValid"`	Forget the specified transaction object or objects. This state change is only valid in states `"HCOmmit"`, `"HABort"`, and `"HEUristic"`. If a `TA_DMTPTRANID` attribute value is not supplied, all heuristic transaction log records for the specified local domain access point are forgotten.

`TA_DMTXACCESSPOINT`**:** *`string`***[1..30]**

If the transaction originated from a remote domain, `TA_DMTXACCESSPOINT` is the name of the remote domain access point through which it originated. If the transaction originated within this domain, `TA_DMTXACCESSPOINT` is the name of the local domain access point.

`TA_DMTXNETTRANID`**:** *`string`***[1..78]**

If the transaction originated from a remote domain, `TA_DMTXNETTRANID` is the external transaction identifier received from the remote domain access point through which it originated. If the transaction originated within this domain, TA_DMTXNETTRANID contains the same value as the TA_DMTPTRANID attribute.

Note: This attribute is available only to gateways running BEA Tuxedo release 7.1 or later, and is set to the NULL string "" for gateways running earlier releases of the BEA Tuxedo system.

TA_DMBRANCHCOUNT**: 0 <=** *num*

The number of branches to remote domain access points involved in the transaction. For a domain gateway that does not make branch information available, this value is zero.

TA_DMBRANCHINDEX**: 0 <=** *num*

The index of the first branch-specific attribute values (TA_DMBRANCHNO, TA_DMRACCESSPOINT, TA_DMNETTRANID, and TA_DMBRANCHSTATE) corresponding to this object.

Per branch attributes

TA_DMBRANCHNO**: 0 <=** *num*

The branch number of the participating branch (numbered from zero).

TA_DMRACCESSPOINT**:** *string***[1..30]**

The name of the remote domain access point for this branch.

TA_DMNETTRANID**:** *string***[1..78]**

The external transaction identifier used with the remote domain access point for this branch. Some types of domain gateways do not return this information; in this scenario this attribute is set to the empty string. For example, TDomains uses the local transaction identifier in TA_DMTPTRANID for branches to remote domain access points and sets this value to the empty string.

TA_DMBRANCHSTATE**:**

GET: "{ABD | ABY | ACT | COM | DEC | DON | HAB | HCO | HHZ | HMI | REA | UNK}"

A GET operation will retrieve run-time information for the transaction branch (when it is available for a particular domain gateway type).

"ABorteD"	The transaction branch is being rolled back.
"ABortonlY"	The transaction branch has been identified for rollback.
"ACTive"	The transaction branch is active.

`"COMcalled"`	The transaction branch has initiated the first phase of commitment.
`"DECided"`	The transaction branch has initiated the second phase of commitment.
`"DONe"`	The transaction branch has completed the second phase of commitment.
`"HABort"`	The transaction has been heuristically rolled back.
`"HCOmmit"`	The transaction has been heuristically committed.
`"Heuristic HaZard"`	Communications for the transaction branch failed, and it has not been determined if rollback completed successfully.
`"Heuristic MIxed"`	The commitment or rollback for the transaction branch has completed and the remote domain has reported that the state of some of the resources used for the commitment or rollback is not consistent with the outcome of the transaction.
`"REAdy"`	The transaction has completed the first phase of a two-phase commit. All the participating groups and remote domains have completed the first phase of commitment and are ready to be committed.
`"UNKnown"`	The state of the transaction could not be determined.

Note: This attribute is available only to gateways running BEA Tuxedo release 7.1 or later, and is set to `"UNKnown"` for gateways running earlier releases of the BEA Tuxedo system.

Limitations

This object is never explicitly created by the administrator; it comes into existence when the application starts a multi-domain transaction. The only action an administrator can perform on this object is to set its state to `"INValid"`, which has the effect of causing the transaction to forget heuristic transaction log records. No other attributes are writable. When a transaction state is set to `"INValid"`, the state in the returned buffer is that of the transaction *before* the heuristic transaction log records are forgotten, not after.

On GET and SET operations, a specific local domain access point must be specified for the TA_DMLACCESSPOINT attribute.

On GET and SET operations, the Domain gateway administration (GWADM) server for the local access point identified in the TA_DMLACCESSPOINT attribute must be active. Otherwise, a "not defined" error is returned.

DM_MIB(5) Additional Information

Files

```
${TUXDIR}/include/tpadm.h
${TUXDIR}/udataobj/tpadm
```

See Also

tpacall(3c), tpalloc(3c), tpcall(3c), tpdequeue(3c), tpenqueue(3c), tpgetrply(3c), tprealloc(3c), Introduction to FML Functions, Fadd, Fadd32(3fml), Fchg, Fchg32(3fml), Ffind, Ffind32(3fml), MIB(5), TM_MIB(5)

Administering a BEA Tuxedo Application at Run Time

Setting Up a BEA Tuxedo Application

Programming a BEA Tuxedo ATMI Application Using C

Programming a BEA Tuxedo ATMI Application Using FML

EVENTS(5)

Name

EVENTS—List of system-generated events

Description

The System Event Monitor feature detects and reports certain predefined events, primarily failures, that a system operator should be aware of. Each event report is an FML32 buffer containing generic fields that describe the event plus other fields that describe the object associated with the event.

The BEA Tuxedo system periodically checks system capacities. If the system finds that a resource is exhausted or near capacity, it posts a system WARN or ERROR event. The system will continue to post these events until the condition subsides.

This reference page first defines the generic event reporting fields, and then lists all system events detected in the current BEA Tuxedo release. System event names begin with a dot (.).

Limitations

Event reporting is currently limited to classes defined in TM_MIB(5) and the T_DM_CONNECTION class defined in DM_MIB(5). Event reporting uses the MIB information base. See MIB(5) and TM_MIB(5) for a definition and the availability of "local attributes," and be aware that the availability of a local attribute depends on the state of communication within the application's network.

It is possible that the system will not post an event related to a system capacity limit (for example, .SysMachineFullMaxgtt) if the condition only exists for a very short period of time.

Generic Event Reporting Fields

TA_OPERATION: *string*
: The literal string EVT, which identifies this buffer as an event report notification.

TA_EVENT_NAME: *string*
: A string that uniquely identifies this event. All system-generated events begin with .Sys.

TA_EVENT_SEVERITY: *string*
: The string ERROR, WARN, or INFO, to indicate the severity of this event.

TA_EVENT_LMID: *string*
: A string identifying the machine where the event was detected.

`TA_EVENT_TIME`: *long*
: A long integer containing the event detection time, in seconds, according to the clock on the machine where detection took place.

`TA_EVENT_USEC`: *long*
: A long integer containing the event detection time, in microseconds, according to the clock on the machine where detection took place. While the units of this value will always be microseconds, the actual resolution depends on the underlying operating system and hardware.

`TA_EVENT_DESCRIPTION`: *string*
: A one-line string summarizing the event.

`TA_CLASS`: *string*
: The class of the object associated with the event. Depending on `TA_CLASS`, the event notification buffer will contain additional fields specific to an object of this class.

`TA_ULOGCAT`: *string*
: Catalog name from which the message was derived, if any.

`TA_ULOGMSGNUM`: *num*
: Catalog message number, if the message was derived from a catalog.

Event Lists

`T_ACLPERM` Event List

```
.SysAclPerm
      INFO: .SysACLPerm: system ACL permission change
```

`T_DOMAIN` Event List

```
.SysResourceConfig
      INFO: .SysResourceConfig: system configuration change

.SysLicenseInfo
      INFO: .SysLicenseInfo: reached 100% of Tuxedo System        Binary
      Licensed User Count, DBBL/BBL lockout canceled

            .SysLicenseInfo: reached 90% of Tuxedo System        Binary
      Licensed User Count

            .SysLicenseInfo: reached 90% of Tuxedo System        Binary
      Licensed User Count, DBBL/BBL lockout canceled

            .SysLicenseInfo: reached below 90% of Tuxedo System
             Binary Licensed User Count, DBBL/BBL lockout canceled
```

```
SysLicenseWarn
      WARN: .SysLicenseWarn: reached 100% of Tuxedo System        Binary
      Licensed User Count

SysLicenseError
      ERROR: .SysLicenseError: exceeded 110% of Tuxedo System         Binary
      Licensed User Count, DBBL/BBL lockout occurs,
              no new clients can join the application

             .SysLicenseError: exceeded 110% of Tuxedo System         Binary
      Licensed User Count, %hour, %minutes,         %seconds left before
      DBBL/BBL lockout occurs
```

T_DM_CONNECTION Event List

```
.SysConnectionSuccess
      INFO: .SysConnectionSuccess: Connection successful between
      %TA_DMLACCESSPOINT and %TA_DMRACCESSPOINT

.SysConnectionConfig
      INFO: .SysConnectionConfig: Configuration change for connection
      between %TA_DMLACCESSPOINT and %TA_DMRACCESSPOINT

.SysConnectionDropped
      INFO: .SysConnectionDropped: Connection dropped between
      %TA_DMLACCESSPOINT and %TA_DMRACCESSPOINT

.SysConnectionFailed
      INFO: .SysConnectionFailed: Connection failed between
      %TA_DMLACCESSPOINT and %TA_DMRACCESSPOINT
```

T_GROUP Event List

```
.SysGroupState
      INFO: .SysGroupState: system configuration change
```

T_MACHINE Event List

```
.SysMachineBroadcast
      WARN: .SysMachineBroadcast: %TA_LMID broadcast delivery failure

.SysMachineConfig
      INFO: .SysMachineConfig: %TA_LMID configuration change

.SysMachineFullMaxaccessers
      WARN: .SysMachineFullMaxaccessers: %TA_LMID capacity limit

.SysMachineFullMaxconv
      WARN: .SysMachineFullMaxconv: %TA_LMID capacity limit
```

.SysMachineFullMaxgtt
    WARN: .SysMachineFullMaxgtt: %TA_LMID capacity limit

.SysMachineFullMaxwsclients
    WARN: .SysMachineFullMaxwsclients: %TA_LMID capacity limit

.SysMachineMsgq
    WARN: .SysMachineMsgq: %TA_LMID message queue blocking

.SysMachinePartitioned
    ERROR: .SysMachinePartitioned: %TA_LMID is partitioned

.SysMachineSlow
    WARN: .SysMachineSlow: %TA_LMID slow responding to DBBL

.SysMachineState
    INFO: .SysMachineState: %TA_LMID state change to %TA_STATE

.SysMachineUnpartitioned
    ERROR: .SysMachinePartitioned: %TA_LMID is unpartitioned

T_BRIDGE Event List

.SysNetworkConfig
    INFO: .SysNetworkConfig: %TA_LMID[0]->%TA_LMID[1] configuration change

.SysNetworkDropped
    ERROR: .SysNetworkDropped: %TA_LMID[0]->%TA_LMID[1] connection dropped

.SysNetworkFailure
    ERROR: .SysNetworkFailure: %TA_LMID[0]->%TA_LMID[1] connection failure

.SysNetworkFlow
    WARN: .SysNetworkFlow: %TA_LMID[0]->%TA_LMID[1] flow control

.SysNetworkState
    INFO: .SysNetworkState: %TA_LMID[0]->%TA_LMID[1] state change to %TA_STATE

T_SERVER Event List

.SysServerCleaning
    ERROR: .SysServerCleaning: %TA_SERVERNAME, group %TA_SRVGRP, id %TA_SRVID server cleaning

.SysServerConfig

    INFO: .SysServerConfig: %TA_SERVERNAME, group %TA_SRVGRP, id %TA_SRVID configuration change

.SysServerDied

    ERROR: .SysServerDied: %TA_SERVERNAME, group %TA_SRVGRP, id %TA_SRVID server died

.SysServerInit

    ERROR: .SysServerInit: %TA_SERVERNAME, group %TA_SRVGRP, id %TA_SRVID server initialization failure

.SysServerMaxgen

    ERROR: .SysServerMaxgen: %TA_SERVERNAME, group %TA_SRVGRP, id %TA_SRVID server exceeded MAXGEN restart limit

.SysServerRestarting

    ERROR: .SysServerRestarting: %TA_SERVERNAME, group %TA_SRVGRP, id %TA_SRVID server restarting

.SysServerState

    INFO: .SysServerState: %TA_SERVERNAME, group %TA_SRVGRP, id %TA_SRVID state change to %TA_STATE

.SysServerTpexit

    ERROR: .SysServerTpexit: %TA_SERVERNAME, group %TA_SRVGRP, id %TA_SRVID server requested TPEXIT

T_SERVICE Event List

.SysServiceTimeout

    ERROR: .SysServiceTimeout: %TA_SERVERNAME, group %TA_SRVGRP, id %TA_SRVID server killed due to a service timeout

T_CLIENT Event List

.SysClientConfig

    INFO: .SysClientConfig: User %TA_USRNAME on %TA_LMID configuration change

.SysClientDied

    WARN: .SysClientDied: User %TA_USRNAME on %TA_LMID client died

.SysClientSecurity

    WARN: .SysClientSecurity: User %TA_USRNAME on %TA_LMID authentication failure

`.SysClientState`
    `INFO: .SysClientState: User %TA_USRNAME on %TA_LMID state change to %TA_STATE`

`T_TRANSACTION` Event List

`.SysTransactionHeuristicAbort`
    `ERROR: .SysTransactionHeuristicAbort: Transaction %TA_GTRID in group %TA_GRPNO`

`.SysTransactionHeuristicCommit`
    `ERROR: .SysTransactionHeuristicCommit: Transaction %TA_GTRID in group %TA_GRPNO`

`T_EVENT` Event List

`.SysEventDelivery`
    `ERROR: .SysEventDelivery: System Event Monitor delivery failure on %TA_LMID`

`.SysEventFailure`
    `ERROR: .SysEventFailure: System Event Monitor subsystem failure on %TA_LMID`

Files

`${TUXDIR}/udataobj/evt_mib`

See Also

`MIB(5)`, `TM_MIB(5)`, `DM_MIB(5)`

EVENT_MIB(5)

Name

EVENT_MIB—Management Information Base for EventBroker

Synopsis

```
#include <tpadm.h>
#include <fml32.h>
#include <evt_mib.h>
```

Description

The BEA Tuxedo EventBroker MIB defines the set of classes through which the EventBroker can be managed.

EVENT_MIB(5) should be used in combination with the generic MIB reference page, MIB(5), to format administrative requests and interpret administrative replies. Requests formatted as described in MIB(5) and a component MIB reference page may be used to request an administrative service using any one of a number of existing ATMI interfaces in an active application. For additional information pertaining to all EVENT_MIB(5) class definitions, see "EVENT_MIB(5) Additional Information" on page 187.

EVENT_MIB consists of the following classes.

Table 30 EVENT_MIB Classes

Class Name	Attributes
T_EVENT_CLIENT	Subscriptions that trigger unsolicited notification
T_EVENT_COMMAND	Subscriptions that trigger system commands
T_EVENT_QUEUE	Subscriptions for queue-based notification
T_EVENT_SERVICE	Subscriptions for server-based notification
T_EVENT_USERLOG	Subscriptions for writing userlog messages

Each object in these classes represents a single subscription request.

The pattern expression of TA_EVENT_EXPR in each class determines whether it is a SYSTEM EVENT request or an USER EVENT request. The determination on which one to query is made as follows:

- A basic GET request without TA_EVENT_EXPR or TA_EVENT_SERVER specified will always go to the SYSTEM EVENT request and will not return USER EVENT request.
- A GET request with TA_EVENT_EXPR specified but not TA_EVENT_SERVER will go to the SYSTEM EVENT request if the expressions starts with "\.". Otherwise, it will go to the USER EVENT request.
- A GET request with TA_EVENT_SERVER specified with a value of "SYSTEM" will go to the SYSTEM EVENT request. A value of "USER" will direct the request to the USER EVENT.

FML32 Field Tables

The field table for the attributes described in this reference page is found in the file udataobj/evt_mib (relative to the root directory of the BEA Tuxedo system software). The directory ${TUXDIR}/udataobj should be included by the application in the colon-separated list specified by the FLDTBLDIR32 environment variable and the field table name evt_mib should be included in the comma-separated list specified by the FIELDTBLS32 environment variable.

T_EVENT_CLIENT Class Definition

Overview

The T_EVENT_CLIENT class represents a set of subscriptions registered with the EventBroker for client-based notification.

When an event is detected, it is compared to each T_EVENT_CLIENT object. If the event name matches the value in TA_EVENT_EXPR and the optional filter rule is TRUE, the event buffer is sent to the specified client's unsolicited message handling routine.

Attribute Table

Table 31 T_EVENT_CLIENT Class Definition Attribute Table

Attribute	Type	Permissions	Values	Default
TA_EVENT_EXPR(r) (*)	string	R--R--R--	*string*[1..255]	N/A
TA_EVENT_FILTER(k)	string	R--R--R--	*string*[1..255]	none
TA_EVENT_FILTER_BINARY(k)	carray	R--R--R--	*carray*[1..64000]	none
TA_STATE(r)	string	R-xR-xR-x	GET: ACT	N/A
			SET: {NEW | INV}	N/A

Table 31 T_EVENT_CLIENT Class Definition Attribute Table

Attribute	Type	Permissions	Values	Default
TA_CLIENTID(r) (*)	string	R--R--R--	*string*[1..78]	N/A
(k)—a key field for object retrieval (r)—the field is required when a new object is created (*)—GET/SET key, one or more required for SET operations				

Check MIB(5) for an explanation of Permissions.

Attribute Semantics

TA_EVENT_EXPR: *string*[1..255]
: Event pattern expression. This expression, in regular expression format, controls which event names match this subscription.

TA_EVENT_FILTER: *string*[1..255]
: Event filter expression. This expression, if present, is evaluated with respect to the posted buffer's contents. It must evaluate to TRUE or this subscription is not matched.

TA_EVENT_FILTER_BINARY: *carray*[1..64000]
: Event filter expression, in binary (carray) format. Same as TA_EVENT_FILTER, but may contain arbitrary binary data. Only one of TA_EVENT_FILTER or TA_EVENT_FILTER_BINARY may be specified.

TA_STATE:

GET: ACTive
: A GET operation will retrieve configuration information for the matching T_EVENT_CLIENT object(s).

SET: {NEW | INValid}
: A SET operation will update configuration information for the T_EVENT_CLIENT object. The following states indicate the meaning of a TA_STATE set in a SET request. States not listed may not be set.

NEW	Create T_EVENT_CLIENT object. Successful return leaves the object in the ACTive state.
INValid	Delete T_EVENT_CLIENT object. Successful return leaves the object in the INValid state.

TA_CLIENTID: *string*[1..78]
Send an unsolicited notification message to this client when a matching event is detected.

T_EVENT_COMMAND Class Definition

Overview

The T_EVENT_COMMAND class represents a set of subscriptions registered with the EventBroker that trigger execution of system commands. When an event is detected, it is compared to each T_EVENT_COMMAND object. If the event name matches the value in TA_EVENT_EXPR and the optional filter rule is TRUE, the event buffer is formatted and passed to the system's command interpreter.

Attribute Table

Table 32 T_EVENT_COMMAND Class Definition Attribute Table

Attribute	Type	Permissions	Values	Default
TA_EVENT_EXPR(r) (*)	string	R--------	*string*[1..255]	N/A
TA_EVENT_FILTER(k)	string	R--------	*string*[1..255]	none
TA_EVENT_FILTER_BINARY(k)	carray	R--------	*carray*[1..64000]	none
TA_STATE(r)	string	R-x------	GET: ACT	N/A
			SET: {NEW | INV}	N/A
TA_COMMAND(r) (*)	string	R--------	*string*[1..255]	N/A
(k)—a key field for object retrieval (r)—the field is required when a new object is created (*)—GET/SET key, one or more required for SET operations				

Check MIB(5) for an explanation of Permissions.

Attribute Semantics

`TA_EVENT_EXPR`: *`string`*[1..255]
: Event pattern expression. This expression, in regular expression format, controls which event names match this subscription.

`TA_EVENT_FILTER`: *`string`*[1..255]
: Event filter expression. This expression, if present, is evaluated with respect to the posted buffer's contents. It must evaluate to TRUE or this subscription is not matched.

`TA_EVENT_FILTER_BINARY`: *`carray`*[1..64000]
: Event filter expression, in binary (carray) format. Same as `TA_EVENT_FILTER`, but may contain arbitrary binary data. Only one of `TA_EVENT_FILTER` or `TA_EVENT_FILTER_BINARY` may be specified.

`TA_STATE`:

`GET: ACTive`
: A `GET` operation will retrieve configuration information for the matching `T_EVENT_COMMAND` object(s).

`SET: {NEW | INValid}`
: A `SET` operation will update configuration information for the `T_EVENT_COMMAND` object. The following states indicate the meaning of a `TA_STATE` set in a `SET` request. States not listed may not be set.

`NEW`	Create `T_EVENT_COMMAND` object. Successful return leaves the object in the `ACTive` state.
`INValid`	Delete `T_EVENT_COMMAND` object. Successful return leaves the object in the `INValid` state.

`TA_COMMAND`: *`string`*[1..255]
: Execute this system command when an event matching this object is detected. For UNIX system platforms, the command is executed in the background using `system`(3).

T_EVENT_QUEUE Class Definition

Overview

The `T_EVENT_QUEUE` class represents a set of subscriptions registered with the EventBroker for queue-based notification. When an event is detected, it is compared to each `T_EVENT_QUEUE` object. If the event name matches the value in TA_EVENT_EXPR and the optional filter rule is TRUE, the event buffer is stored in the specified reliable queue.

Attribute Table

Table 33 T_EVENT_QUEUE Class Definition Attribute Table

Attribute	Type	Permissions	Values	Default
TA_EVENT_EXPR(r) (*)	string	R--------	*string*[1..255]	N/A
TA_EVENT_FILTER(k)	string	R-x------	*string*[1..255]	none
TA_EVENT_FILTER_BINARY(k)	carray	R-x------	*carray*[1..64000]	none
TA_STATE(r)	string	R-x------	GET: ACT	N/A
			SET: {NEW | INV}	N/A
TA_QSPACE(r) (*)	string	R--------	*string*[1..15]	N/A
TA_QNAME(r) (*)	string	R--------	*string*[1..15]	N/A
TA_QCTL_QTOP	short	R-x------	*short*	0
TA_QCTL_BEFOREMSGID	short	R-x------	*short*	0
TA_QCTL_QTIME_ABS	short	R-x------	*short*	0
TA_QCTL_QTIME_REL	short	R-x------	*short*	0
TA_QCTL_DEQ_TIME	short	R-x------	*short*	0
TA_QCTL_PRIORITY	short	R-x------	*short*	0
TA_QCTL_MSGID	string	R-x------	*string*[1..31]	none
TA_QCTL_CORRID(k)	string	R-x------	*string*[1..31]	none
TA_QCTL_REPLYQUEUE	string	R-x------	*string*[1..15]	none
TA_QCTL_FAILUREQUEUE	string	R-x------	*string*[1..15]	none
TA_EVENT_PERSIST	short	R-x------	*short*	0
TA_EVENT_TRAN	short	R-x------	*short*	0

(k)—a key field for object retrieval
(r)—the field is required when a new object is created
(*)—GET/SET key, one or more required for SET operations

Check MIB(5) for an explanation of Permissions.

Attribute Semantics

`TA_EVENT_EXPR`: *string*[1..255]

Event pattern expression. This expression, in regular expression format, controls which event names match this subscription.

`TA_EVENT_FILTER`: *string*[1..255]

Event filter expression. This expression, if present, is evaluated with respect to the posted buffer's contents. It must evaluate to TRUE or this subscription is not matched.

`TA_EVENT_FILTER_BINARY`: *carray*[1..64000]

Event filter expression, in binary (carray) format. Same as `TA_EVENT_FILTER`, but may contain arbitrary binary data. Only one of `TA_EVENT_FILTER` or `TA_EVENT_FILTER_BINARY` may be specified.

`TA_STATE`:

`GET: ACTive`

A `GET` operation will retrieve configuration information for the matching `T_EVENT_QUEUE` object(s).

`SET: {NEW | INValid}`

A `SET` operation will update configuration information for the `T_EVENT_QUEUE` object. The following states indicate the meaning of a `TA_STATE` set in a `SET` request. States not listed may not be set.

`NEW`	Create `T_EVENT_QUEUE` object. Successful return leaves the object in the `ACTive` state.
`INValid`	Delete `T_EVENT_QUEUE` object. Successful return leaves the object in the `INValid` state.

`TA_QSPACE`: *string*[1..15]

Enqueue a notification message to a reliable queue in this queue space when a matching event is detected.

`TA_QNAME`: *string*[1..15]

Enqueue a notification message to this reliable queue when a matching event is detected.

`TA_QCTL_QTOP`: *short*

This value, if present, is passed in to `tpenqueue()`'s `TPQCTL` control structure to request notification via the /Q subsystem with the message to be placed at the top of the queue.

`TA_QCTL_BEFOREMSGID`: *short*
: This value, if present, is passed in to `tpenqueue()`'s `TPQCTL` control structure to request notification via the /Q subsystem with the message to be placed on the queue ahead of the specified message.

`TA_QCTL_QTIME_ABS`: *short*
: This value, if present, is passed in to `tpenqueue()`'s `TPQCTL` control structure to request notification via the /Q subsystem with the message to be processed at the specified time.

`TA_QCTL_QTIME_REL`: *short*
: This value, if present, is passed in to `tpenqueue()`'s `TPQCTL` control structure to request notification via the /Q subsystem with the message to be processed relative to the dequeue time.

`TA_QCTL_DEQ_TIME`: *short*
: This value, if present, is passed in to `tpenqueue()`'s `TPQCTL` control structure.

`TA_QCTL_PRIORITY`: *short*
: This value, if present, is passed in to `tpenqueue()`'s `TPQCTL` control structure.

`TA_QCTL_MSGID`: *string*[1..31]
: This value, if present, is passed in to `tpenqueue()`'s `TPQCTL` structure.

`TA_QCTL_CORRID`: *string*[1..31]
: This value, if present, is passed in to `tpenqueue()`'s `TPQCTL` control structure.

`TA_QCTL_REPLYQUEUE`: *string*[1..15]
: This value, if present, is passed in to `tpenqueue()`'s `TPQCTL` control structure.

`TA_QCTL_FAILUREQUEUE`: *string*[1..15]
: This value, if present, is passed in to `tpenqueue()`'s `TPQCTL` control structure.

`TA_EVENT_PERSIST`: *short*
: If non-zero, do not cancel this subscription if the designated queue is no longer available.

`TA_EVENT_TRAN`: *short*
: If non-zero and the client's `tppost()` call is transactional, include the `tpenqueue()` call in the client's transaction.

T_EVENT_SERVICE Class Definition

Overview

The T_EVENT_SERVICE class represents a set of subscriptions registered with the EventBroker for service-based notification. When an event is detected, it is compared to each T_EVENT_SERVICE object. If the event name matches the value in TA_EVENT_EXPR and the optional filter rule is TRUE, the event buffer is sent to the specified BEA Tuxedo service routine.

Attribute Table

Table 34 T_EVENT_SERVICE Class Definition Attribute Table

Attribute	Type	Permissions	Values	Default
TA_EVENT_EXPR(r) (*)	string	R--R--R--	*string*[1. .255]	N/A
TA_EVENT_FILTER(k)	string	R--R--R--	*string*[1. .255]	none
TA_EVENT_FILTER_BINARY(k)	carray	R--R--R--	*carray*[1. .64000]	none
TA_STATE(r)	string	R-xR-xR-x	GET: ACT	N/A
			SET: {NEW | INV}	N/A
TA_SERVICENAME(r) (*)	string	R--R--R--	*string*[1..15]	N/A
TA_EVENT_PERSIST	short	R-xR-xR-x	*short*	0
TA_EVENT_TRAN	short	R-xR-xR-x	*short*	0

(k)—a key field for object retrieval
(r)—the field is required when a new object is created
(*)—GET/SET key, one or more required for SET operations

Check MIB(5) for an explanation of permissions.

Attribute Semantics

TA_EVENT_EXPR: *string*[1..255]
: Event pattern expression. This expression, in regular expression format, controls which event names match this subscription.

TA_EVENT_FILTER: *string*[1..255]
: Event filter expression. This expression, if present, is evaluated with respect to the posted buffer's contents. It must evaluate to TRUE or this subscription is not matched.

TA_EVENT_FILTER_BINARY: *carray*[1..64000]

Event filter expression, in binary (carray) format. Same as TA_EVENT_FILTER, but may contain arbitrary binary data. Only one of TA_EVENT_FILTER or TA_EVENT_FILTER_BINARY may be specified.

TA_STATE:

GET: ACTive

A GET operation will retrieve configuration information for the matching T_EVENT_SERVICE object(s).

SET: {NEW | INValid}

A SET operation will update configuration information for the T_EVENT_SERVICE object. The following states indicate the meaning of a TA_STATE set in a SET request. States not listed may not be set.

NEW	Create T_EVENT_SERVICE object. Successful return leaves the object in the ACTive state.
INValid	Delete T_EVENT_SERVICE object. Successful return leaves the object in the INValid state.

TA_SERVICENAME: *string*[1..15]

Call this BEA Tuxedo service when a matching event is detected.

TA_EVENT_PERSIST: *short*

If non-zero, do not cancel this subscription if the TA_SERVICENAME service is no longer available.

TA_EVENT_TRAN: *short*

If non-zero and the client's tppost() call is transactional, include the TA_SERVICENAME service call in the client's transaction.

T_EVENT_USERLOG Class Definition

Overview

The T_EVENT_USERLOG class represents a set of subscriptions registered with the EventBroker for writing system userlog(3c) messages. When an event is detected, it is compared to each T_EVENT_USERLOG object. If the event name matches the value in TA_EVENT_EXPR and the optional filter rule is TRUE, the event buffer is formatted and passed to the BEA Tuxedo `userlog(3c)` function.

Attribute Table

Table 35 T_EVENT_USERLOG Class Definition Attribute Table

Attribute	Type	Permissions	Values	Default
`TA_EVENT_EXPR`(r)	string	`R--R-----`	*`string`*[1..255]	N/A
`TA_EVENT_FILTER`(k)	string	`R--R-----`	*`string`*[1..255]	none
`TA_EVENT_FILTER_BINARY`(k)	carray	`R--R-----`	*`carray`*[1..64000]	none
`TA_STATE`(r)	string	`R-xR-x---`	`GET`: `ACT`	N/A
			`SET`: {`NEW` | `INV`}	N/A
`TA_USERLOG`(r)	string	`R--R-----`	*`string`*[1..255]	N/A

(k)—a key field for object retrieval
(r)—the field is required when a new object is created

Check `MIB(5)` for an explanation of Permissions.

Attribute Semantics

`TA_EVENT_EXPR`: *`string`*[1..255]
: Event pattern expression. This expression, in regular expression format, controls which event names match this subscription.

`TA_EVENT_FILTER`: *`string`*[1..255]
: Event filter expression. This expression, if present, is evaluated with respect to the posted buffer's contents. It must evaluate to TRUE or this subscription is not matched.

`TA_EVENT_FILTER_BINARY`: *`carray`*[1..64000]
: Event filter expression, in binary (carray) format. Same as `TA_EVENT_FILTER`, but may contain arbitrary binary data. Only one of `TA_EVENT_FILTER` or `TA_EVENT_FILTER_BINARY` may be specified.

`TA_STATE`:

`GET: ACTive`
: A `GET` operation will retrieve configuration information for the matching `T_EVENT_USERLOG` object(s).

SET: {NEW | INValid}

A SET operation will update configuration information for the T_EVENT_USERLOG object. The following states indicate the meaning of a TA_STATE set in a SET request. States not listed may not be set.

NEW	Create T_EVENT_USERLOG object. Successful return leaves the object in the ACTive state.
INValid	Delete T_EVENT_USERLOG object. Successful return leaves the object in the INValid state.

TA_USERLOG: *string*[1..255]

Write a userlog(3c) message when a matching event is detected.

EVENT_MIB(5) Additional Information

Files

${TUXDIR}/udataobj/evt_mib ${TUXDIR}/include/evt_mib.h

See Also

EVENTS(5), TM_MIB(5)

factory_finder.ini(5)

Name

`factory_finder.ini`—FactoryFinder Domains configuration file

Description

`factory_finder.ini` is the FactoryFinder configuration file for Domains. This text (ASCII) file is parsed by the `TMFFNAME` service when it is started as a Master NameManager. The file contains information used by NameManagers to control the import and the export of object references for factory objects with other domains. To use the information in the `factory_finder.ini` file, you must specify the `factory_finder.ini` file in the `-f` option of the TMFFNAME server process.

The FactoryFinder Domains configuration file may have any name as long as the content of the file conforms to the format described on this reference page.

Definitions

A BEA Tuxedo domain is defined as the environment described in a single `TUXCONFIG` file. A BEA Tuxedo domain can communicate with another BEA Tuxedo domain or with another TP application—an application running on another TP system—via a domain gateway group. In BEA Tuxedo terminology, a *domain* is the same as an *application*—a business application.

A Remote Factory is a factory object that exists in a remote domain that is made available to the application through a BEA Tuxedo FactoryFinder.

A Local Factory is a factory object that exists in the local domain that is made available to remote domains through a BEA Tuxedo FactoryFinder.

File Format

The file is made up of two specification sections. Allowable section names are: `DM_REMOTE_FACTORIES` and `DM_LOCAL_FACTORIES`.

- Formatting Guidelines

  Parameters are generally specified by: *`KEYWORD = value`*, which sets *`KEYWORD`* to *`value`*. Valid keywords are described within each section. *`KEYWORDs`* are reserved; they cannot be used as values, unless they are quoted.

  If a value is an identifier, standard C rules are used. An identifier must start with an alphabetic character or underscore and must contain only alphanumeric characters or underscores. An identifier cannot be the same as any *`KEYWORD`*.

A value that is not an identifier must be enclosed in double quotes.

Input fields are separated by at least one space or tab character.

The `#` character introduces a comment. A newline ends a comment.

Blank lines and comments are ignored.

Lines are continued by placing at least one tab after the newline. Comments can not be continued.

- `DM_LOCAL_FACTORIES` section

  This section provides information about the factories exported by each local domain. This section is optional; if it is not specified, all local factory objects can be exported to remote domains. If this section is specified, it should be used to restrict the set of local factory objects that can be retrieved from a remote domain. The reserved *`factory_id.factory_kind`* identifier of `NONE` can be used to restrict any local factory from being retrieved from a remote domain.

  Lines within this section have the form:

  `factory_id.factory_kind`

  where *`factory_id.factory_kind`* is the local name (identifier) of the factory. This name must correspond to the identifier of a factory object registered by one or more BEA Tuxedo server applications with the BEA Tuxedo FactoryFinder.

  The *`factory_kind`* must be specified for `TMFFNAME` to locate the appropriate factory. An entry that does not contain a *`factory_kind`* value does not default to a value of `FactoryInterface`.

- `DM_REMOTE_FACTORIES` section

  This section provides information about factory objects imported and available on remote domains. Lines within this section have the form:

  `factory_id.factory_kind required_parameters`

  where *`factory_id.factory_kind`* is the name (identifier) of the factory object used by the local BEA Tuxedo domain for a particular remote factory object. Remote factory objects are associated with a particular remote domain.

Note: If you use the `TobjFactoryFinder` interface, the *`factory_kind`* must be `FactoryInterface`.

The required parameter is:

`DOMAINID =` *`domain_id`*

This parameter specifies the identity of the remote domain in which the factory object is to be retrieved. The *`domain_id`* must not be greater than 32 octets in length. If the value is a string, it must be 32 characters or fewer (counting the trailing `NULL`). The value of *`domain_id`* can be a sequence of characters or a sequence of hexadecimal digits preceded by `0x`.

The optional parameter is:

`RNAME =` *`string`*

This parameter specifies the name exported by remote domains. This value will be used by a remote domain to request this factory object. If this parameter is not specified, the remote factory object name is the same as the named specified in *`factory_id.factory_kind`*.

Multiple entries with the same name can be specified as long as the values associated with either the `DOMAINID` or `RNAME` parameter results in the identification of a unique factory object.

Examples

- Example 1

The following FactoryFinder Domains configuration file defines two entries for a factory object that will be known in the local domain by the identifier `Teller.FactoryIdentity` that is imported from two different remote domains:

```
# BEA Tuxedo FactoryFinder Domains
# Configuration File
#
*DM_REMOTE_FACTORIES
  Teller.FactoryIdentity
    DOMAINID="Northwest"
    RNAME=Teller.FactoryType
  Teller.FactoryIdentity
    DOMAINID="Southwest"
```

In the first entry, a factory object is to be imported from the remote domain with an identity of `Northwest` that has been registered with a factory identity of `Teller.FactoryType`.

In the second entry, a factory object is to be imported from the remote domain with an identity of `Southwest` that has been registered with a factory identity of `Teller.FactoryIdentity`. Note that because no `RNAME` parameter was specified, the name of the factory object in the remote domain is assumed to be the same as the factory's name in the local domain.

- Example 2

The following FactoryFinder Domains configuration file defines that only factory objects registered with the identity of `Teller.FactoryInterface` in the local domain are allowed to be exported to any remote domain. Requests for any other factory should be denied.

```
# BEA Tuxedo FactoryFinder Domains
# Configuration File
#
*DM_LOCAL_FACTORIES
  Teller.FactoryInterface
```

- Example 3

  The following FactoryFinder Domains configuration file defines that none of the factory objects registered with the BEA Tuxedo FactoryFinder are to be exported to a remote domain.

```
# BEA Tuxedo FactoryFinder Domains
# Configuration File
#
*DM_LOCAL_FACTORIES
  NONE
```

See Also

`UBBCONFIG(5)`, `DMCONFIG(5)`, `TMFFNAME(5)`, `TMIFRSVR(5)`

Ferror, Ferror32(5)

Name

`Ferror, Ferror32`—FML error codes

Synopsis

```
#include "fml.h"
#include "fml32.h"
```

Description

The numerical value represented by the symbolic name of an error condition is assigned to `Ferror` for errors that occur when executing many FML library routines.

The name `Ferror` expands to a modifiable *`lvalue`* that has type `int`, the value of which is set to a positive error number by several FML library routines. `Ferror` need not be the identifier of an object; it might expand to a modifiable *`lvalue`* resulting from a function call. It is unspecified whether `Ferror` is a macro or an identifier declared with external linkage. If a `tperrno()` macro definition is suppressed to access an actual object, or if a program defines an identifier with the name `Ferror`, the behavior is undefined.

The reference pages for FML routines list possible error conditions for each routine and the meaning of the error in that context. The order in which possible errors are listed is not significant and does not imply precedence. The value of `Ferror` should be checked only after an error has been indicated; that is, when the return value of the component indicates an error and the component definition specifies that `tperrno()` be set. An application that checks the value of `Ferror` must include the `fml.h` header file.

`Ferror32` provides a similar capability for users of FML32 routines. An application that checks the value of `Ferror32` must include the `fml32.h` header file.

```
The following list shows error codes that may be returned by FML and FML32
routines.
#define FMINVAL 0    /* bottom of error message codes */
#define FALIGNERR 1  /* fielded buffer not aligned */
#define FNOTFLD 2    /* buffer not fielded */
#define FNOSPACE 3    /* no space in fielded buffer */
#define FNOTPRES 4    /* field not present */
#define FBADFLD 5    /* unknown field number or type */
#define FTYPERR 6    /* illegal field type */
#define FEUNIX 7     /* unix system call error */
```

```
#define FBADNAME 8   /* unknown field name */
#define FMALLOC 9   /* malloc failed */
#define FSYNTAX 10   /* bad syntax in boolean expression */
#define FFTOPEN 11   /* cannot find or open field table */
#define FFTSYNTAX 12  /* syntax error in field table */
#define FEINVAL 13   /* invalid argument to function */
#define FBADTBL 14   /* destructive concurrent access to field table */
#define FBADVIEW 15  /* cannot find or get view */
#define FVFSYNTAX 16  /* bad viewfile */
#define FVFOPEN 17   /* cannot find or open viewfile */
#define FBADACM 18   /* ACM contains negative value */
#define FNOCNAME 19   /* cname not found */
```

Usage

Some routines do not have an error return value. Because no routine sets `Ferror` to zero, an application can set `Ferror` to zero, call a routine and then check `Ferror` again to see if an error has occurred.

In DOS and OS/2 environments, this variable is known as `FMLerror`.

See Also

See the `ERRORS` section of the individual FML library routines for a more detailed description of the meaning of the error codes returned by each routine.

Introduction to the C Language Application-to-Transaction Monitor Interface, `tperrordetail(3c)`, `tpstrerror(3c)`, `tpstrerrordetail(3c)`, Introduction to FML Functions, `F_error, F_error32(3fml)`

field_tables(5)

Name

`field_tables`—FML mapping files for field names

Description

The Field Manipulation Language functions implement and manage fielded buffers. Each field in a fielded buffer is tagged with an identifying integer. Fields that can variable in length (for example, a string) have an additional length modifier. The buffer then consists of a series of numeric-identifier/data pairs and numeric-identifier/length/data triples.

The numeric-identifier of a field is called its field identifier and is typedef'd by `FLDID`. A field is named by relating an alphanumeric string (the name) to a `FLDID` in a field table.

The original FML interface supports 16-bit field identifiers, field lengths, and buffer sizes. A newer 32-bit interface, FML32, supports larger identifiers, field lengths, and buffer sizes. All types, function names, etc. are suffixed with “32” (for example, the field identifier type definition is `FLDID32`).

Field Identifiers

FML functions allow field values to be typed. Currently the following types are supported: `char`, `string`, `short`, `long`, `float`, `double`, `carray` (character array), `ptr` (pointer to a buffer), `FML32` (embedded FML32 buffer), and `VIEW32` (embedded VIEW32 buffer). The `ptr`, `FML32`, and `VIEW32` types are supported only for the FML32 interface. Constants for field types are defined in `fml.h` (`fml32.h` for FML32). So that fielded buffers can be truly self-describing, the type of a field is carried along with the field by encoding the field type in the FLDID. Thus, a FLDID is composed of two elements: a field type, and a field number. In 32-bit FML, field numbers must be between 10,001 and 30,000,000. The numbers 1-10,000 and 30,000,001-33,554,431 are reserved for system use. In 16-bit FML, field numbers must be between 101 and 8,191. The numbers 1-100 are reserved for system use.

Field Mapping

For efficiency, it is desirable that the field name to field identifier mapping be available at compile time. For utility, it is also desirable that these mappings be available at run time. To accommodate both these goals, FML represents field tables in text files, and provides commands to generate corresponding C header files. Thus, compile time mapping is done by the C preprocessor, `cpp`, by the usual `#define` macro. Run-time mapping is done by the function

`Fldid()` (or `Fldid32()` for FML32), which maps its argument, a field name, to a field identifier by consulting the source field table files.

Field Table Files

Files containing field tables have the following format:

- Blank lines and lines beginning with # are ignored.
- Lines beginning with $ are ignored by the mapping functions but are passed through (without the $) to header files generated by `mkfldhdr()` (the command name is `mkfldhdr32()` for FML32; see `mkfldhdr, mkfldhdr32(1)`). For example, this would allow the application to pass C comments, `what` strings, etc. to the generated header file.
- Lines beginning with the string `*base` contain a base for offsetting subsequent field numbers. This optional feature provides an easy way to group and renumber sets of related fields.
- Lines that don't begin with either * nor # should have the form:

  ```
  name     rel-numb   type
  ```

  where:

  - Name is the identifier for the field. It should not exceed `cpp` restrictions.
  - `rel-numb` is the relative numeric value of the field. It is added to the current base to obtain the field number of the field.
  - `type` is the type of the field, and is specified as one of the following: `char`, `string`, `short`, `long`, `float`, `double`, `carray`, `ptr`, `FML32`, or `VIEW32`.

Entries are white-space separated (any combination of tabs and spaces).

Conversion of Field Tables to Header Files

The command `mkfldhdr` (or `mkfldhdr32`) converts a field table, as described above, into a file suitable for processing by the C compiler. Each line of the generated header file is of the form:

```
#define  name  fldid
```

where `name` is the name of the field, and `fldid` is its field identifier. The field identifier includes the field type and field number, as previously discussed. The field number is an absolute number, that is, base + rel-number. The resulting file is suitable for inclusion in a C program.

Environment Variables

Functions such as `Fldid()`, which access field tables, and commands such as `mkfldhdr()` and `vuform()`, which use them, both need the shell variables `FLDTBLDIR` and `FIELDTBLS` (`FLDTBLDIR32` and `FIELDTBLS32` for FML32) to specify the source directories and files, respectively, from which the in-memory version of field tables should be created. `FIELDTBLS` specifies a comma-separated list of field table filenames. If `FIELDTBLS` has no value, `fld.tbl` is used as the name of the field table file. The `FLDTBLDIR` environment variable is a colon-separated list of directories in which to look for each field table whose name is not an absolute pathname. (The search for field tables is very similar to the search for executable commands using the `PATH` variable.) If `FLDTBLDIR` is not defined, it is taken to be the current directory. Thus, if `FIELDTBLS` and `FLDTBLDIR` are not set, the default is to take `fld.tbl` from the current directory.

The use of multiple field tables is a convenient way to separate groups of fields, such as groups of fields that exist in a database from those which are used only by the application. However, in general field names should be unique across all field tables, since such tables are capable of being converted to C header files (by the `mkfldhdr` command), and identical field names would produce a compiler name conflict warning. In addition, the function `Fldid`, which maps a name to a `FLDID`, does so by searching the multiple tables, and stops upon finding the first successful match.

Example

The following is a sample field table in which the base shifts from 500 to 700:

```
# employee ID fields are based at 500
*base 500

#name  rel-numb  type  comment
#----  --------  ----  -------
EMPNAM  1     string emp's name
EMPID   2     long  emp's id
EMPJOB  3     char  job type: D,M,F or T
SRVCDAY  4     carray service date

# address fields are based at 700

*base 700

EMPADDR  1     string street address
EMPCITY  2     string city
```

```
EMPSTATE 3      string state
EMPZIP   4     long   zip code
```

The associated header file would be:

```
#define EMPADDR  ((FLDID)41661) /* number: 701 type: string */
#define EMPCITY  ((FLDID)41662) /* number: 702 type: string */
#define EMPID   ((FLDID)8694)  /* number: 502 type: long */
#define EMPJOB  ((FLDID)16887) /* number: 503 type: char */
#define EMPNAM  ((FLDID)41461) /* number: 501 type: string */
#define EMPSTATE ((FLDID)41663) /* number: 703 type: string */
#define EMPZIP  ((FLDID)8896)  /* number: 704 type: long */
#define SRVCDAY  ((FLDID)49656) /* number: 504 type: carray */
```

See Also

`mkfldhdr, mkfldhdr32(1)`

Programming a BEA Tuxedo ATMI Application Using FML

GWADM(5)

Name

`GWADM`—Domains gateway administrative server

Synopsis

```
GWADM SRVGRP = "identifier" SRVID = "number" REPLYQ = "N"
 CLOPT = "-A -- [-a {on | off}] [-t {on | off}]"
```

Description

The gateway administrative server (`GWADM`) is a BEA Tuxedo system-supplied server that provides administrative functions for a Domains gateway group.

`GWADM` should be defined in the `SERVERS` section of the `UBBCONFIG` file as a server running within a particular gateway group, that is, `SRVGRP` must be set to the corresponding `GRPNAME` tag specified in the `GROUPS` section. The `SVRID` parameter is also required and its value must consider the maximum number of gateways allowed within the gateway group.

There should be only one instance of a `GWADM` per Domains gateway group, and it should *not* be part of the MSSQ defined for the gateways associated with the group. Also, `GWADM` should have the `REPLYQ` attribute set to `N`.

The `CLOPT` option is a string of command-line options that is passed to the `GWADM` when it is booted. This string has the following format:

```
CLOPT="-A -- gateway group runtime_parameters"
```

The following run-time parameters are recognized for a gateway group:

`-a` **{***on* | *off***}**
: This option turns `off` or `on` the audit log feature for this local domain access point. The default is `off`. The `dmadmin` program can be used to change this setting while the gateway group is running (see `dmadmin(1)`).

`-t` **{***on* | *off***}**
: This option turns `off` or `on` the statistics gathering feature for the local domain domain access point. The default is `off`. The `dmadmin` program can be used to change this setting while the gateway group is running (see `dmadmin(1)`).

The `GWADM` server must be booted before the corresponding gateways.

Portability

GWADM is supported as a BEA Tuxedo system-supplied server on all supported server platforms.

Interoperability

GWADM must be installed on BEA Tuxedo release 4.2.1 or later; other machines in the same domain with a release 4.2.2 gateway can be release 4.1 or later.

Examples

The following example illustrates the definition of the administrative server in the UBBCONFIG file. This example uses the GWTDOMAIN gateway process to provide connectivity with another BEA Tuxedo domain.

```
#
*GROUPS
DMADMGRP GRPNO=1
gwgrp  GRPNO=2
#
*SERVERS
DMADM SRVGRP="DMADMGRP" SRVID=1001 REPLYQ=N RESTART=Y GRACE=0
GWADM SRVGRP="gwgrp" SRVID=1002 REPLYQ=N RESTART=Y GRACE=0
  CLOPT="-A -- -a on -t on"
GWTDOMAIN SRVGRP="gwgrp" SRVID=1003 RQADDR="gwgrp" REPLYQ=N RESTART=Y MIN=1
MAX=1
```

See Also

dmadmin(1), tmboot(1), DMADM(5), DMCONFIG(5), servopts(5), UBBCONFIG(5)

Administering a BEA Tuxedo Application at Run Time

Setting Up a BEA Tuxedo Application

Using the BEA Tuxedo Domains Component

GWTDOMAIN(5)

Name

GWTDOMAIN—TDomain gateway process

Synopsis

GWTDOMAIN SRVGRP = "*identifier*" SRVID = "*number*" RQADDR = "*queue_name*"
REPLYQ = *value* RESTART = Y [MAXGEN = *value*] [GRACE = *value*]
CLOPT = "-A -- [-s][-U inbound-message-size-limit-in-bytes]"

Description

GWTDOMAIN is the domain gateway process that provides interdomain communication. GWTDOMAIN processes communicate with other GWTDOMAIN processes in remote domains.

Note: From Tuxedo release 9.0 and later, the GWTDOMAIN default is *multithread mode*. This default mode is only useful for machines with multiple CPUs.

Domain gateways are described in the SERVERS section of the UBBCONFIG file and the BDMCONFIG file. Domain gateways must be always associated with a particular gateway group, that is, SRVGRP must be set to the corresponding GRPNAME tag specified in the GROUPS section.

The SVRID parameter is also required and its value must consider the maximum number of gateways allowed within the domain group. The RESTART parameter should be set to Y. The REPLYQ parameter may be set to Y or N.

The CLOPT option is a string of command-line options that is passed to GWTDOMAIN when it is booted. The following run-time parameter is recognized for a gateway process:

-s
: This optional parameter turns off the default multithread mode. On a single CPU machine, turning off multithread mode helps to avoid possible negative performance impact.

-U *inbound-message-size-limit-in-bytes*
: This option specifies the upper-size limit of incoming network message for GWTDOMAIN. The message size includes internal data items for Tuxedo (should be less then 1024 bytes) and user data. The limit also takes effect when message is compressed, i.e., it also checks the original message size.

The GWTDOMAIN process must be in the same group as the GWADM(5) process, with the GWADM listed first. Multiple GWTDOMAIN processes can be configured for a domain; each must be configured in a different BEA Tuxedo group.

Examples

The following example shows the definition of a Domains gateway group in the UBBCONFIG file.

```
*GROUPS
DMADMGRP LMID=mach1 GRPNO=1
gwgrp  LMID=mach1 GRPNO=2
*SERVERS
DMADM SRVGRP="DMADMGRP" SRVID=1001 REPLYQ=N RESTART=Y MAXGEN=5  GRACE=3600
GWADM SRVGRP="gwgrp" SRVID=1002 REPLYQ=N RESTART=Y MAXGEN=5  GRACE=3600
GWTDOMAIN SRVGRP="gwgrp" SRVID=1003 RQADDR="gwgrp" REPLYQ=N  RESTART=Y
MAXGEN=5 GRACE=3600 CLOPT="-A -r -- -U 65536"
```

Additional examples are available in the “EXAMPLES” sections of UBBCONFIG(5) and DMCONFIG(5).

See Also

tmadmin(1), tmboot(1), DMADM(5), DMCONFIG(5), GWADM(5), servopts(5), UBBCONFIG(5)

Using the BEA Tuxedo Domains Component

Setting Up a BEA Tuxedo Application

Administering a BEA Tuxedo Application at Run Time

ISL(5)

Name

Enables access to BEA Tuxedo objects by remote BEA Tuxedo clients using IIOP.

Synopsis

```
ISL SRVGRP="identifier"

    SRVID="number"

    CLOPT="[-A ] [ servopts options ] -- -n netaddr
           [-C {detect|warn|none} ]
           [-d device ]
           [-E principal_name]
           [-K {client|handler|both|none} ]
           [-m minh ]
           [-M maxh ]
           [-T Client-timeout]
           [-x mpx-factor ]
           [-H external-netaddr]
           #options for Outbound IIOP
           [-O]
           [-o outbound-max-connections]
           [-s Server-timeout]
           [-u out-mpx-users]
           #options for SSL
           [-a]
           [-R renegotiation-interval]
           [-S secure port]
           [-v {detect|warn|none} ]
           [-z [0|40|56|128]]
           [-Z [0|40|56|128]]"
```

Description

The IIOP Server Listener (ISL) is a BEA Tuxedo-supplied server command that enables access to BEA Tuxedo objects by remote BEA Tuxedo clients using IIOP. The application administrator enables access to the application objects by specifying the IIOP Server Listener as an application server in the `SERVERS` section. The associated command-line options are used to specify the parameters of the IIOP Server Listener and IIOP Server Handlers.

The location, server group, server `ID`, and other generic server-related parameters are associated with the ISL using the standard configuration file mechanisms for servers. ISL command-line options allow for customization.

Each ISL booted as part of an application facilitates application access for a large number of remote BEA Tuxedo clients by providing access via a single, well-known network address. The IIOP Server Handlers are started and stopped dynamically by the ISL, as necessary, to meet the incoming load.

For joint client/servers, if the remote joint client/server ORB supports bidirectional IIOP connections, the ISL can use the same inbound connection for outbound invokes to the remote joint client/server. The ISL also allows outbound invokes (outbound IIOP) to objects located in a joint client/server that is not connected to an ISH. This capability is enabled when the `-O` option is specified. The associated command-line options allow configuration of outbound IIOP support:

Parameters

`-A`

Indicates that the ISL is to be booted to offer all its services. This is a default, but it is shown to emphasize the distinction between system-supplied servers and application servers. The latter can be booted to offer only a subset of their available services. The double-dash (`--`) marks the beginning of parameters that are passed to the ISL after it has been booted.

You specify the following options in the `CLOPT` string after the double-dash (`--`) in the `CLOPT` parameters:

`-n netaddr`

Specifies the network address to be used by a server listener to accept connections from remote CORBA clients. The remote client must set the environment variable (`TOBJADDR`) to this value, or specify the value in the Bootstrap object constructor. See the *C++ Programming Reference* for details. This is the only required parameter.

TCP/IP addresses must be specified in one of the following two formats:

```
"//hostname:port_number"
"//#.#.#.#:port_number"
```

In the first format, the domain finds an address for `hostname` using the local name facilities (usually DNS). The host must be the local machine, and the local name resolution facilities must unambiguously resolve `hostname` to the address of the local machine.

Note: The hostname must begin with a letter character.

In the second format, the `"#.#.#.#"` is the dotted decimal format. In dotted decimal format, each `#` must be a number from 0 to 255. This dotted decimal number represents the IP address of the local machine.
In both of the above formats, `port_number` is the TCP port number at which the domain process listens for incoming requests. `port_number` can be a number between 0 and 65535 or a name. If `port_number` is a name, it must be found in the network services database on your local machine.

Note: The Java `Tobj_Bootstrap` object uses a `short` type to store the `port_number`. Therefore, you must use a `port_number` in the range of 0 to 32767 if you plan to support connections from Java clients.

Note: The network address that is specified by programmers in the Bootstrap constructor or in `TOBJADDR` must exactly match the network address in the application's `UBBCONFIG` file. The format of the address as well as the capitalization must match. If the addresses do not match, the call to the Bootstrap constructor will fail with a seemingly unrelated error message:

```
ERROR: Unofficial connection from client at
<tcp/ip address>/<port-number>:
```

For example, if the network address is specified as `//TRIXIE:3500` in the `ISL` command line option string, specifying either `//192.12.4.6:3500` or `//trixie:3500` in the Bootstrap constructor or in `TOBJADDR` will cause the connection attempt to fail.

On UNIX systems, use the `uname -n` command on the host system to determine the capitalization used. On Windows NT systems, see the host system's Network control panel to determine the capitalization used.

Note: Unlike the BEA Tuxedo system Workstation Listener (WSL), the format of the network addresses is limited to `//host:port`. The reason for this limitation is that the host name and port number are used by BEA Tuxedo servers; the host name does not appear as such in the hexadecimal format, and it could only be passed to the servers using the dotted IP address format.

`[-a]`

Specifies that certificate-based authentication should be enabled when accepting an SSL connection from a remote application.

`[-C detect|warn|none]`

Determines how the IIOP Listener/Handler will behave when unofficial connections are made to it. The default value is detect.

The official way for the CORBA client to connect to the IIOP Listener/Handler is via a Bootstrap object. The unofficial connection is established directly from an IOR. For example, a client could connect to one IIOP Listener/Handler via a Bootstrap object and then, perhaps inadvertently, connect to a second IIOP Listener/Handler by using an IOR that contains the host and port of the second IIOP Listener/Handler. Typically, this is not the case. Usually, the client uses IORs that contain the host and port of the IIOP Listener/Handler that the client connected to via a Bootstrap object. Use of such IORs does not cause an additional connection to be made.

Caution: The use of unofficial connections can cause problems for remote client applications that use transactions. The application may have the notion that invocations on both the official and unofficial connections within the same transaction have succeeded; however, in reality, only invocations on the official connection are ACID (Atomicity, Consistency, Isolation, and Durability).

A value of `detect` causes the ISL/ISH to raise a `NO_PERMISSION` exception when an unofficial connection is detected. A value of `warn` causes the ISL/ISH to log a message to the user log exception when an unofficial connection is detected; no exception will be raised. A value of `none` causes the ISL/ISH to ignore unofficial connections.

`[-d device]`

Specifies the device filename used for network access by the server listener and its server handlers. This parameter is optional because some transport providers (for example, sockets) do not require a device name. However, other providers (for example, TLI) do require a device name. In the case of TLI, this option is mandatory. There is no default for this parameter. (This does not apply to Windows 2003 systems.)

`[-E` *`principal_ name`*`]`

An optional parameter that indicates the identity of the principal that is required in order to establish a trusted connection pool. A trusted connection pool can only be established if a CORBA application is configured to require users to be authenticated.

If a remote client application attempts to propagate per-request security information over a connection that is not part of a trusted connection pool, the accompanying propagated security information will be ignored.

`[-K {client|handler|both|none}]`

Directs the client, or the ISH process, or both, to activate the network provider's `KEEPALIVE` option. This option improves the speed and reliability of network failure detection by actively testing an idle connection's state at the protocol stack level. The availability and timeout thresholds for this feature are determined by operating system tunable parameters.

A value of `client` configures this option for the client; a value of `handler` configures this option for the ISL; and a value of `both` will configure both sides of the connection. The default value is `none`, in which case neither side has the `KEEPALIVE` option configured.

Note: The `KEEPALIVE` interval is an operating system parameter, so changing the value affects any other applications that enable `KEEPALIVE`. Many platforms have a two-hour default value that may be longer than desired.

This option is not available on all platforms. A userlog warning message is generated if the `KEEPALIVE` option is specified but is not available on the ISH's machine. If `KEEPALIVE` is requested but is not available on the client's machine, the setting is ignored.

`[-m minh]`

Specifies the minimum number of handlers that should be available in conjunction with this ISL at any given time. The default is 0. The ISL will start this many ISHs immediately upon being booted and will not deplete the supply of ISHs below this number until the administrator issues a shutdown to the ISL. The default value for this parameter is 0. The legal range is between 0 and 255.

`[-M maxh]`

Specifies the maximum number of handlers that should be available in conjunction with this ISL at any given time. The Handlers are started as necessary to meet the demand of remote BEA Tuxedo clients attempting to access the system. The default value for this parameter is equal to the setting for `MAXWSCLIENTS` on the logical machine, divided by the multiplexing factor for this ISL (see `-x` option below), rounded up by one. The legal range for this parameter is between 1 and 4096. The value must be equal to or greater than `minh`.

`[-T` *`Client-timeout`*`]`

Specifies the inactive client timeout option. The inactive client timeout is the time (in minutes) allowed for a client to stay idle. If a client does not make any requests within this time period, the IIOP Listener/Handler disconnects the client. If this argument is not given or is set to 0, the timeout is infinite.

`[-x` *`mpx-factor`*`]`

This is an optional parameter used to control the degree of multiplexing desired within each ISH. The value for this parameter indicates the number of remote BEA Tuxedo clients that can be supported simultaneously by each ISH. The ISH ensures that new handlers are started as necessary to handle new remote BEA Tuxedo clients. This value must be greater than or equal to 1 and less than or equal to 4096. The default value for this parameter is 10.

`[-H external netadder]`

Specifies the external network address to be set as the host and port in interoperable object references returned to clients of the ISL. It has the same format as the ISL CLOPT `-n netaddr` option. This feature is useful when an IIOP, or remote, client needs to connect to an ISL through a firewall.

`[-O]`

This option (uppercase letter O) enables outbound IIOP to objects that are not located in a client that is connected to an ISH. Since the `-O` option requires a small amount of extra resources, the default is to not allow outbound IIOP.

`[-o outbound-max-connections]`

This option (lowercase letter o) specifies the maximum number of outbound connections that each ISH may have. In effect, it limits the number of simultaneous Outbound IIOP sockets that any single ISH under the control of this ISL will have active at one time.

This option requires that the `-O` (uppercase letter O) option is also specified. The value of this option must be greater than 0, but not more than 4096. An additional requirement is that the value of this option, (`outbound-max-connections`) times the maximum number of handlers, must be less than 32767. The default for this option is 20.

`[-R renegotiation-interval]`

Specifies the renegotiation internal in minutes. If a connection does not have a renegotiation in the specified interval, the IIOP Listener/Handler will request that the client renegotiate the session for inbound connections or actually perform the renegotiation in the case of outbound connections. The default is 0 minutes which results in no periodic session renegotiations.

`[-S secure-port]`

Specifies the port number that the IIOP Listener/Handler should use to listen for secure connections using the SSL protocol. You can configure the IIOP Listener/Handler to allow only secure connections by setting the port numbers specified by the `-S` and `-n` options to the same value.

`[-s Server-timeout]`

Server-timeout is the time, in minutes, allowed for a remote server to remain idle. If a remote server does not receive any requests within this time period, the ISL disconnects the outbound IIOP connection to the server. The ISH reconnects to the remote server on subsequent requests. This option can be used for server platforms that are unstable. Note that this is a best-attempt value in that the ISL does not disconnect the connection before this time is up, but does not guarantee to disconnect the connection once the exact time has elapsed. This option requires that the `-O` (uppercase letter O) option is also specified. The value must be greater than or equal to 1. If this option is not specified, the default is 60 (one hour).

`[-u out-mpx-users]`

An optional parameter used to control the degree of outbound multiplexing desired within each ISH. The value for this option indicates the number of outbound IIOP users (native clients or servers) that can be supported simultaneously by each outbound IIOP connection in the ISH. The ISL ensures that new ISHs are started, as necessary, to handle new users up to the value of this option (`out-mpx-users)`. This option requires that the –O (uppercase letter O) option is also specified. This option must be greater than 0 (zero), but not more than 1024; the default value is 10.

`[-v {detect|warn|none}]`

Determines how the IIOP Listener/Handler will behave when a digital certificate for a peer of an outbound connection initiated by the BEA object request broker (ORB) is received as part of the Secure Sockets Layer (SSL) protocol handshake. The validation is only performed by the initiator of a secure connection and confirms that the peer server is actually located at the same network address as specified by the domain name in the server's digital certificate. This validation is not technically part of the SSL protocol but is similar to the check done in web browsers.

A value of `detect` causes the BEA ORB to verify that the host specified in the object reference used to make the connection matches the domain name specified in the peer server's digital certificate. If the comparison fails, the BEA ORB refuses the authenticate the peer and drops the connection. The `detect` value is the default value.

A value of `warn` causes the BEA ORB to verify that the host specified in the object reference used to make the connection matches the domain name specified in the peer's digital certificate. If the comparison fails, the BEA ORB logs a message to the user log but continues to process the connection.

A value of none causes the BEA ORB to not perform the peer validation and to continue to process the connection.

The `-v` parameter is only available if licenses for SSL and LLE (link level encryption) are installed.

`[-z |0|40|56|128]]`

Specifies the minimum level of encryption when establishing a network connection between a client and the IIOP Listener/Handler. 0 means no encryption while 40, 56, and 128 specify the length (in bits) of the encryption key. If this minimum level of encryption cannot be met, a connection will not be established. This option is only available if licenses for SSL and LLE (link level encryption) are installed.

`[-Z |0|40|56|128]]`

Specifies the maximum level of encryption when establishing a network connection between a client and the IIOP Listener/Handler. 0 means no encryption while 40, 56, and 128 specify the length (in bits) of the encryption key. The default is whatever capability is specified by the license. This option is only available if licenses for SSL and LLE (link level encryption) are installed.

Portability

The IIOP Server Listener is supported as a BEA Tuxedo-supplied server on UNIX and Microsoft Windows NT operating systems.

Interoperability

The ISL works with any IIOP compliant ORB.

Depending on the type of remote object and the desired outbound IIOP configuration, you may have to perform additional programming tasks. Table 36 lists the requirements for each type of object and outbound IIOP configuration.

Table 36 Programming Requirements for Using Outbound IIOP

Types of Objects	Asymmetric Requirements	Paired-connection Requirements	Bidirectional Requirements
Remote joint client/servers	Set `ISL CLOPT -O` option.	Use the `Tobj_Bootstrap::register_callback_port` method to register the callback port.	Use the `CORBA::ORB::create_policy` method to set `BiDirPolicy` on the POA.
Foreign (non-CORBA) ORBs	Set `ISL CLOPT -O` option.	Not applicable.	If the foreign ORB supports the POA and `BiDirPolicy`, use the `CORBA::ORB::create_policy` method to set `BiDirPolicy` on the POA.
Remote clients	Remote clients are not servers, so outbound IIOP is not possible.		
Native joint client/servers	Outbound IIOP is not used.		
Native clients	Outbound IIOP is not used.		

Network Addresses

Suppose the local machine on which the ISL is being run is using TCP/IP addressing and is named `backus.company.com`, with address `155.2.193.18`. Further suppose that the port number at which the ISL should accept requests is 2334. The address specified by the `-l` option could be:

```
        //155.2.193.18:2334

     //backus.company.com:2334
```

Examples

```
*SERVERS

ISL SRVGRP="ISLGRP" SRVID=1002 RESTART=Y GRACE=0

        CLOPT="-A -- -n //piglet:1900 -d /dev/tcp"
```

KAUTHSVR(5)

Name

KAUTHSVR—Tuxedo Kerberos-based network authentication server

Synopsis

```
KAUTHSVR SRVGRP=SECGRP SRVID=100 GRACE=0 MAXGEN=2 CLOPT="-A -- -k
/etc/krbauth.kt -p krbauth@host.yourcomany.com"
```

Description

KAUTHSVR is a Kerberos-based Tuxedo authentication server. Its purpose is two fold:

- it authenticates a user with the kerberos system, and
- it uses the accompanying user information to create a user APPKEY to handle Tuxedo Access Control.

KAUTHSVR must be manually configured in the UBBCONFIG file in order to complete Tuxedo user authentication if you want to use Kerberos the default authentication mechanism. There is a slight difference in how KAUTHSVR is configured for UNIX and Windows platforms. For more information, see "Using the Kerberos Authentication Plug-in."

Principal Name and UNIX Key Table Configuration

Kerberos allows you to store principal names and service keys in a local file based database called a Key Table. This key table allows services running on a host to authenticate themselves to the Key Distribution Center. KAUTHSVR does not replace Kerberos Key Distribution Center authentication; however, it does replace AUTHSVR(5) and LAUTHSVR(5) when you want to use Kerberos-based authentication.

Principal Name Configuration

KAUTHSVR must have its own principal name associated with it. To specify which principal name KAUTHSVR uses, you must configure it in the UBBCONFIG file. The CLOPT option uses the -p parameter to establish its principal name. For example, -p <principal name>. The principal name and its password must be configured in the Kerberos database and the local key table.

Note: The principal name can also be configured by using the KAUTHSVRPRINC parameter or the same name environment variable. For more information, see "Using the Kerberos Authentication Plug-in."

UNIX Key Table Configuration

Before a server can be setup to use Kerberos, you must setup a key table on a host running the server. KAUTHSVR must access the server Key Table (KTAB) when it is booted. There are two ways to specify the server key table:

- you can use the CLOPT option to tell KAUTHSVR where its KTAB is. The KAUTHSVR CLOPT option uses the -k parameter to specify where KTAB is located. For example,"-k <key table full path name>".
- you can also specify the KTAB location as an environmental variable. For example, "KRB5_KTNAME=<key table full path name>".

Note: Any updates made to the key table do not affect the Kerberos database. If you change the keys in the key table, you must also make the corresponding changes to the Kerberos database.

Account Password on Windows Platform

When KAUTHSVR is configured on a Windows platform a key table is not needed. However, it must have an account password. There are two ways to setup a KAUTHSVR password:

- Configure in the UBBCONFIG file SERVERS section related with KAUTHSVR. For example:

Listing 2 KAUTHSVR Example in UBBCONFIG

```
*SERVERS
… …
KAUTHSVR
SRVGRP=AUTHGRP  SRVID=10
SEC_PRINCIPAL_NAME="kauthsvc " SEC_PRINCIPAL_PASSVAR=passvar
CLOPT="-A -- -p kauthsvc/bjwin2k3.bea.com@KRB.BEA.COM"
       … …
```

When TUXCONFIG is created, you must input the password at the command prompt.

Note: The name kauthsvc in SEC_PRINCIPAL_NAME is used as an example only.

- Specify in the KAUTHSVR environment variable KAUTHSVRPASS

See Also

`AUTHSVR(5)`

`LAUTHSVR(5)`

"Using the Kerberos Authentication Plug-in," in the *Using Security in ATMI Applications*

Kerberos Introduction from MIT (http://web.mit.edu/kerberos/www/)

langinfo(5)

Name

`langinfo`—Language information constants

Synopsis

```
#include <langinfo.h>
```

Description

This header file contains the constants used to identify items of `langinfo` data. The mode of *`items`* is given in `nl_types(5)`.

`DAY_1`	Locale's equivalent of “sunday”
`DAY_2`	Locale's equivalent of “monday”
`DAY_3`	Locale's equivalent of “tuesday”
`DAY_4`	Locale's equivalent of “wednesday”
`DAY_5`	Locale's equivalent of “thursday'”
`DAY_6`	Locale's equivalent of “friday”
`DAY_7`	Locale's equivalent of “saturday”
`ABDAY_1`	Locale's equivalent of “sun”
`ABDAY_2`	Locale's equivalent of “mon”
`ABDAY_3`	Locale's equivalent of “tue”

`ABDAY_4`
: Locale's equivalent of “wed”

`ABDAY_5`
: Locale's equivalent of “thur”

`ABDAY_6`
: Locale's equivalent of “fri”

`ABDAY_7`
: Locale's equivalent of “sat”

`MON_1`
: Locale's equivalent of “january”

`MON_2`
: Locale's equivalent of “february”

`MON_3`
: Locale's equivalent of “march”

`MON_4`
: Locale's equivalent of “april”

`MON_5`
: Locale's equivalent of “may”

`MON_6`
: Locale's equivalent of “june”

`MON_7`
: Locale's equivalent of “july”

`MON_8`
: Locale's equivalent of “august”

`MON_9`
: Locale's equivalent of “september”

`MON_10`
: Locale's equivalent of “october”

`MON_11`
: Locale's equivalent of “november”

`MON_12`	Locale's equivalent of “december”
`ABMON_1`	Locale's equivalent of “jan”
`ABMON_2`	Locale's equivalent of “feb”
`ABMON_3`	Locale's equivalent of “mar”
`ABMON_4`	Locale's equivalent of “apr”
`ABMON_5`	Locale's equivalent of “may”
`ABMON_6`	Locale's equivalent of “jun”
`ABMON_7`	Locale's equivalent of “jul”
`ABMON_8`	Locale's equivalent of “aug”
`ABMON_9`	Locale's equivalent of “sep”
`ABMON_10`	Locale's equivalent of “oct”
`ABMON_11`	Locale's equivalent of “nov”
`ABMON_12`	Locale's equivalent of “dec”
`RADIXCHAR`	Locale's equivalent of “.”
`THOUSEP`	Locale's equivalent of “,”

`YESSTR`
: Locale's equivalent of “yes”

`NOSTR`
: Locale's equivalent of “no”

`CRNCYSTR`
: Locale's currency symbol

`D_T_FMT`
: Locale's default format for date and time

`D_FMT`
: Locale's default format for the date

`T_FMT`
: Locale's default format for the time

`AM_STR`
: Locale's equivalent of “AM”

`PM_STR`
: Locale's equivalent of “PM”

This information is retrieved by `nl_langinfo(3c)`.

The items are retrieved from a special message catalog named `LANGINFO`, which should be generated for each locale supported and installed in the appropriate directory (see `mklanginfo(1)`).

See Also

`mklanginfo(1)`, `nl_langinfo(3c)`, `strftime(3c)`, `nl_types(5)`

LAUTHSVR(5)

Name

`LAUTHSVR`—WebLogic Server embedded LDAP-based authentication server

Synopsis

```
LAUTHSVR SRVGRP="identifier" SRVID=number other_parms CLOPT="-A -- -f
filename"
```

Description

`LAUTHSVR` is a System/T provided server that offers the authentication service while the user security information is located in WebLogic Server. This server may be used in a secure application to provide per-user authentication when clients join the application. This server accepts service requests containing TPINIT typed buffer as a user password and validates it against the configured password that is stored in WebLogic Server. If the request passes validation, then an application key is returned with a successful return as the ticket for the client to use.

- If a user belongs to the "Administrators" group in WebLogic Server, then LAUTHSVR will return `TPSYSADM` as its application key.
- If a user belongs to the "Operators" group in WebLogic Server, then LAUTHSVR will return `TPSYSOP` as its application key.

Note: The application keys that correspond to `tpsysadm` and `tpsysop` must be 0x80000000 and 0xC0000000, respectively.

By default, the file `$TUXDIR/udataobj/tpldap` is used for obtaining LDAP configuration information. The file can be overridden by specifying the file name, using a `″-f` *`filename″`* option in the server command line option. For example, `CLOPT=″-A -- -f/usr/tuxedo/myapp/myldap″`. There is no automatic propagation of this configuration file from the master machine to other machines in the Tuxedo UBBCONFIG file. To use multiple LAUTHSVRs, you must provide separate configurations on the various machines.

For additional information pertaining to `LAUTHSVR`, see "LAUTHSVR Additional Information" on page 219.

SECURITY USER_AUTH

If SECURITY is set to USER_AUTH or higher, per-user authentication is enforced. The name of the authentication service can be configured for the application. If not specified, it defaults to AUTHSVC which is the default service advertised for LAUTHSVR.

An authentication request is authenticated against only the first matching user name in the LDAP database. It does not support authentication against multiple entries.

SECURITY ACL or MANDATORY_ACL

If SECURITY is set to ACL or MANDATORY_ACL, per-user authentication is enforced and access control lists are supported for access to services, application queues, and events. The name of the authentication service must be AUTHSVC which is the default service advertised by LAUTHSVR for these security levels.

The application key that is returned by the LAUTHSVR is the user identifier in the low-order 17 bits. The group identifier is the next 14 bits (the high-order bit is reserved for the administrative keys).

LAUTHSVR Additional Information

Portability

LAUTHSVR is supported as a Tuxedo System/T-supplied server on non-Workstation platforms.

Examples

```
# Using LAUTHSVR
*RESOURCES
AUTHSVC    "..AUTHSVC"
SECURITY   ACL

*SERVERS
LAUTHSVR SRVGRP="AUTH" SRVID=100
CLOPT="-A -- -f /usr/tuxedo/udataobj/tpldap"
```

METAREPOS(5)

Name

METAREPOS - Tuxedo service metadata repository buffer format

```
#include <fml32.h>
#include <fml1632.h>    /* optional */
#inlcude <tpadm.h>
```

Description

This reference page describes the interfaces through which an administrator, operator or user interacts with the defined components of the Tuxedo metadata repository. The service metadata repository can be programmatically accessed and updated through the .TMMETAREPOS service offered by TMMETADATA(5) server or can be accessed and updated directly using tpgetrepos(3c) and tpsetrepos(3c).

Programmatic access to the Tuxedo service metadata repository is accomplished through the use of FML32 buffers very similar in format to those used by the Tuxedo MIB. In fact, the Tuxedo service metadata repository uses and supports the same kind of generic MIB(5)FML32 input and output buffer fields:

Input buffer fields
: TA_OPERATION, TA_CLASS, TA_CURSOR, TA_OCCURS, TA_FLAGS, TA_FILTER, TA_MIBTIMEOUT, and TA_CURSORHOLD

Output buffer fields
: TA_CLASS, TA_OCCURS, TA_MORE, TA_CURSOR, and TA_ERROR

Note: The METAREPOS has the following generic MIB(5) field limitations:

- Only MIB_PREIMAGE (a TA_FLAGS field flag) is used in metadata repository operation. The other two flags, MIB_LOCAL and MIB_SELF, are omitted.
- TA_MIBTIMEOUT is ignored by .TMMETAREPOS service, tpsetrepos(3c) and tpgetrepos(3c).
- TA_CURSORHOLD does not work with tpgetrepos().
- TA_ERROR applies specific definitions to generic return codes when initiated with a metadata repository setting operation. The generic codes are defined as follows:

  TAOK - No service updates were made to the metadata repository

  TAUPDATED - All service updates were made to the metadata repository

`TAPARTIAL` - Partial service updates were made to the metadata repository

FML32 fields related to specific metadata repository attributes use the prefix `TA_REPOS` followed by the name of the repository keyword in upper case. For more information on Metadata Repository service and parameter key words, see `tmloadrepos(1)`.

METAREPOS Attribute Fields

Service-Level Attribute Fields

`METAREPOS` service-level attribute fields are used to describe services. The `TA_REPOSSERVICE` attribute is a key field that is used to name services and uniquely identify them for retrieval or `get` operations. `TA_REPOSSERVICE` can accept regular expressions as defined in `rex(1)`. For example, using the regular expression value `"*"` with `TA_REPOSSERVICE` retrieves all service information in a metadata repository.

For `set` operations, `TA_REPOSSERVICE` must include a Tuxedo service name and *cannot* be interpreted as a regular expression.

For more information on service-level keywords, see Managing The Tuxedo Service Metadata Repository, Creating The Tuxedo Service Metadata Repository.

Parameter-Level Attribute Fields

`METAREPOS` parameter-level attribute fields are used to describe service parameters. Common *occurrence* numbers are used to associate different attribute fields as part of a common parameter.The *n*th service parameter is described by the occurrence number *n*-1 of all parameter-level attribute fields.

For example, the *first service parameter* is described by the *first occurrence of the attribute field* as “0”; the *second service parameter* is described by the *second occurrence of the attribute field* as “1”, and so on.

If a specific attribute field occurrence is required by a later numbered parameter, but not by one or more earlier numbered parameters, you must specify a value for the earlier attribute field occurrences so that the later occurrences are properly numbered.

Sub-Parameter Values

`TA_REPOSEMBED` is used to provide information about service parameters that have *sub-parameter* values, or in other words, embedded data.

Because the Tuxedo service metadata repository requests input and output in FML32 format, when `TA_REPOSEMBED` is specified with sub-parameter values (other than the default empty record), it must contain an FML32 record. This FML32 record consists of parameter-level fields corresponding to each sub-parameter (`FML` field or `VIEW` element) in the record described by the associated `TA_REPOSPARAM` field.

The `TA_REPOSEMBED` parameter value corresponds to the information contained between matching parentheses "`(`" and "`)`"in the *`repository_input`* file or the unloaded `-t` *`repository_file`*. For more information on the *`repository_input`* file and *`repository_file`*, see `tmloadrepos(1)` and `tmunloadrepos(1)`.

Table 37 METAREPOS Attribute Field Table

Attribute Field	Level	Type	Permissions	Values	Default
`TA_REPOSSERVICE (x)(r)(*)`	service	string	`rwxr--r--`	`string[1…15]`	N/A

`TA_STATE(k)`	N/A	string	`rwxr-xr--`	`GET:"VAL"`
				`SET:"{NEW | unset | INV}`
					N/A
					N/A

`TA_REPOSTUXSERVICE`	service	string	`rwxr--r--`	`string[1…15]`	N/A
`TA_REPOSSEVICETYPE`	service	string	`rwxr--r--`	`"{service|oneway|queue}"`	service
`TA_REPOSEXPORT`	service	string	`rwxr--r--`	`"{ Y | N }"`	"Y"
`TA_REPOSINBUF`	service	string	`rwxr--r--`	`string[1...8]`	N/A
`TA_REPOSOUTBUF`	service	string	`rwxr--r--`	`string[0...8]`	N/A
`TA_REPOSINVIEW`	service	string	`rwxr--r--`	`string[0..16]`	N/A
`TA_REPOSOUTVIEW`	service	string	`rwxr--r--`	`string[0..16]`	N/A
`TA_ REPOSSVCDESCRIPTION`	service	string	`rwxr--r--`	`string[0..1024]`	N/A
`TA_REPOSSENDQSPACE`	service	string	`rwxr--r--`	`string[0..15]`	N/A
`TA_REPOSSENDQUEUE`	service	string	`rwxr--r--`	`string[0..15]`	N/A
`TA_REPOSRPLYQUEUE`	service	string	`rwxr--r--`	`string[0..15]`	N/A
`TA_REPOSERRQUEUE`	service	string	`rwxr--r--`	`string[0..15]`	N/A
`TA_REPOSRCVQSPACE`	service	string	`rwxr--r--`	`string[0..15]`	N/A

Table 37 METAREPOS Attribute Field Table (Continued)

Attribute Field	Level	Type	Permissions	Values	Default
TA_REPOSRCVQUEUE	service	string	rwxr-r--	string[0..15]	N/A
TA_REPOSVERSION	service	string	rwxr--r--	string[0..1024]	N/A
TA_REPOSATTRIBUTES	service	string	rwxr--r--	string[0..1024]	N/A
TA_REPOSFIELDTBLS	service	string	rwxr--r--	string[0..1024]	N/A
TA_REPOSPARAM	parameter	string	rwxr-r--	string[1..32]	N/A
TA_REPOSTYPE	parameter	string	rwxr--r--	"{ byte | short | integer | float | double | string | carray | dec_t | xml | ptr | fml32 | view32 | mbstring }	N/A
TA_REPOSSUBTYPE	parameter	string	rwxr--r--	string[0..32]	N/A
TA_REPOSACCESS	parameter	string	rwxr--r--	"{ in | out | inout | noaccess }	N/A
TA_REPOSCOUNT	parameter	long	rwxr--r--	0<=num<=32767	1
TA_REPOSPARAMDES CRIPTION	parameter	string	rwxr--r--	string[0...1024]	N/A
TA_REPOSSIZE	parameter	long	rwxr--r--	0<=num	N/A
TA_REPOSREQUIRED COUNT	parameter	long	rwxr--r--	0<=num<=32767	N/A
TA_REPOSFLDNUM	parameter	long	rwxr--r--	0<=num	N/A
TA_REPOSFLDID	parameter	long	r--r--r--	0<=num	N/A
TA_REPOSVFBNAME	parameter	string	rwxr--r--	string[0...30]	N/A
TA_REPOSVFLAG	parameter	string	rwxr--r--	string[0...6]	N/A
TA_REPOSVNULL	parameter	String	rwxr--r--	string[0...32]	N/A

Table 37 METAREPOS Attribute Field Table (Continued)

Attribute Field	Level	Type	Permissions	Values	Default
`TA_REPOSEMBED`	parameter	`FML32`	`rwxr--r--`		Empty record

(x) - Regular expression GET key field
(r) - Required field for object creation(SET TA_STATE NEW)
(*) - GET/SET key, one or more required for SET operations
(k) - GET key

METAREPOS Attribute Semantics

`TA_REPOSSERVICE: string[1…15]`

Service name. This attribute accepts regular expressions as defined in `rex(1)` for metadata repository service information retrieval. Regular expressions cannot be used to update metadata repository service information.

`TA_STATE:`

`GET: "{ VALid }"`

A `GET` operation retrieves information for the selected service object(s). The following state(s) define `TA_STATE` returned in response to a `GET` request.

VALid	Service object is defined. Note that this is the only valid state for service metadata repository.

`SET: "{ NEW | unset | INValid }"`

A `SET` operation updates information for the selected service object(s). The following state(s) define `TA_STATE` set in a set request. States not listed cannot be set

NEW	Create new service object. Successful return leaves the object in the VALid state.

unset	Modify an existing service object. This combination is not allowed in the INValid state. Successful return leaves the object state unchanged.
INValid	Delete service object. State change allowed only when in the VALid state. Successful return leaves the object in the INValid state.

`TA_REPOSTUXSERVICE: string[1…15]`
: `Actual tuxedo service name. By default, it has the same value as TA_REPOSSERVICE.`

`TA_REPOSSERVICETYPE: "{service|oneway|queue}"`

```
Service invocation type. This term comes from the Tuxedo Control.
·"service" supports synchronous request/response.
·"oneway" supports request without response.
·"queue" supports tpenqueue and tpdequeue.
```

`TA_REPOSEXPORT: "{ Y | N }"`

Indicates whether a service object is available or not. This attribute is for Jolt Repository compatibility only. The default value is "Y".

`TA_REPOSINBUF: string[1... 8]`

The service(s) input buffer type. Valid values : `FML`, `FML32`, `VIEW`, `STRING`, `CARRAY`, `XML`, `X_OCTET`, `X_COMMON`, `X_C_TYPE`, `MBSTRING` or a custom-defined type. Only one type is allowed.

Note: Limitation: A string of custom type may contains up to 8 characters. See "Managing Typed Buffers" in *Programming a BEA Tuxedo ATMI Application Using C*

`A_REPOSOUTBUF: string[0…8]`

The service(s) output buffer type. Valid value is same as `TA_REPOSINBUF`. Note that this attribute can be null.

`TA_REPOSINVIEW: string[0…16]`

View name for input parameters. This information is optional only if one of the following buffer types is used: `VIEW`, `VIEW32`, `X_COMMON`, `X_C_TYPE`.

`TA_REPOSOUTVIEW: string[0…16]`

View name for output parameters. Similar with `TA_REPOSOUTVIEW`.

`TA_ REPOSSVCDESCRIPTION: string[0…1024]`

String value for service description.

`TA_REPOSSENDQSPACE: string[0…15]`
: String value for send queue space name. Optional only when `TA_REPOSSERVICETYPE` is "queue".

`TA_REPOSSENDQUEUE: string[0…15]`
: String value for send queue name. Optional only when `TA_REPOSSERVICETYPE` is "queue".

`TA_REPOSRPLYQUEUE: string[0…15]`
: String value for reply queue name. Optional only when `TA_REPOSSERVICETYPE` is "queue".

`TA_REPOSERRQUEUE: string[0…15]`
: String value for error queue name. Optional only when `TA_REPOSSERVICETYPE` is "queue".

`TA_REPOSRCVQSPACE: string[0…15]`
: String value for receive queue space name. Optional only when `TA_REPOSSERVICETYPE` is "queue".

`TA_REPOSRCVQUEUE: string[0…15]`
: String value for receive queue name. Optional only when `TA_REPOSSERVICETYPE` is "queue".

`TA_REPOSVERSION: string[0...1024]`
: Any string defined by the user. Tuxedo does not interpret this attribute.

`TA_REPOSATTRIBUTES: string[0...1024]`
: Any string defined by the user. Tuxedo does not interpret this attribute.

`TA_REPOSFIELDTBLS: string[0...1024]`
: Optionally specifies a comma-separated list of field tables where the `FML` or `FML32` fields used by this service can be found. Use the absolute path to describe each field table file.

`TA_REPOSPARAM: string[0...32]`
: Parameter name.

`TA_REPOSTYPE: "{ byte | short | integer | float | double | string | carray | dec_t | xml | ptr | fml32 | view32 | mbstring }"`
: Parameter type.

`TA_REPOSSUBTYPE : string[0…32]`
: `A view name for view32 typed parameter.`

`TA_REPOSACCESS:   '{ in | out | inout | noaccess }'`
: Parameter access method.

TA_REPOSCOUNT: 0<=num<=32767
: Maximum number of parameter occurrences. Default value is 1.

TA_REPOSPARAMDESC: string[0...1024]
: Parameter description string.

TA_REPOSSIZE: 0<=num
: Optional only if the following parameter types are used: carray, string, xml, mbstring.

TA_REPOSREQUIREDCOUNT: 0<=num<=32767
: Minimum number of parameter occurrences.

TA_REPOSFLDNUM: 0<=num
: Optional only for FML/FML32 field parameter, field number definition.

TA_REPOSFLDID: 0<=num
: Optional only for FML/FML32 field parameter, field id. Note that this field cannot be written or updated.

TA_REPOSVFBNAME: string[0...30]
: Optional only when parameter type is view/view32. It is used to specify the corresponding field name for views mapped to FML buffers.

TA_REPOSVFLAG: string[0...6]
: Optional only when parameter type is view/view32. Using this field by following the rules of the "Flag" option defined in viewfile(5).

TA_REPOSVNULL: string[0...32]
: Optional only when parameter type is view/view32. It is used to define user-specified NULL as the default NULL value for that parameter.

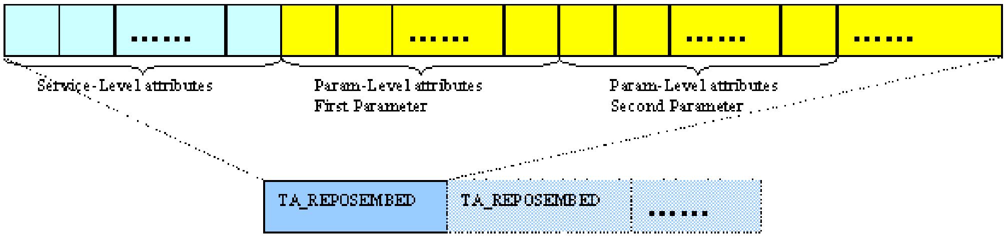
TA_REPOSEMBED
: Optional only if the parameter is one of following types: fml32, view32. It is an embedded FML32 field to describe sub-parameters of the parameter.

Note: TA_REPOSEMBED field also is used to encapsulate attributes of each service once there might be multiple services in one FML32 buffer. Please see figure 6-1 and 6-2 for more information.

METAREPOS Buffer Format Diagram

Currently, METAREPOS input and output is in FML32 buffer format and is used to describe one or more instances of service metadata information. This FML32 typed buffer format is define in two modes: Standard Mode and Single Mode.

Figure 1 Standard Mode



In standard mode, each service is encapsulated into one embedded `TA_REPOSEMBED` FML32 field. Users fill in `METAREPOS` attributes by following the restrictions defined in the `METAREPOS` service-level and parameter-level attribute tables.

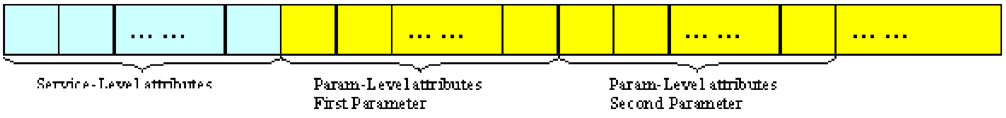
- Output Buffers: All output buffers returned by the Tuxedo service metadata repository must use standard mode, no matter if one or more service objects are returned.

  Note: For `SET` operations, `TA_ERROR` and `TA_STATUS` are included in each `TA_REPOSEMBED` buffer to indicate the set result of each service.

- Input Buffers: When using input buffer to specify services, standard mode is applied under the following conditions:

  1. `SET` operations (adding or updating) to outstanding multiple services
  2. When a user wants to use standard mode instead of single mode

Figure 2 Single Mode



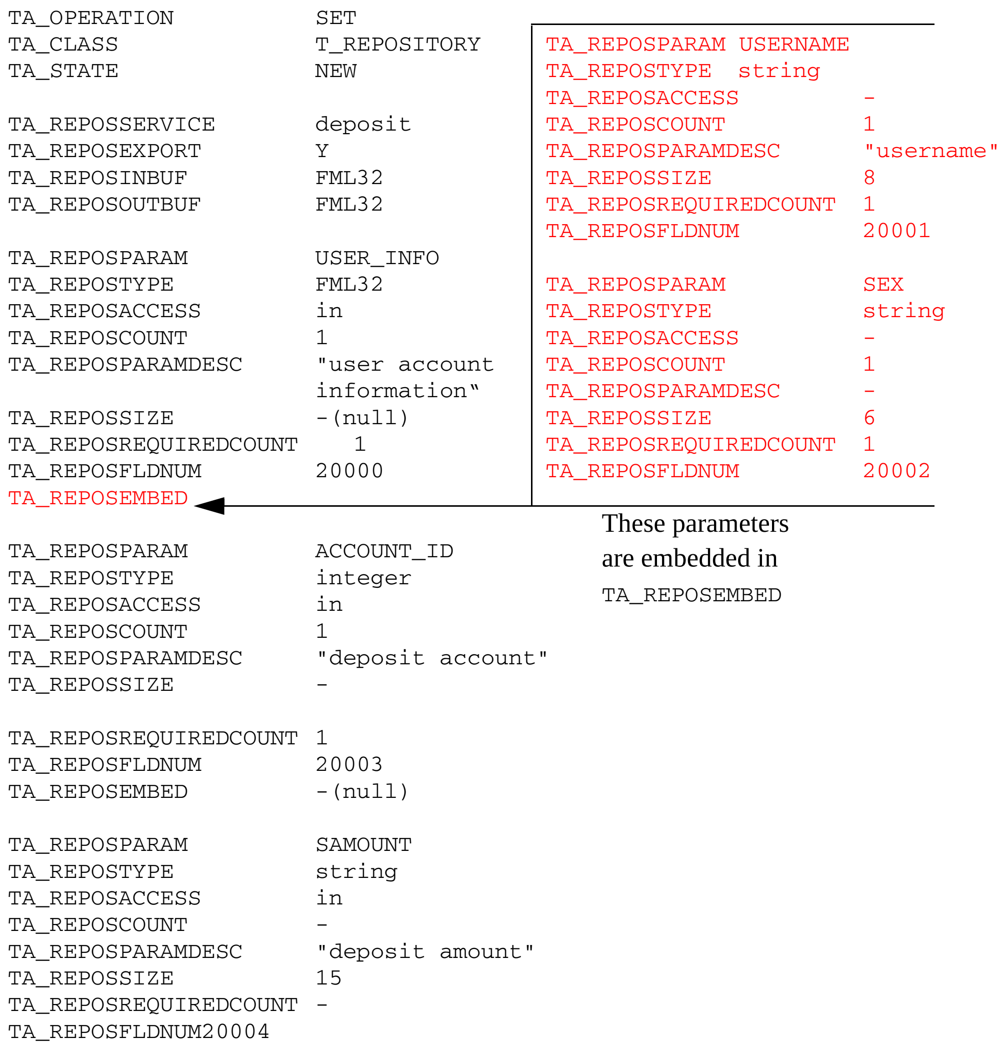
Single mode can only be used in `METAREPOS` input buffers that specify one service only. Single mode can be applied under the following conditions:

1. `SET` operations to only one outstanding particular service
2. `GET` operations

METAREPOS Request Examples

1. Adding a service deposit to repository

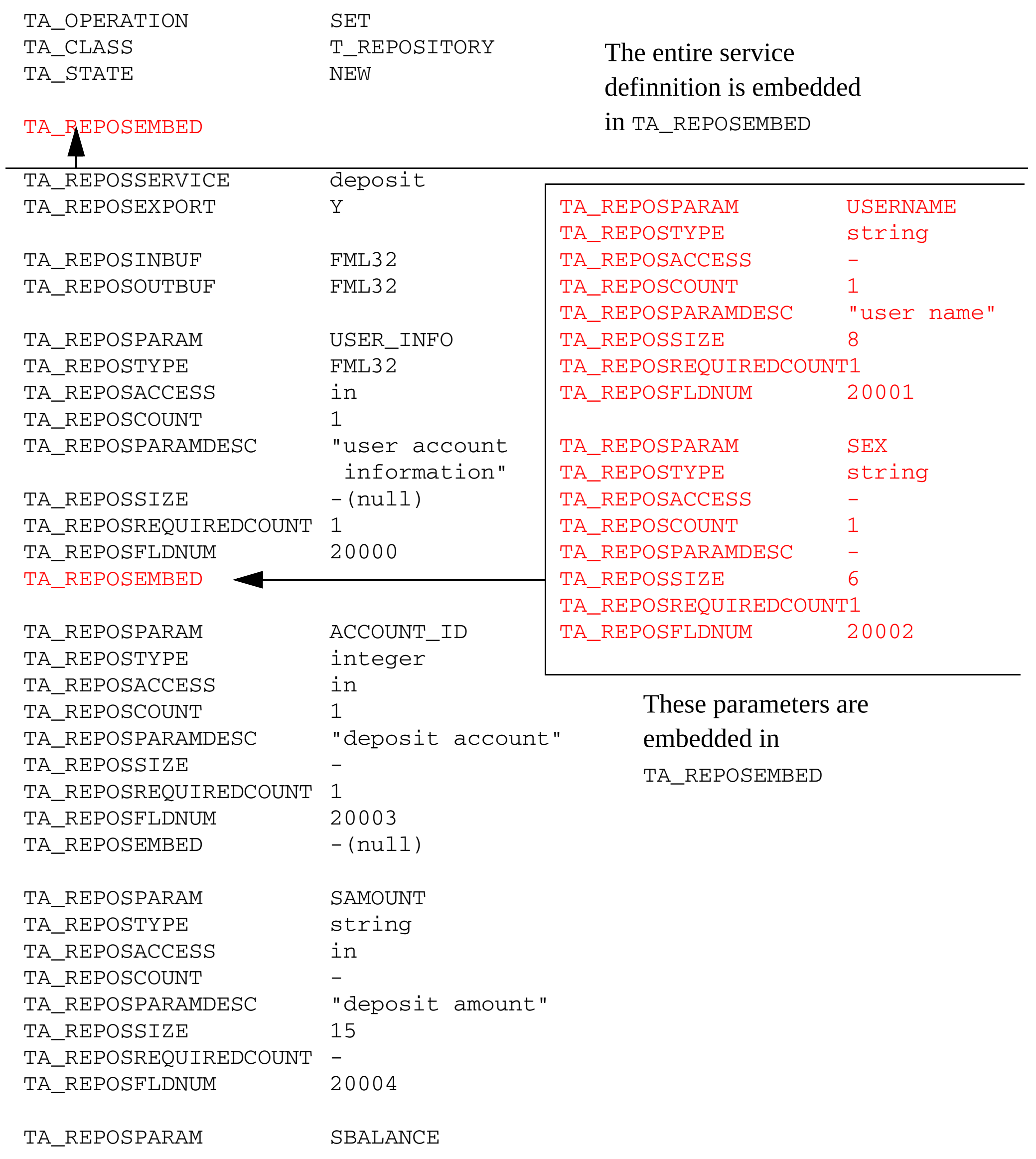
Figure 3 Single Mode Request



```
TA_OPERATION             SET
TA_CLASS                 T_REPOSITORY      TA_REPOSPARAM USERNAME
TA_STATE                 NEW               TA_REPOSTYPE  string
                                           TA_REPOSACCESS          -
TA_REPOSSERVICE          deposit           TA_REPOSCOUNT           1
TA_REPOSEXPORT           Y                 TA_REPOSPARAMDESC       "username"
TA_REPOSINBUF            FML32             TA_REPOSSIZE            8
TA_REPOSOUTBUF           FML32             TA_REPOSREQUIREDCOUNT   1
                                           TA_REPOSFLDNUM          20001
TA_REPOSPARAM            USER_INFO
TA_REPOSTYPE             FML32             TA_REPOSPARAM           SEX
TA_REPOSACCESS           in                TA_REPOSTYPE            string
TA_REPOSCOUNT            1                 TA_REPOSACCESS          -
TA_REPOSPARAMDESC        "user account     TA_REPOSCOUNT           1
                         information"      TA_REPOSPARAMDESC       -
TA_REPOSSIZE             -(null)           TA_REPOSSIZE            6
TA_REPOSREQUIREDCOUNT      1               TA_REPOSREQUIREDCOUNT   1
TA_REPOSFLDNUM           20000             TA_REPOSFLDNUM          20002
TA_REPOSEMBED  <-----------------------
                                             These parameters
TA_REPOSPARAM            ACCOUNT_ID          are embedded in
TA_REPOSTYPE             integer             TA_REPOSEMBED
TA_REPOSACCESS           in
TA_REPOSCOUNT            1
TA_REPOSPARAMDESC        "deposit account"
TA_REPOSSIZE             -

TA_REPOSREQUIREDCOUNT    1
TA_REPOSFLDNUM           20003
TA_REPOSEMBED            -(null)

TA_REPOSPARAM            SAMOUNT
TA_REPOSTYPE             string
TA_REPOSACCESS           in
TA_REPOSCOUNT            -
TA_REPOSPARAMDESC        "deposit amount"
TA_REPOSSIZE             15
TA_REPOSREQUIREDCOUNT    -
TA_REPOSFLDNUM20004
```

```
TA_REPOSPARAM            SBALANCE
TA_REPOSTYPE             string
TA_REPOSACCESS           out
TA_REPOSCOUNT            -
TA_REPOSPARAMDESC        "account balance"
TA_REPOSSIZE             15
TA_REPOSREQUIREDCOUNT    -
TA_REPOSFLDNUM           20005

TA_REPOSPARAM            STATLIN
TA_REPOSTYPE             string
TA_REPOSACCESS           out
TA_REPOSCOUNT            -
TA_REPOSPARAMDESC        -
TA_REPOSSIZE             15
TA_REPOSREQUIREDCOUNT    -
TA_REPOSFLDNUM           20006
```

Figure 4 Standard Mode Request



```
TA_OPERATION              SET
TA_CLASS                  T_REPOSITORY
TA_STATE                  NEW

TA_REPOSEMBED
```

The entire service definnition is embedded in TA_REPOSEMBED

```
TA_REPOSSERVICE           deposit
TA_REPOSEXPORT            Y

TA_REPOSINBUF             FML32
TA_REPOSOUTBUF            FML32

TA_REPOSPARAM             USER_INFO
TA_REPOSTYPE              FML32
TA_REPOSACCESS            in
TA_REPOSCOUNT             1
TA_REPOSPARAMDESC         "user account
                           information"
TA_REPOSSIZE              -(null)
TA_REPOSREQUIREDCOUNT     1
TA_REPOSFLDNUM            20000
TA_REPOSEMBED

TA_REPOSPARAM             ACCOUNT_ID
TA_REPOSTYPE              integer
TA_REPOSACCESS            in
TA_REPOSCOUNT             1
TA_REPOSPARAMDESC         "deposit account"
TA_REPOSSIZE              -
TA_REPOSREQUIREDCOUNT     1
TA_REPOSFLDNUM            20003
TA_REPOSEMBED             -(null)

TA_REPOSPARAM             SAMOUNT
TA_REPOSTYPE              string
TA_REPOSACCESS            in
TA_REPOSCOUNT             -
TA_REPOSPARAMDESC         "deposit amount"
TA_REPOSSIZE              15
TA_REPOSREQUIREDCOUNT     -
TA_REPOSFLDNUM            20004

TA_REPOSPARAM             SBALANCE
```

```
TA_REPOSPARAM            USERNAME
TA_REPOSTYPE             string
TA_REPOSACCESS           -
TA_REPOSCOUNT            1
TA_REPOSPARAMDESC        "user name"
TA_REPOSSIZE             8
TA_REPOSREQUIREDCOUNT1
TA_REPOSFLDNUM           20001

TA_REPOSPARAM            SEX
TA_REPOSTYPE             string
TA_REPOSACCESS           -
TA_REPOSCOUNT            1
TA_REPOSPARAMDESC        -
TA_REPOSSIZE             6
TA_REPOSREQUIREDCOUNT1
TA_REPOSFLDNUM           20002
```

These parameters are embedded in TA_REPOSEMBED

```
TA_REPOSTYPE          string
TA_REPOSACCESS        out
TA_REPOSCOUNT         -
TA_REPOSPARAMDESC     "account balance"
TA_REPOSSIZE          15
TA_REPOSREQUIREDCOUNT -
TA_REPOSFLDNUM        20005

TA_REPOSPARAM         STATLIN
TA_REPOSTYPE          string
TA_REPOSACCESS        out
TA_REPOSCOUNT         -
TA_REPOSPARAMDESC     -
TA_REPOSSIZE          15
TA_REPOSREQUIREDCOUNT -
TA_REPOSFLDNUM        20006
```

2. Delete service deposit and transfer

Listing 3

```
TA_OPERATION             SET
A_CLASS                  T_REPOSITORY
TA_STATE                 DEL

TA_REPOSSERVICE          deposit,transfer
```

See Also

`tmloadrepos(1)`, `tpgetrepos(3c)`, `tpsetrepos(3c)`, `MIB(5)`, `TMMETADATA(5)`.

MIB(5)

Name

MIB—Management Information Base

```
#include <fml32.h>
#include <fml1632.h> /* Optional */
#include <tpadm.h>
#include <cmib.h>  /* Component MIB Header */
```

Description

A BEA Tuxedo system application consists of distinct components (for example, BEA Tuxedo, Workstation), each administered using a Management Information Base (MIB) defined specifically for that component. These component MIBs are defined in individual reference pages each addressing the MIB for a particular part of the system. For example, the reference page TM_MIB(5) defines the MIB used to administer the fundamental aspects of a BEA Tuxedo application.

However, component MIBs do not provide sufficient definition of the interfaces involved to provide the necessary access. This reference page, MIB(5), describes the generic interfaces through which an administrator, operator or user interacts with any of the defined component MIBs. The generic interface to each BEA Tuxedo system MIB consists of two main parts.

The first part of the generic interface is a description of how existing BEA Tuxedo system interfaces are used to provide access to administrative services responsible for supporting the component MIBs. FML32, a BEA Tuxedo system buffer type, is used as the vehicle for passing input to and receiving output from component MIBs. ATMI request/response verbs are used as the interface to component MIBs, which are implemented as system-supplied services. Details on interaction between an administrative user and component MIBs using FML32 buffers ATMI verbs are provided in the "FML32"and "ATMI" sections later in this reference page.

The second part of the generic interface is the definition of additional input and output FML32 fields that are used in interactions with all component MIBs. The additional FML32 fields extend the power of requests (for example, by allowing operation codes to be specified) and add generic response attributes (for example, error codes and explanatory text). Details on additional FML32 fields are provided in the "Input" and "Output" sections found later in this reference page.

The "Usage" section gives examples of the use of existing ATMI verbs and the additional FML32 fields as they might be used for administrative interaction with component MIBs.

In addition to defining how users interface with component MIBs to administer an application, this reference page establishes the format used in the component MIB reference pages to define classes (see “Class Descriptions”).

Two generic classes are defined in this reference page: `T_CLASS` and `T_CLASSATT`. These two classes are used to identify administrative classes and to tune class/attribute permissions. For additional information pertaining to all `MIB(5)` class definitions, see “MIB(5) Additional Information” on page 258. The “Diagnostics” section lists error codes that may be returned by component MIB system services.

Authentication

Users are authenticated as they attempt to join the application (see `tpinit(3c)`). At `tpinit()` time, administrators and operators can ask to join the application with a client name of either `tpsysadm` or `tpsysop`. These two `cltname` values are reserved and can only be associated with administrators and operators of the application.

The administrator who initially configures an application determines the level of security to be included by choosing a particular security type. Available security types are:

- No security
- Application password authentication
- Application password plus an application specific authentication service

The choice of security type determines the flexibility and security in allowing administrator and operator access to the component MIBs via the AdminAPI.

The most secure and flexible security type is an application password plus an application-specific authentication server (see `AUTHSVR(5)`). This method allows the administrator to permit access to any user or to only specified users provided they supply the appropriate password to the authentication server.

In the absence of an application specific authentication server, a client must satisfy the authentication requirements of the application (either none or application password), specify one of the special client names in the `cltname` field of the `TPINIT` structure and be running as the BEA Tuxedo administrator for the local UNIX system to qualify for special administrator or operator permissions. In any case, a successfully joined client is assigned a key by the system; the key is delivered with all requests it makes. Clients properly authenticated as either `tpsysadm` or `tpsysop` are assigned an authentication key that lets the system know they have special privileges.

Administrative authentication, as specified, is applicable only to clients that join the system prior to accessing the API. Servers making use of the API are treated the same as the client on whose behalf they are processing. Service requests made from within `tpsvrinit()` or `tpsvrdone()` are treated as coming from the administrator.

FML32

Application administration using BEA Tuxedo system defined component MIBs is supported exclusively through the FML32 buffer type. Application programs accessing MIB information must be written to allocate, manipulate and update FML32 typed buffers. There are two main approaches to using FML32 as detailed in `Fintro()` and summarized here.

The most direct way to interface to FML32 is to include the `<fml32.h>` header file instead of the standard `<fml.h>` header file and then to use the FML32 version of each relevant FML interface specified in the *BEA Tuxedo ATMI FML Function Reference*. For example, one would use `Fchg32()` instead of using `Fchg()`.

Another method for interfacing with FML32 is to include both the `<fml32.h>` header file and the `<fml1632.h>` header file. These two header files work together to allow the user to program to the base FML interfaces (for example, `Fchg()`) and yet actually invoke the FML32 version of each interface.

ATMI

Application programs access and update component MIB specific attribute information by allocating FML32 typed buffers, populating them with request data, sending the requests for servicing, receiving the replies to the service requests and extracting information regarding the results from the reply. The population and extraction of information to and from the FML32 typed buffers involves the FML32 interfaces as described above. Buffer allocation, sending requests and receiving replies is done using the general purpose ATMI routines listed below within the guidelines and restrictions listed. MIB requests for all components should be sent to the core BEA Tuxedo component MIB service, "`.TMIB`". This service not only acts as an agent for servicing `TM_MIB(5)` requests, it also directs requests targeted for other component MIBs so that the user need not be concerned with matching service names to MIBs and classes.

`tpalloc()`
: Allocate FML32 typed buffers to be used in sending requests and/or receiving replies to/from BEA Tuxedo system MIB services. The FML32 buffer type has no subtypes and a minimum default size of 1024 bytes.

`tprealloc()`
: Reallocate FML32 typed buffers.

`tpcall()`

Call BEA Tuxedo system MIB service, "`.TMIB`", with a populated FML32 typed buffer as input and with an allocated FML32 typed buffer in which to store the output returned from the service. The buffer length for the input buffer may be specified as 0 since FML32 is a self-describing buffer type. The `TPNOTRAN` flag should be used if the call is being made within a transaction; otherwise, there are no specific requirements or restrictions on the use of the flags defined for this verb.

`tpacall()`

Asynchronously call BEA Tuxedo system MIB service, "`.TMIB`", with a populated FML32 typed buffer as input. The buffer length for the input buffer may be specified as 0 since FML32 is a self-describing buffer type. The `TPNOTRAN` flag should be used if the call is being made within a transaction; otherwise, there are no specific requirements or restrictions on the use of the flags defined for this verb.

`tpgetrply()`

Get reply for a previously generated asynchronous call to the BEA Tuxedo system MIB service, "`.TMIB`". The reply is received into a previously allocated FML32 typed buffer. There are no specific requirements or restrictions on the use of the flags defined for this verb.

`tpenqueue()`

Enqueue a request to the BEA Tuxedo system MIB service, "`.TMIB`", for later processing. The buffer length for the input buffer may be specified as 0 since FML32 is a self-describing buffer type. There are no specific requirements or restrictions on the use of the flags defined for this verb; however, the `TMQFORWARD(5)` server configured by the application to handle forwarding of these requests should be started with the `-n` (`tpcall()` with `TPNOTRAN` flag set) and `-d` (delete) options.

`tpdequeue()`

Dequeue the reply for a previously enqueued request to the BEA Tuxedo system MIB service, "`.TMIB`". The reply is received into a previously allocated FML32 typed buffer. There are no specific requirements or restrictions on the use of the flags defined for this verb.

Input

There are certain FML32 fields used to characterize and control administrative requests to any BEA Tuxedo system MIB. These fields are defined in this reference page as well as in the header file `<tpadm.h>`. The corresponding field table file can be found in `${TUXDIR}/udataobj/tpadm`. These fields are added to an FML32 request buffer in addition to any component MIB specific fields necessary before making the administrative service request.

The fields are described below and followed by a table summarizing the operations for which each field is required, optional or unused.

`TA_OPERATION`
: String valued field identifying the operation to be performed. Valid operations are `GET`, `GETNEXT` and `SET`.

`TA_CLASS`
: String valued field identifying the class being accessed. Class names are defined within component MIB specific reference pages.

`TA_CURSOR`
: String valued FML32 field returned by the system on a previous `GET` or `GETNEXT` operation. The value returned must be transferred by the application to the subsequent request buffer so that the system can determine current retrieval position.

`TA_OCCURS`
: Long valued FML32 field identifying how many objects are to be retrieved on a `GET` or `GETNEXT` operation. If this field is not specified, all matching objects are returned, space permitting.

`TA_FLAGS`
: Long valued FML32 field identifying generic and component MIB specific flag values. Component MIB specific values that may be set in this attribute are defined within each component MIB reference page. Generic flag values and uses are listed below.

  `MIB_LOCAL`
  : This flag is used to modify retrievals from certain classes defined in this `MIB`. For a number of classes in this `MIB`, there exists both global information (available at any site in an active application) and local information (available on the particular site where the object is active). Requests to retrieve information from these classes will by default retrieve only the global information and not the local for efficiency. If the application user is willing to wait for local information to be collected, possibly from multiple sites, this flag should be set on the retrieval request. Classes with local information have local attributes listed last in the attribute table with a subheading indicating that they are local attributes. Classes which have only local information will automatically default to retrieving local information even if this flag value is not set.

  `MIB_PREIMAGE`
  : indicates that a pre-image check must be passed before a `SET` operation will be performed. A pre-image check insures that occurrence 0 of any `MIB` specific class attributes match the existing object. If so, the object is updated using occurrence 1

of any MIB specific class attributes. Attributes occurring less than two times are not considered for pre-image checking. Multiply occurring fields are checked if their associated count attribute is specified twice.

MIB_SELF

This flag is used as a shorthand to indicate that identification attributes for the client or server originating the request should be added to the request buffer prior to processing. For clients, TA_CLIENTID is added and for servers, TA_GRPNO and TA_SRVID are added.

TA_FILTER

Long valued FML32 field that may be specified with up to 32 occurrences to indicate the specific class attributes that should be returned. An occurrence with the value 0 may be specified to end the list but is not required. A list with an initial attribute value of 0 will return no class specific attributes but will return a count of class objects matched.

TA_MIBTIMEOUT

Long valued FML32 field identifying the time, in seconds, that should be allowed within the component MIB service to satisfy the request. A value less than or equal to 0 indicates that the component MIB service should not undertake any blocking operation. If unspecified, this value defaults to 20.

TA_CURSORHOLD

Long valued FML32 field identifying the time, in seconds, that a system snapshot generated from an initial GET operation should be held after the current GET or GETNEXT operation is satisfied before disposing of it. A value less than or equal to 0 indicates that the snapshot should be disposed of after satisfying the current request. If unspecified, this value defaults to 120.

In the following table, R indicates a required INPUT attribute, O an optional INPUT attribute, and — an unused INPUT attribute.

Table 38 Input Table

Attribute	Type	GET	GETNEXT	SET
TA_OPERATION	string	R	R	R
TA_CLASS	string	R	—	R
TA_CURSOR	string	—	R	—
TA_OCCURS	long	O	O	—
TA_FLAGS	long	O	O	O
TA_FILTER	long	O	—	—
TA_MIBTIMEOUT	long	O	O	O
TA_CURSORHOLD	long	O	O	—

Output

Output from successful administrative requests consists of one or more MIB specific objects and one occurrence of the generic output fields. In general, multiple MIB specific objects are reflected in the output buffer by multiple occurrences of each class attribute returned. Occurrence 0 of each attribute relates to the first object, occurrence 1 to the second object, and so on. Exceptions to this guideline are noted in the component MIB reference pages. Intermediate occurrences without values for certain attributes may have FML32-defined NULL field values inserted as place holders. A successful SET operation returns a single object reflecting the object after the operation was performed. A successful GET or GETNEXT operation may return 0 or more occurrences depending on how many occurrences were requested (see TA_OCCURS below), how many occurrences were matched by the specified key fields and space limitations within the MIB specific system service.

It is important to note that not all attributes defined for any class may necessarily be returned for any request depending on object state, interoperating release environments and/or input request filters. Administrative programmers should avoid implicit dependencies on the presence of certain attributes in output buffers and should instead explicitly check for the presence of attribute values.

To repeat, the reply to a successfully processed administrative request includes certain generic fields that apply to all MIBs. The fields are defined in the header file <tpadm.h>. The corresponding field table file can be found in ${TUXDIR}/udataobj/tpadm. The generic reply fields are added to a the reply buffer and returned with the component MIB specific fields. The generic reply fields are described below.

`TA_CLASS`
: String valued field identifying the class represented in the reply buffer. Class names are defined within component MIB specific reference pages.

`TA_OCCURS`
: Long valued FML32 field identifying how many objects are in the reply buffer.

`TA_MORE`
: Long valued FML32 field identifying how many additional objects matching the request key fields are being held in a system snapshot for later retrieval. This field is not returned for `SET` operations.

`TA_CURSOR`
: String valued FML32 field identifying the position within a system held snapshot. This field must be added to the request buffer for a subsequent `GETNEXT` operation. The value of this field should not be interpreted or modified by the application user. This field is not returned for `SET` operations.

`TA_ERROR`
: Long valued FML32 field identifying a non-negative return code characterizing the successful return. Generic return codes and their meaning are defined below.

    `TAOK`
    : The operation was successfully performed. No updates were made to the application.

    `TAUPDATED`
    : An update was successfully made to the application.

    `TAPARTIAL`
    : A partial update was successfully made to the application.

Administrative requests that fail within MIB specific system service processing return an application service failure to the application including the original request and generic fields used to characterize the error. Application service failures are indicated by a `TPESVCFAIL` error return from `tpcall()` or `tpgetrply()`. Application service failures returned via the `TMQFORWARD(5)` server will appear on the error queue specified on the original request (assuming the `-d` option was specified on the server command line). Generic fields used to characterize failed administrative requests are listed below.

`TA_ERROR`
: Long valued FML32 field identifying the particular error that occurred. Error codes may be generic in which case they are listed in the "`DIAGNOSTICS`" section of this reference page, or they may be specific to a component MIB, in which case they are described on the individual component MIB reference page.

`TA_STATUS`
: String valued FML32 field providing a textual description of the error.

`TA_BADFLD`
: Long valued FML32 field providing the field identifier of the offending field in cases where an error can be attributed to the value in a particular field. In cases where errors are caused by the combination of values in multiple fields, there may be multiple occurrences of this field.

Usage

Include Files

Application programs written to interface with component MIBs must include certain header files. `<fml32.h>` defines macros, structures and function interfaces necessary for accessing and updating FML32 typed buffers. `<fml1632.h>` defines a mapping from the generic FML interface macros, structures and functions to the FML32 versions and may optionally be included. `<tpadm.h>` defines the FML32 field names contained in this reference page. Additionally, any component MIB specific header files must be included to gain access to FML32 field definitions specific to that component MIB.

Example:

```
#include <fml32.h>
#include <tpadm.h>
#include <cmib.h>  /* Component MIB Header */
```

Buffer Allocation

Interaction with a component MIB requires an FML32 typed buffer to carry the request to the service that acts on it. The ATMI verb `tpalloc()` allocates the buffer using `FMLTYPE32` (defined in `<fml32.h>`) as the value for the *`type`* argument. There is no subtype for FML32 buffers so the *`subtype`* argument of `tpalloc()` can be `NULL`. The default minimum size for an FML32 buffer is 1024 bytes. Specifying 0 for the *`size`* argument of `tpalloc()` results in a buffer of minimum size. If the user knows that a larger buffer is needed, it may be allocated by specifying a value larger than the system minimum for *`size`*.

Example:

```
rqbuf = tpalloc(FMLTYPE32, NULL, 0);
```

Building MIB Requests

Once an FML32 typed buffer is allocated, the user needs to populate it with both generic MIB field values and values specific to the component MIB being addressed. The most common interfaces used to add values to a request buffer are the FML verbs `Fadd32()` and `Fchg32()`. In the event that a field cannot be added because the request buffer is full, the buffer may need to be reallocated using the ATMI verb `tprealloc()`.

Example:

```
/*
 * Does not include error processing, bigger_size provided
 * by the user, not by the system. Fchg32 used to insure that
 * field occurrence 0 is set if we are reusing a buffer.
 */
if (Fchg32(rqbuf, TA_MIBFIELD, 0, "ABC", 0) == -1) {
  if (Ferror32 == FNOSPACE) {
    rqbuf = tprealloc(rqbuf, bigger_size);
    Fchg32(rqbuf, TA_MIBFIELD, 0, "ABC", 0);
  }
}
```

Controlling MIB Requests

In addition to attributes specific to each component MIB, there are required and optional attributes defined in this reference page that control the operation requested of the component MIB.

The required generic attributes are `TA_OPERATION` and `TA_CLASS`.

`TA_OPERATION` specifies the operation to be performed on the MIB being accessed. Valid operations are `GET`, `GETNEXT` and `SET`.

`TA_CLASS` specifies the MIB class being accessed. Class names are defined within the component MIB reference pages. If `TA_OPERATION` is `GETNEXT`, an additional attribute, `TA_CURSOR`, is required. `TA_CURSOR` is a field returned on a previous `GET` or `GETNEXT` operation. It is used by the system on the subsequent request to determine retrieval position.

The optional attributes `TA_OCCURS`, `TA_FLAGS`, `TA_FILTER`, `TA_MIBTIMEOUT` and `TA_CURSORHOLD` may be used in addition to the required attributes to further tailor the request.

TA_OCCURS
: Specifies how many objects are to be retrieved on a GET or GETNEXT operation. If unspecified, all occurrences are retrieved, space permitting.

TA_FLAGS
: Used to specify flag values. Some generic flags are defined in this reference page; others are defined in each component MIB reference page.

TA_FILTER
: Restricts the attribute values returned for a GET operation. If unspecified, is a long valued FML32 field used to all available class attribute values are returned.

TA_MIBTIMEOUT
: Specifies the time, in seconds, that should be allowed within the component MIB service to satisfy the request. A value less than or equal to 0 indicates that the component MIB service should not undertake any blocking operation. If unspecified, this value defaults to 20.

TA_CURSORHOLD
: Specifies the time, in seconds, that a system snapshot generated from an initial GET operation should be held after the current GET or GETNEXT operation is satisfied before disposing of it. A value less than or equal to 0 indicates that the snapshot should be disposed of after satisfying the current request. If unspecified, this value defaults to 120.

Example:

```
/* GET 1st 5 objects */
Fchg32(rqbuf, TA_OPERATION, 0, "GET", 0);
Fchg32(rqbuf, TA_CLASS, 0, "classname", 0);
n = 5;
Fchg32(rqbuf, TA_OCCURS, 0, n, 0);
/* Make request, see Sending MIB Requests below */
/* Reply is stored in rpbuf and contains cursor */
/*
 * GETNEXT 5 objects. Transfer TA_CURSOR from rpbuf.
 * Reuse rqbuf generated above. Dispose of snapshot after
 * request, that is, set TA_CURSORHOLD to 0.
 */
Fchg32(rqbuf, TA_OPERATION, 0, "GETNEXT", 0);
Fchg32(rqbuf, TA_CURSOR, 0, Ffind32(rpbuf, TA_CURSOR, 0, NULL), 0);
n = 0;
```

```
Fchg32(rqbuf, TA_CURSORHOLD, 0, n, 0);
/* Make request, see Sending MIB Requests below */
```

Component MIB Fields

Component MIB key fields specified on a `GET` or `GETNEXT` are used to select a set of objects. Non-key fields are ignored by the component MIB.

Component MIB key fields specified on a `SET` operation are used to identify the particular object to be updated. Non-key fields are processed as updates to the object identified by the key fields. The user may optionally specify a pre-image which must match the current object image before an update (`SET`) is allowed. A user indicates that a pre-image is provided by setting the `MIB_PREIMAGE` bit in the `TA_FLAGS` attribute of the request. The key fields specifying the object to be updated are taken from the pre-image (field occurrence 0). If key fields are also specified in the post-image, they must match exactly or the request fails. Only attributes that are part of the class and have two attribute values specified in the input buffer are considered for pre-image matching. Attributes with single values are processed as new values to be set for the indicated class object.

Example:

```
Fchg32(rqbuf, TA_OPERATION, 0, "GET", 0);
Fchg32(rqbuf, TA_CLASS, 0, "classname", 0);
Fchg32(rqbuf, TA_MIBKEY, 0, "keyvalue", 0);
n = 1;
Fchg32(rqbuf, TA_OCCURS, 0, n, 0); /* GET 1st matching occurrence */
/* Make request, see Sending MIB Requests below, reply in rpbuf */
/* Use rpbuf as pre-image and update TA_MIBFIELD value
 * if matching
 */
Fcpy32(newrq, rpbuf);
Fconcat32(newrq, rpbuf);   /* Add 2nd identical copy */
Fchg32(newrq, TA_OPERATION, 0, "SET", 0);
n = MIB_PREIMAGE;
Fchg32(newrq, TA_FLAGS, 0, n, 0);
Fchg32(newrq, TA_MIBFIELD, 1, "newval", 0); /* Post-image */
/* Make request, see Sending MIB Requests below */
```

Sending MIB Requests

All component MIB requests flow through the core BEA Tuxedo component MIB service, ".TMIB". This service not only acts as an agent for servicing TM_MIB(5) requests, it also directs requests targeted for other component MIBs so that the user need not be concerned with matching service names to MIBs and classes. Service requests can be generated using any of the request/response oriented service verbs in ATMI: `tpcall()`, `tpacall()` and `tpenqueue()`. The user has access to all flags and capabilities defined for these interface functions. The only constraint imposed here is that the ".TMIB" service must be invoked outside the scope of any transaction. This means that when using `tpcall()` or `tpacall()` to direct administrative requests within a transaction, the `TPNOTRAN` flag should be used or the user will get a failure (`TPETRAN`). When using `tpenqueue()` to direct requests, the `TMQFORWARD` server must be started with the `-n` option so that the forwarded service requests may be made outside of transactional boundaries.

Example:

```
/* Build request as shown above */
/* Send request and wait for reply */
flags = TPNOTRAN | TPNOCHANGE | TPSIGRSTRT;
rval = tpcall(".TMIB", rqbuf, 0, rpbuf, rplen, flags);
/* Send request and get descriptor back */
flags = TPNOTRAN | TPSIGRSTRT;
cd = tpacall(".TMIB", rqbuf, 0, flags);
/* Enqueue request, assumes qctl already setup */
flags = TPSIGRSTRT;
rval = tpenqueue("queue", ".TMIB", qctl, rqbuf, 0, flags);
```

Receiving MIB Replies

Replies from component MIBs may be received in one of three ways depending on how the original request was generated. If the original request was generated using `tpcall()`, a successful return from `tpcall()` indicates that the reply has been received. If the original request was generated using `tpacall()`, the reply may be received using `tpgetrply()`. If the original request was generated using `tpenqueue()` and a reply queue was specified in the queue control structure, the reply may be received using `tpdequeue()`. All supported flags on these various calls may be used as appropriate.

Example:

```
/* Build request as shown above */
/* Send request and wait for reply */
```

```
flags = TPNOTRAN | TPNOCHANGE | TPSIGRSTRT;
rval = tpcall(".TMIB", rqbuf, 0, rpbuf, rplen, flags);
/* Receive reply using call descriptor */
flags = TPNOCHANGE | TPSIGRSTRT;
rval = tpgetrply(cd, rpbuf, rplen, flags);
/* Receive reply using TPGETANY, may need to change buffer type */
flags = TPGETANY | TPSIGRSTRT;
rval = tpgetrply(rd, rpbuf, rplen, flags);
/* Dequeue reply, assumes qctl already setup */
flags = TPNOCHANGE | TPSIGRSTRT;
rval = tpdequeue("queue", "replyq", qctl, rpbuf, rplen, flags);
```

Interpreting MIB Replies

In addition to attributes specific to a component MIB certain generic MIB fields may be returned in response to an administrative request, These additional attributes characterize the results of the original request and provide values that can be used in subsequent requests if necessary.

Successful `GET` or `GETNEXT` operations return:

- `TA_CLASS`

  Class name.

- `TA_OCCURS`

  Number of matching objects retrieved.

- `TA_MORE`

  Number of matching objects left to be retrieved.

- `TA_CURSOR`

  Cursor to be provided on subsequent retrieval.

- `TA_ERROR`

  Set to the non-negative return value `TAOK`.

- All available component MIB specific attributes

  Occurrence 0 of each attribute represents the first retrieved object, occurrence 1 the second, and so on. Exceptions to this rule are identified as appropriate in the component MIB reference pages.

Successful SET operations return:

- TA_CLASS

  Class name.

- TA_ERROR

  Set to a non-negative return value. TAOK indicates that the request was successful but no information was updated. This can happen because no changes were specified or because the changes specified match the current state of the object. TAUPDATED indicates that the request was successful and the information was updated. TAPARTIAL indicates that the request was successful but the update was only made partially within the system. This may occur because of network failures or message congestion and the system will synchronize the unupdated sites as soon as possible.

- All available component MIB specific attributes

  Since only one object may be updated at once, only one object will be returned. The returned attributes reflect the object after the update.

Failed operations of any type return:

- Fields specified on the original request

- TA_ERROR

  Set to a negative return value indicating the cause of the failure. Generic error codes are specified in the Diagnostics section of this reference page. Component MIB specific error codes (non-overlapping, both with each other and with the generic codes) are specified on each MIB reference page.

- TA_BADFLD

  Field identifier of the offending field.

- TA_STATUS

  Textual description of error condition.

Limitations

FML32 buffers with multiple occurrences of fields do not allow for empty fields in a sequence of occurrences. For example, if you set a value for occurrence 1 and occurrence 0 does not yet exist, FML32 automatically creates occurrence 0 with an FML32 defined NULL value. FML32-defined NULL values are 0 for numeric fields, 0-length (NULL) strings for string fields and the character '\0' for character fields. Because of this limitation, GET operations, which may at times return objects with different sets of attributes, may artificially break up the sets of objects returned to the user so as to not include `NULL` FML32 fields that do not accurately reflect the state of the object.

Workstation clients on DOS, Windows and OS/2 are currently limited to 64K FML32 buffers; therefore, the system restricts return buffers to be less than 64K per buffer.

Administrative API access is not available through the COBOL version of ATMI since COBOL has limited support for FML32 buffer type.

Requests to any component MIB cannot be part of an application transaction. Therefore, any calls to `tpcall()` or `tpacall()` directed to a component MIB and made within an active transaction should set the `TPNOTRAN` flag on the call. However, requests may be enqueued for future delivery to a component MIB using the ATMI verb `tpenqueue()` within a transaction. The enqueuing of the request will take place within a transaction while the processing within the component MIB will not. The use of the `TMQFORWARD(5)` server in this context requires that `TMQFORWARD` be started with the `-n` command line option so that request may be forwarded to the MIB service in non-transactional mode. Because of the non-transactional nature of component MIB services, it is also recommended that the `-d` option for `TMQFORWARD` be used so that service failures are delivered to the failure queue immediately rather than retrying the request.

Field identifiers for generic MIB fields and for component MIBs will be allocated in the range 6,000 to 8,000 inclusive. Therefore, applications which intend to mix administrative actions with user actions should make sure to allocate field identifiers appropriately.

Class Descriptions

Each class description section has four subsections:

Overview
High level description of the attributes associated with the class.

Attribute Table
A table that lists the name, type, permissions, values and default for each attribute in the class. The format of the attribute table is described below.

Attribute Semantics
Tells how each attribute should be interpreted.

Limitations
Limitations in the access to and interpretation of this class.

Attribute Table Format

As described above, each class is defined in four parts. One part is the attribute table. The attribute table is a reference guide to the attributes within a class and how they may used by administrators, operators and general users to interface with an application. There are five components to each attribute description in the attribute tables: name, type, permissions, values and default. Each of these components is discussed in detail below:

Name:

FML32 field identifier name used to identify this attribute value within an FML32 buffer. Attributes may be arranged in groups of closely related attributes. No special meaning should be implied from the groupings; they are intended only to improve the usability of the table. A notation (r), (k), (x) or (*) may appear after an attribute name or value. The meaning of the notation is as follows:

(r)—the field is required when a new object is created

(k)—indicates a key field for object retrieval

(x)—indicates a regular expression key field for object retrieval

(*)—the field is a `SET` key for object modification

`SET` operations on classes with one or more `SET` keys defined (see * above) must include values for one or more of the attribute values defined as `SET` keys. The `SET` keys specified must be sufficient to identify exactly one object within the class. `SET` keys are always key fields for object retrieval and therefore the (k) notation is implied though not specified. `SET` keys are not however always required fields when creating `NEW` objects and will be marked with the (r) notation if they are required.

Type:

Data type of the attribute value. Data types are defined in C language notation, that is, `long`, `char` and `string`. In a program, data type can be determined by using the FML32 function `Fldtype32()`, which returns the FML32 `define` representing the data type; that is, `FLD_LONG`, `FLD_CHAR` and `FLD_STRING` (see `Fldtype, Fldtype32(3fml)`.

Permissions:

Access and update permissions are split into three groups of three each, in the manner of UNIX system permissions. However, in the attribute tables the three groups represent permissions for administrators, operators and others rather than for owner, group and others as is the case in UNIX. For each group there are three permissions positions that have the following meanings.

Position 1—Retrieval permissions

`r`	Attribute may be retrieved.
`R`	Attribute may be retrieved only when the object state is `ACTive` or `ACTive` equivalent. See the description of the `TA_STATE` attribute value for each class to determine which states qualify as `ACTive` equivalent. This attribute represents transient information that is not persistent across distinct activations of the object.
`k`	Attribute may be specified only as a key field for retrieval or update.
`K`	Attribute may be specified only as a key field for retrieval or update and then only when the object state is `ACTive` or `ACTive` equivalent. See the description of the `TA_STATE` attribute value for each class to determine which states qualify as `ACTive` equivalent.

Position 2—Inactive update permissions

`w`	Attribute may be updated when the object is in an `INActive` or `INActive` equivalent state. See the description of the `TA_STATE` attribute value for each class to determine which states qualify as `INActive` equivalent.
`u`	Attribute may be updated as described for the `w` permissions value. In addition, the combination of all attribute values identified with the `u` permissions character must be unique within the class.
`U`	Attribute may be updated as described for the `w` permissions value. In addition, the attribute value must be unique for the attribute within the class.

Position 3—Active update permissions

`x`	Attribute may be updated when the object is in an `ACTive` or `ACTive` equivalent state. See the description of the `TA_STATE` attribute value for each class to determine which states qualify as `ACTive` equivalent.

`X`	Attribute may be updated when the object is in an `ACTive` or `ACTive` equivalent state. See the description of the `TA_STATE` attribute value for each class to determine which states qualify as `ACTive` equivalent. This attribute represents transient information and updates to this attribute value are not persistent across distinct activations of the object.
`y`	Attribute may be updated when the object is in an `ACTive` or `ACTive` equivalent state. However, there are limitations on when the change will affect objects of this or other classes. Consult the textual description of the attribute in the Attribute Semantics section for the class for more details. See the description of the `TA_STATE` attribute value for each class to determine which states qualify as `ACTive` equivalent.

Values

Values that may be set and/or retrieved with respect to this attribute. Certain formatting conventions are followed in listing attribute values.

`LITSTRING`	Literal string value.
`num`	Numeric value.
`string`[*`x..y`*]	String value between *`x`* and *`y`* characters in length, not including the terminating `NULL` character.
`LMID`	Shorthand for *string*[1..30] *(no commas allowed)*. Represents a logical machine identifier.
{*`x`* | *`y`* | *`z`*}	Select one of *`x`*, *`y`* or *`z`*.
{*`x`* | *`y`* | *`z`*}	Select zero or one of *`x`*, *`y`* or *`z`*.
{*`x`* | *`y`* | *`z`*}`,*`	Zero or more occurrences of *`x`*, *`y`* or *`z`* in a comma-separated list.
`low` = *`num`*	Numeric value greater than or equal to *`low`*.
`low` = *`num high`*	Numeric value greater than or equal to *`low`* and less than *`high`*.

GET:	State attribute values that may be returned or specified as key values on a retrieve (GET) operation. Values shown are always the three letter state abbreviation. The expanded state name is shown in the text describing the TA_STATE for the class. Input specifications may be made in either the shorthand or expanded form and are case-insensitive. Output states are always returned in expanded format with all upper case.
SET:	State attribute values that may be set on an update (SET) operation. Use of abbreviations is allowed as described above.

Default:

Default used when creating a new object, that is, state change from INValid to NEW. The value N/A is shown in this column for attributes that are required, derived or only available when the object is active.

TA_STATE Syntax

The TA_STATE attribute field is a member of each class defined. The semantics of this attribute are defined on a class by class basis. For the sake of brevity, TA_STATE values are often specified in a three character shorthand notation. When an expanded version of a TA_STATE value is shown, the three shorthand letters are capitalized and the rest of the letters (if any) are displayed in lowercase. Input TA_STATE values may be in either shorthand or long notation and are case insensitive. Output TA_STATE values are always full length uppercase. The following example should help clarify the use of the TA_STATE attribute:

```
Full Name   : ACTive
Shorthand   : ACT
Output Value : ACTIVE
Valid Input : ACT, act, AcTiVe, active
```

T_CLASS Class Definition

Overview

The T_CLASS class represents attributes of administrative classes within a BEA Tuxedo system application. Its primary use is to identify class names.

Attribute Table

Table 39 T_CLASS Class Definition Attribute Table

Attribute	Type	Permissions	Values	Default
TA_CLASSNAME(k)	string	r--r--r--	*string*	N/A
TA_STATE(k)	string	r--r--r--	GET: VAL SET: N/A	GET: N/A SET: N/A
TA_GETSTATES	string	r--r--r--	*string*	N/A
TA_INASTATES	string	r--r--r--	*string*	N/A
TA_SETSTATES	string	r--r--r--	*string*	N/A
(k)—a key field for object retrieval				

Attribute Semantics

TA_CLASSNAME: *string*

Class name.

TA_STATE:

GET:

A GET operation retrieves information for the selected T_CLASS object(s). The following state indicates the meaning of a TA_STATE returned in response to a GET request. States not listed are not returned.

VALid	T_CLASS object is defined. All objects of this class exist in this state. This state is INActive-equivalent for the purposes of permissions checking.

SET:

SET operations are not permitted on this class.

TA_GETSTATES: *string*

Delimited list ('|' delimiter) of the states that may be returned for an object in this class or as the result of a GET operation. States are returned in their full length uppercase format.

TA_INASTATES: *string*
: Delimited list ('|' delimiter) of the inactive equivalent states that may be returned for an object in this class or as the result of a GET operation. States are returned in their full length uppercase format.

TA_SETSTATES: *string*
: Delimited list ('|' delimiter) of the states that may be set for an object in this class as part of a SET operation. States are returned in their full length uppercase format.

Limitations

None identified.

T_CLASSATT Class Definition

Overview

The T_CLASSATT class represents characteristics of administrative attributes on a class/attribute basis.

Attribute Table

Table 40 T_CLASSATT Class Definition Attribute Table

Attribute	Type	Permissions	Values	Default
TA_CLASSNAME(r)(*)	string	ru-r--r--	*string*	N/A
TA_ATTRIBUTE(r)(*)	long	ru-r--r--	0 <= *num*	N/A
TA_STATE(k)	string	rw-r--r--	GET: VAL	GET: N/A
			SET: {NEW | INV}	SET: N/A
TA_PERM(r)	long	rw-r--r--	0000 <= *num* <= 0777	N/A
TA_FACTPERM	long	r--r--r--	0000 <= *num* <= 0777	N/A
TA_MAXPERM	long	r--r--r--	0000 <= *num* <= 0777	N/A

Table 40 T_CLASSATT Class Definition Attribute Table

Attribute	Type	Permissions	Values	Default
TA_ATTFLAGS	long	r--r--r--	*long*	N/A
TA_DEFAULT	string	r--r--r--	*string*	N/A
TA_VALIDATION	string	r--r--r--	*string*	N/A

(k)—GET key field
(r)—required field for object creation (SET TA_STATE NEW)
(*)—GET/SET key, one or more required for SET operations

Attribute Semantics

TA_CLASSNAME: *string*
: Class name. Only class names known to the system are accessible.

TA_ATTRIBUTE: *long*
: Attribute field identifier as defined in the system provided header file, for example, tpadm.h.

TA_STATE:

GET: VALid
: A GET operation will retrieve information for the selected T_CLASSATT object(s). The following states indicate the meaning of a TA_STATE returned in response to a GET request.

VALid	T_CLASSATT object is defined. All objects of this class exist in this state. This state is INActive equivalent for the purposes of permissions checking.

SET: {NEW | INValid}
: A SET operation will update configuration information for the selected T_CLASSATT object. The following states indicate the meaning of a TA_STATE set in a SET request. States not listed may not be set.

NEW	Create T_CLASSATT object for application. State change allowed only when in the INValid state. Successful return leaves the object in the VALid state.
unset	Modify T_CLASSATT object. Allowed only when in the VALid state. Successful return leaves the object state unchanged.
INValid	Delete or reset T_CLASSATT object for application. State change allowed only when in the VALid state. Successful return leaves the object in either the INValid state or the VALid state. Objects of this class that are built-in, that is, explicitly known to the system, will revert to their default permissions on this state change and continue to exist in the VALid state. Objects of this class that belong to add-on components for which the class attributes are not explicitly known will be deleted on this state change and transition to the INValid state.

TA_PERM: 0000 <= *num* <= 0777

Access permissions for this class attribute combination. When setting permissions, the actual value set may be automatically reset if the requested setting exceeds the permissions available for the attribute. The maximum permissions available for an attribute are the permissions documented for the administrator repeated in the operator and other permissions positions. For example, the TA_TYPE attribute of the T_MACHINE class is documented with permissions rw-r--r-- and has maximum permissions of rw-rw-rw-.

TA_FACTPERM: 0000 <= *num* <= 0777

Permissions for this class attribute combination as set on delivery of the BEA Tuxedo system from the factory. These permissions will apply after a SET operation changing the TA_STATE of an object to INValid.

TA_MAXPERM: 0000 <= *num* <= 0777

Maximum permissions for this class attribute combination.

TA_ATTFLAGS: *long*

Bitwise or of none, some or all of the following flags indicating special characteristics of this attribute.

MIBATT_KEYFIELD

Attribute is a key field for this class.

`MIBATT_LOCAL`
: Attribute represents local information.

`MIBATT_REGEXKEY`
: Attribute is a regular expression key field for this class.

`MIBATT_REQUIRED`
: Attribute is required when creating a `NEW` object in this class.

`MIBATT_SETKEY`
: Attribute is a `SET` key for this class.

`MIBATT_NEWONLY`
: Attribute is writable for inactive equivalent objects in this class only when creating a `NEW` object by changing the `TA_STATE` from `INValid` to `NEW`.

`TA_DEFAULT`: *`string`*

Default for this attribute when creating a `NEW` object in this class. Note that for classes where `NEW` objects may not be created through the Admin API, this attribute will always be returned as a 0 length string. Attributes that may not be `SET` when creating a `NEW` object are also returned as 0 length strings. Attributes which have *`long`* values will have defaults returned as the string representing the long value. Some attributes have special characteristics indicated by the special values indicated below that may be returned here.

`# Inherited:`*`Classname`*[:*`Attribute`*]
: Attribute default is inherited from the attribute of the same name in the indicated class. If *`Attribute`* is specified, the value is inherited from the indicated attribute rather than the one of the same name.

`# Required`
: Attribute is required when creating a `NEW` object.

`# Special`
: Attribute has special rules for defining the default. The appropriate component MIB reference page should be consulted for further details.

`TA_VALIDATION`: *`string`*

String representing the validation rule applied to this class/attribute combination when a new value is being `SET`. This string will take one of the following formats:

`CHOICES=`*`string1`*`|`*`string2`*`|...`
: String attribute value that must match exactly one of the choices shown.

`RANGE=`*`min-max`*
: Numeric attribute value that must be between *`min`* and *`max`*, inclusive.

`SIZE=`*`min-max`*
: String or carray attribute value that must have a length between *`min`* and *`max`* bytes long, inclusive.

`READONLY=Y`
: Read-only attribute with no validation rule for write operations.

`SPECIAL=Y`
: Special validation rule. Consult the appropriate component MIB reference page for more details.

`UNKNOWN=Y`
: Unknown validation rule. Commonly associated with add-on component attribute entries for which the details are not known by the core system.

MIB(5) Additional Information

Limitations

None identified.

Diagnostics

There are two general types of errors that may be returned to the user when interfacing with component MIBs. First, any of the three ATMI verbs (`tpcall()`, `tpgetrply()` and `tpdequeue()`) used to retrieve responses to administrative requests may return any error defined on their respective reference pages.

Second, if the request is successfully routed to a system service capable of satisfying the request and that service determines that there is a problem handling the request, failure may be returned in the form of an application level service failure. In these cases, `tpcall()` or `tpgetrply()` returns an error with `tperrno()` set to `TPESVCFAIL` and returns a reply message containing the original request along with `TA_ERROR`, `TA_STATUS` or `TA_BADFLD` fields further qualifying the error as described below. When a service failure occurs for a request forwarded to the system through the `TMQFORWARD(5)` server, the failure reply message will be enqueued to the failure queue identified on the original request (assuming the `-d` option was specified for `TMQFORWARD`).

When a service failure occurs during processing of an administrative request, the FML32 field `TA_STATUS` is set to a textual description of the failure, the FML32 field `TA_ERROR` is set to indicate the cause of the failure as indicated below. `TA_BADFLD` is set as indicated in the description of the individual errors below. All error codes specified below are guaranteed to be negative.

[`TAEAPP`**]**
: The originating request required application cooperation to be successfully completed and the application did not allow the operation to be completed. For example, server shutdown requires application cooperation.

[`TAECONFIG`**]**
: The configuration file associated with the component MIB could not be accessed as needed to satisfy the requested operation.

[`TAEINVAL`**]**
: A specified field is invalid. `TA_BADFLD` is set to indicate the invalid field identifier.

[`TAEOS`**]**
: An operating system error occurred while attempting to satisfy the request. `TA_STATUS` is updated with the translation of the system error code `errno`.

[`TAEPERM`**]**
: An attempt was made to `SET` an attribute for which the user does not have write permissions or the user attempted a `GET` on a class for which the user does not have read permissions. `TA_BADFLD` is set to indicate the field identifier that failed permissions checking.

[`TAEPREIMAGE`**]**
: A `SET` operation failed due to a mismatch between the specified pre-image and the current object. `TA_BADFLD` is set to indicate the field identifier that failed the pre-image checking.

[`TAEPROTO`**]**
: The administrative request was made in an improper context. `TA_STATUS` is populated with additional information.

[`TAEREQUIRED`**]**
: A required field value is not present. `TA_BADFLD` is set to indicate the missing field identifier.

[`TAESUPPORT`**]**
: The administrative request is not supported in the current version of the system.

[`TAESYSTEM`**]**
: A BEA Tuxedo system error occurred while attempting to satisfy the request. `TA_STATUS` is updated with more information on the error condition.

[`TAEUNIQ`**]**
A `SET` operation did not specify class keys identifying a unique object to be updated.

[*`other`***]**
Other error return codes specific to particular component MIBs are specified in the component MIB reference pages. These error codes are guaranteed to be mutually exclusive both amongst all component MIBs and with generic codes defined here.

The following diagnostic codes are returned in `TA_ERROR` to indicate successful completion of an administrative request. These codes are guaranteed to be non-negative.

[`TAOK`**]**
The operation succeeded. No updates were done to the component MIB object(s).

[`TAUPDATED`**]**
The operation succeeded. Updates were made to the component MIB object.

[`TAPARTIAL`**]**
The operation partially succeeded. Updates were made to the component MIB object.

Interoperability

Access to the FML32 interfaces, and therefore to the component MIBs available for administration of a BEA Tuxedo system application, are available on BEA Tuxedo release 4.2.2 and later. The header files and field tables defining generic MIB attributes are available on BEA Tuxedo release 5.0 and later. Interoperability concerns specific to a particular component MIB are discussed in the reference page for that component MIB.

Portability

The existing FML32 and ATMI functions necessary to support administrative interaction with BEA Tuxedo system MIBs, as well as the header file and field table defined in this reference page, are available on all supported native and Workstation platforms.

Examples

See the "`USAGE`" section earlier for some brief example uses of existing APIs in interfacing with generic MIB processing. More detailed examples are provided with each component MIB reference page that make use of real component MIB classes and attributes.

Files

`${TUXDIR}/include/tpadm.h,`

`${TUXDIR}/udataobj/tpadm`

See Also

`tpacall(3c)`, `tpalloc(3c)`, `tpcall(3c)`, `tpdequeue(3c)`, `tpenqueue(3c)`, `tpgetrply(3c)`, `tprealloc(3c)`, Introduction to FML Functions, `Fadd, Fadd32(3fml)`, `Fchg, Fchg32(3fml)`, `Ffind, Ffind32(3fml)`, `AUTHSVR(5)`, `TM_MIB(5)`, `TMQFORWARD(5)`

Setting Up a BEA Tuxedo Application

Administering a BEA Tuxedo Application at Run Time

Programming a BEA Tuxedo ATMI Application Using C

Programming a BEA Tuxedo ATMI Application Using FML

nl_types(5)

Name

`nl_types`—Native language data types

Synopsis

```
#include <nl_types.h>
```

Description

The `nl_types.h` header file contains the following definitions:

`nl_catd`
: Used by the message catalog functions `catopen()`, `catgets()` and `catclose()` to identify a catalogue.

`nl_item`
: Used by `nl_langinfo()` to identify items of `langinfo()` data. Values for objects of type `nl_item` are defined in `langinfo.h`.

`NL_SETD`
: Used by `gencat()` when no `$set` directive is specified in a message text source file. This constant can be used in subsequent calls to `catgets()` as the value of the set identifier parameter.

`NL_MGSMAX`
: Maximum number of messages per set.

`NL_SETMAX`
: Maximum number of sets per catalogue.

`NL_TEXTMAX`
: Maximum size of a message.

`DEF_NLSPATH`
: The default search path for locating catalogues.

See Also

`gencat(1)`, `catgets(3c)`, `catopen, catclose(3c)`, `nl_langinfo(3c)`, `langinfo(5)`

servopts(5)

Name

`servopts`–Run-time options for server processes

Synopsis

`*AOUT* CLOPT= [-A][-s{@*filename*|*service*[,*service*...][:*func*]}]`
`[-e *stderr_file*][-h][-l *locktype*][-n *prio*]`
`[-o *stdout_file*][-P][-p [L][*low_water*][,[*terminate_time*]]`
`[:[*high_water*][,*create_time*]][-r][-t][ -- *uargs*][-v]`

Description

`servopts` is not a command. Rather, it is a list of run-time options recognized by servers in a BEA Tuxedo system.

The server using these options may be one of the BEA Tuxedo system-supplied servers, or it may be an application-supplied server built with the `buildserver(1)` command.

Running servers in a BEA Tuxedo system is accomplished through the `tmboot(1)` and `tmadmin(1)` commands working with servers (and other resources) specified in the application configuration file. Desired selections from the `servopts` list are specified with the server in the configuration file. The following options are recognized:

`-A`

Indicates that the server should initially offer all services with which it was constructed. For BEA Tuxedo system-supplied servers, `-A` is the only way of specifying services.

`-s` **{ @***`filename`* **|** *`service`***[,***`service`***...][:***`func`***] }**

Specifies the names of services to be advertised when the server is booted. In the most common case, a service is performed by a function that carries the same name; that is, the `x` service is performed by function `x`. For example, the specification:

```
-s x,y,z
```

will run the associated server initially offering services `x`, `y`, and `z`, each processed by a function of the same name. In other cases, a service (or several services) may be performed by a function of a different name. The specification:

```
-s x,y,z:abc
```

runs the associated server with initial services x, y, and z, each processed by the function abc.

Spaces are not allowed between commas. Function name is preceded by a colon. Service names (and implicit function names) must be less than or equal to 15 characters in length. An explicit function name (that is, a name specified after a colon) can be up to 128 characters in length. Names longer than these limits are truncated with a warning message. When retrieved by `tmadmin(1)` or `TM_MIB(5)`, only the first 15 characters of a name are displayed.

A filename can be specified with the -s option by prefacing the filename with the '@' character. Each line of this file is treated as an argument to the `-s` option. You may put comments in this file. All comments start with '#' or ':'. The `-s` option may be specified multiple times.

The run-time association of service name with processing function within a server load module is called the dynamic service capability. The `tmadmin advertise` command can be used to change the list of services offered as the server continues to run.

Service names beginning with the '.' character are reserved for system servers. Application servers specifying such services will fail to boot.

`-e`

Specifies the name of a file to be opened as the server's standard error file. Providing this option ensures that a restarted server has the same standard error file as its predecessors. If this option is not used, a default diversion file called `stderr` is created in the directory specified by `$APPDIR`.

`-h`

Do not run the server immune to hangups. If not supplied, the server ignores the hangup signal.

`-l` *`locktype`*

Lock the server in core. The argument for *`locktype`* is `t`, `d`, or `p` according to whether the text (`TXTLOCK`), data (`DATLOCK`), or the entire process (text and data—`PROCLOCK`), should be locked. See `plock`(2) for details. The lock fails if the server is not run as root. There is no way to unlock a server once it is locked.

`-n` *`prio`*

`nice` the server according to the *`prio`* argument. Giving the process better priority (a negative argument) requires it to be run with the `UID` of `root`. See `nice`(2) for details.

`-o` *`stdout_file`*

Specifies the name of a file to be opened as the server's standard output file. Providing this option ensures that a restarted server has the same standard output file as its predecessors. If this option is not used, a default diversion file called `stdout` is created in the directory specified by `$APPDIR`.

`-P`

Specifies that services advertise running status as:

- `SUSP` (suspended) when booting and `tpsvrinit ()` is running. Requests to a suspended service will fail and return `TPNOENT` immediately.

  If `tpsvrinit ()` runs for an extended period of time, the `-P` option helps avoid service requests timeout at the booting stage.

- `AVAIL` (available) after `tpsvrinit ()` has completed and the server is ready to receive requests.

Note: It is highly recommended to use this `CLOPT` with application servers only. Do not use it as the default `CLOPT`, since it may affect all system servers, for example, `TMUSREVT`, `TMSYSEVT`, `GWTDOMAIN`, `GWADM`, `TMS`, `TMQUEUE`, etc.

The `"-P"` option can also be used with CORBA application servers.

`-p` **[**`L`**][***`low_water`***][,[***`terminate_time`***]][:[***`high_water`***][,***`create_time`***]]**

This option can be used to support the automatic spawning and decaying of servers, both single-threaded RPC servers and conversational servers. For RPC servers, this option must be used on an MSSQ set with MAX greater than 1. For conversational servers, the MAX must be greater than 1.

The decision to spawn/decay servers is based on the number of requests *per server* on the queue. However, if the load [`L`] argument is used with RPC servers, than the load factor of each request is also considered.

If the `-p` option is specified with the `L` argument, then, if the load meets or exceeds a threshold (specified by the ***`high_water`*** argument) for a specified amount of time (in seconds), the system will spawn additional servers. If, however, the value of ***`high_water`*** is 1, then the single server responsible for spawning another server will not do so as long as it is handling messages.

This problem will persist as long as there is only one request waiting on the queue: the server will process it once it finishes its current request and it will not need to start a new server.

However, when additional requests start arriving and waiting on the queue, then you should eventually see new servers getting started. Again, the new servers will be started when the currently running server finishes processing the current request and starts checking for the next one.

Every time a server returns to its queue to get a new message to process, it checks the conditions governing the need for new servers. If those conditions are met, the server spawns exactly one new server.

Note: For UNIX platforms only—the `alarm()` system call does not work as expected in servers running under server pool management. Because the code that terminates idle servers uses the `alarm()` call, user-written code intended to establish a customized signal handler fails to do so, despite the fact that calls to `Usignal()` do not result in errors.

Depending on which type of server is being used, arguments to the `-p` option have the following meanings:

RPC Servers

`L`

The load argument works only with RPC servers. It also only works in SHM mode with load balancing turned on. The decision to spawn more servers is based on the request load, rather than the number of messages per server. If `SHM/LDBAL=Y` is not set, a user log message (`LIBTUX_CAT:1542`) is printed and no spawning or decaying occurs.

`low_water`, *`terminate_time`*, *`high_water`*, and *`create_time`*

These arguments are used to control when RPC servers are spawned or deactivated based on the number of messages per server. If the load exceeds *`high_water`* for at least *`create_time`* seconds, a new server is spawned. If the load drops below *`low_water`* for at least *`terminate_time`* seconds, a server is deactivated. *`low_water`* defaults to an average of 1 message per server on the MSSQ or a workload of 50. *`high_water`* defaults to an average of 2 messages per server, or a workload of 100. *`create_time`* defaults to 50 and *`terminate_time`* defaults to 60.

Conversational Servers

`L`

The load option is not applicable to conversational servers.

Note: For BEA Tuxedo 8.0 or later, there are no restrictions for the automatic spawning of multi-threaded or non-MSSQ conversational servers. However, the automatic decay feature will *not* be implemented for these types of servers.

`low_water`, *`terminate_time`*, *`high_water`*, and *`create_time`*

These arguments are used to control when conversational servers are spawned or deactivated. Since conversational servers typically run for a longer time than RPC servers, a conversational server checks the minimum *`low_water`* percentage and the maximum *high_water* percentage of other servers that are currently engaged in conversations. If the percentage exceeds the value set for the related time parameters, `terminate_time` and `create_time` respectively, a server may be decayed or spawned, provided that the minimum or maximum number of servers has not been reached.

Also, you can specify a value of 0 seconds for the time parameters so that either a spawn or decay action will occur as soon as the server detects that the percentage has been exceeded. *low_water* percentage defaults to 0% and the *high_water* percentage defaults to 80%. `terminate_time` defaults to 60 seconds and `create_time` defaults to 0 seconds.

`-r`

Specifies that the server should record, on its standard error file, a log of services performed. This log may be analyzed by the `txrpt(1)` command. When the `-r` option is used, make sure that the `ULOGDEBUG` variable is not set to “y”. The `ULOGDEBUG` variable prevents debugging messages from being sent to `stderr`. Debugging messages in the file will be misinterpreted by `txrpt`.

`-t`

Specifies that the server in this BEA Tuxedo 7.1 or later application is allowed to interoperate with pre-release 7.1 BEA Tuxedo software. The server may be a workstation listener (WSL) process (which when started with the `-t` option allows interoperability for all of its workstation handler—WSH—processes), a domain gateway (`GWTDOMAIN`) process, or a system or application server process.

`--`

Marks the end of system-recognized arguments and the start of arguments to be passed to a subroutine within the server. This option is needed only if the user wishes to supply application-specific arguments to the server. The system-recognized options precede the `--`; application arguments should follow it. Application arguments may be processed by a user-supplied version of the `tpsvrinit()` function. `getopt()` should be used to parse them. Because all system arguments are processed prior to the call to `tpsvrinit()`, when the call is made the external integer, `optind` points to the start of the user flags. The same option letters (for example, `-A`) may be reused after the `--` argument, and given any meaning appropriate to the application.

`-v`

Prints out the service name/function name list to standard output, beginning with the following comment lines:

```
#
# List of services and corresponding handler functions built into the
```

```
server
#
<servicename>:<functionname><NEWLINE>
<servicename>:<functionname><NEWLINE>
<servicename>:<functionname><NEWLINE>
.  .  .  .
.  .  .  .
```

where the first three lines are comments and begin with a pound sign (`#`) character. Each following line includes a service name and its corresponding function name built into the executable. The *`servicename`* field on any line can be an empty string if an "`-s:` *`functionname`*" is included on the `buildserver` command line. The *`functionname`* field is always present.

Note: At run time the BEA Tuxedo system automatically adds the following option to each command line for each server:

`-c dom=`*`domainid`*

The `-c` option adds a comment line, in which the specified domain ID is reported, to any command output that reports on the processes associated with the domain in question, such as the output of the `ps` command. This comment helps an administrator who is managing multiple domains to interpret a single output stream that refers to several domains.

Examples

See the Examples section of `UBBCONFIG(5)`.

See Also

`buildserver(1)`, `tmadmin(1)`, `tmboot(1)`, `txrpt(1)`, `tpsvrinit(3c)`, `UBBCONFIG(5)`

Setting Up a BEA Tuxedo Application

Administering a BEA Tuxedo Application at Run Time

`nice`(2), `plock`(2), `getopt`(3) in a UNIX system reference manual

TM_MIB(5)

Name

TM_MIB—Management Information Base for core BEA Tuxedo system

Synopsis

```
#include <fml32.h>
#include <tpadm.h>
```

Description

The BEA Tuxedo System MIB defines the set of classes through which the fundamental aspects of an application can be configured and managed. This includes management of machines, servers, networking.

TM_MIB(5) should be used in combination with the generic MIB reference page MIB(5) to format administrative requests and interpret administrative replies. Requests formatted as described in MIB(5) using classes and attributes described in this reference page may be used to request an administrative service using any one of a number of existing ATMI interfaces in an active application. Inactive applications may also be administered using the tpadmcall() function interface. For additional information pertaining to all TM_MIB(5) class definitions, see "TM_MIB(5) Additional Information" on page 459.

TM_MIB(5) consists of the following classes.

Table 41 TM_MIB Classes

Class Name	Controls . . .
T_BRIDGE	Network connections
T_CLIENT	Clients
T_CONN	Conversations
T_DEVICE	Devices
T_DOMAIN	Global application attributes
T_FACTORY	Factories
T_GROUP	Server groups

Table 41 TM_MIB Classes (Continued)

Class Name	Controls . . .
T_IFQUEUE	Server queue interfaces
T_INTERFACE	Interfaces
T_MACHINE	Machine specific attributes
T_MSG	Message queues
T_NETGROUP	Network groups
T_NETMAP	Machines to Netgroups
T_QUEUE	Server queue
T_ROUTING	Routing criteria
T_SERVER	Servers
T_SERVERCTXT	Server context
T_SERVICE	Services
T_SVCGRP	Service group
T_TLISTEN	BEA Tuxedo system listeners
T_TLOG	Transaction log
T_TRANSACTION	Transaction
T_ULOG	User log

Each class description consists of four sections:

- OVERVIEW—high level description of the attributes associated with the class.
- ATTRIBUTE TABLE—the format of the attribute table is summarized below and described in detail in MIB(5).
- ATTRIBUTE SEMANTICS—defines the interpretation of each attribute that is part of the class.
- LIMITATIONS—limitations in the access to and interpretation of this class.

Attribute Table Format

Each class that is a part of this MIB is defined in four parts in sections that follow. One of the four parts is the attribute table. The attribute table is a reference guide to the attributes within a class and how they may used by administrators, operators, and general users to interface with an application.

There are five columns for each attribute described in an attribute table: name, type, permissions, values, and default. Each of these components is discussed in MIB(5).

TA_FLAGS Values

MIB(5) defines the generic TA_FLAGS attribute, which is a long containing both generic and component MIB specific flag values. The following are the TM_MIB(5) specific flag values supported. These flag values should be or'd with any generic MIB flags.

TMIB_ADMONLY
: A flag used to indicate that only administrative processes should be activated when changing the state of a T_MACHINE object from INActive to ACTive.

TMIB_APPONLY
: A flag used to indicate that only application processes should be considered when activating or deactivating a T_MACHINE object. It may also be used on T_SERVER and T_SERVERCTXT retrievals to restrict the retrieval to application servers only.

TMIB_CONFIG
: A flag used to indicate that only configured groups and servers should be considered in satisfying the request.

TMIB_NOTIFY
: A flag used when activating or deactivating T_MACHINE, T_GROUP, or T_SERVER objects to cause unsolicited notification messages to be sent to the originating client just prior to and just after the activation or deactivation of each server object selected.

FML32 Field Tables

The field table for the attributes described in this reference page is found in the file udataobj/tpadm relative to the root directory of the BEA Tuxedo system software installed on the system. The directory ${TUXDIR}/udataobj should be included by the application in the colon-separated list specified by the FLDTBLDIR environment variable, and the field table name tpadm should be included in the comma-separated list specified by the FIELDTBLS environment variable.

Limitations

Access to the header files and field tables for this MIB is being provided only on BEA Tuxedo release 6.1 sites and later, both native and Workstation.

Workstation access to this MIB is limited to run-time only access; the function `tpadmcall(3c)` is not supported on workstations.

For the purpose of preimage processing (`MIB_PREIMAGE` flag bit set), local attributes for classes that have global attributes are not considered. Additionally, indexed fields and the indexes that go with them are not considered, for example, `T_TLOG` class, `TA_TLOGCOUNT`, `TA_TLOGINDEX`, `TA_GRPNO`, `TA_TLOGDATA` attributes.

T_BRIDGE Class Definition

Overview

The `T_BRIDGE` class represents run-time attributes pertaining to connectivity between logical machines making up an application. These attribute values represent connection status and statistics.

Attribute Table

Table 42 TM_MIB(5): T_BRIDGE Class Definition Attribute Table

Attribute[1]	Type	Permissions	Values	Default
`TA_LMID`(*)[2]	string	`r--r--r--`	"*LMID1*[,*LMID2*]"	N/A
`TA_NETGROUP`(k)[3]	string	`R--R--R--`	*string*[1..30]	"DEFAULTNET"
`TA_STATE`(k)	string	`rwxrwxr--`	GET: "{ACT | INA | SUS | PEN}" SET: "{ACT | INA | SUS | PEN}"	N/A N/A
`TA_CURTIME`	long	`R--R--R--`	0 <= *num*	N/A
`TA_CONTIME`	long	`R-XR-XR--`	0 <= *num*	N/A
`TA_SUSPTIME`	long	`rwxrwxr--`	0 <= *num*	300 [4]
`TA_RCVDBYT`	long	`R-XR-XR--`	0 <= *num*	N/A
`TA_SENTBYT`	long	`R-XR-XR--`	0 <= *num*	N/A

Table 42 TM_MIB(5): T_BRIDGE Class Definition Attribute Table

Attribute[1]	Type	Permissions	Values	Default
TA_RCVDNUM	long	R-XR-XR--	0 <= *num*	N/A
TA_SENTNUM	long	R-XR-XR--	0 <= *num*	N/A
TA_FLOWCNT	long	R-XR-XR--	0 <= *num*	N/A
TA_CURENCRYPTBIT	string	R--R-----	"{0 | 40 | 56 | 128}" [5]	N/A

(k)—GET key field
(*)—GET/SET key, one or more required for SET operations

[1] All attributes in the T_BRIDGE class are local attributes.
[2] TA_LMID attribute must be fully specified for SET operations, that is, *LMID1,LMID2*.
[3] SET operation may only use TA_NETGROUP DEFAULTNET in BEA Tuxedo release 6.4. GET operation may use any TA_NETGROUP defined for both LMID values.
[4] TA_SUSPTIME may be SET only if the TA_STATE is currently SUSPENDED or is being SET to SUSPENDED.
[5] Link-level encryption value of 40 bits is provided for backward compatibility.

Attribute Semantics

TA_LMID: "*LMID1*[,*LMID2*]"

Source logical machine identifier (*LMID1*) and destination logical machine identifier (*LMID2*) for network connection.

TA_NETGROUP: *string*[1 . .30]

Logical name of the network group.When both source and destination TA_LMID identifiers are in the same TA_NETGROUP, the T_BRIDGE class will present all instances of related fields per TA_NETGROUP. TA_NETGROUP may be used as a key field on GET requests. TA_NETGROUP values other than DEFAULTNET may not be used on SET operations in this BEA Tuxedo release (release 6.4).

TA_STATE:

GET: "{ACTive | INActive | SUSpended | PENding}"

A GET operation will retrieve run-time information for the selected T_BRIDGE object(s). A TA_LMID attribute value with only one logical machine identifier matches all active connections from *LMID1* to other machines in the application. In this case, each retrieved record will contain an expanded TA_LMID attribute value with the destination LMID filled in. The following states indicate the meaning of a TA_STATE returned in response to a GET request.

ACTive	The connection is established and active.
INActive	The connection is inactive. This state is only returned when status is requested on a particular connection, that is, both Lands specified in the TA_LMID attribute and the source logical machine is reachable.
SUSpended	An established connection was terminated due to an error condition, and reconnection has been suspended for at least the amount of time indicated in the TA_SUSPTIME attribute value. This state is ACTive equivalent for the purpose of determining permissions.
PENding	An asynchronous connection has been requested, but has not yet been completed. The final outcome of the connection request has not been determined.

SET: "{ACTive | INActive | SUSpended | PENding}"

A SET operation will update run-time information for the selected T_BRIDGE object. The following states indicate the meaning of a TA_STATE set in a SET request. States not listed may not be set.

unset	Modify an existing T_BRIDGE object. This combination is allowed only when in the ACTive or SUSpended state. Successful return leaves the object state unchanged.
ACTive	Activate the T_BRIDGE object by establishing a connection between the indicated logical machines. This operation will fail if only one logical machine is specified, if either of the two machines is not active, or if the source logical machine is not reachable. While the T_BRIDGE object is establishing the asynchronous connection, the Bridge process will do other work. Using the state change to PENding is recommended. State change allowed in the INActive and SUSpended states. For the purpose of determining permissions for this state transition, the active object permissions are considered (that is, --x--x--x). Successful return leaves the object in the PENding state.

INActive	Deactivate the T_BRIDGE object by closing the connection between the indicated logical machines. This operation will fail if only one logical machine is specified or if the two machines are not connected. State change allowed only when in the ACTive state. Successful return leaves the object in the INActive state.
SUSpended	Suspend the T_BRIDGE object by closing the connection between the indicated logical machines and by setting the TA_SUSPTIME attribute as indicated. State change allowed only when in the ACTive state. Successful return leaves the object in the SUSpended state. Limitation: Note that since the statistics reported are from the viewpoint of the source logical machine, resetting those statistics will cause them to be out of sync with the statistics reported by the destination logical machine for the same connection.
PENding	Activate the T_BRIDGE object by establishing an asynchronous connection between the indicated logical machines. This operation will fail if only one logical machine is specified, if either of the two machines is not active, or if the source machine is not reachable. When in the PENding state, the success or failure of the connection request has not yet been determined. However, the Bridge process may continue to process other events and data while the connection is outstanding. State change allowed in the INActive and SUSpended states. For the purpose of determining permissions for this state transition, the active object permissions are considered (that is, --x--x--x). Successful return leaves the object in the PENding state.

TA_CURTIME**: 0 <=** *num*

Current time, in seconds, since 00:00:00 UTC, January 1, 1970, as returned by the time(2) system call on T_BRIDGE:TA_LMID. This attribute can be used to compute elapsed time from the following attribute value.

TA_CONTIME**: 0 <=** *num*

Time, in seconds, since 00:00:00 UTC, January 1, 1970, as returned by the time(2) system call on T_BRIDGE:TA_LMID, when this connection was first established. Elapsed open time in seconds can be computed using TA_CURTIME - TA_CONTIME.

`TA_SUSPTIME`**: 0 <=** *num*

Time, in seconds, remaining in the suspension of this connection. After this amount of time, the connection will automatically change to a `TA_STATE` of `INACTIVE` and may be activated by normal application traffic.

`TA_RCVDBYT`**: 0 <=** *num*

Number of bytes sent from the destination logical machine to the source logical machine.

`TA_SENTBYT`**: 0 <=** *num*

Number of bytes sent from the source logical machine to the destination logical machine.

`TA_RCVDNUM`**: 0 <=** *num*

Number of messages sent from the destination logical machine to the source logical machine.

`TA_SENTNUM`**: 0 <=** *num*

Number of messages sent from the source logical machine to the destination logical machine.

`TA_FLOWCNT`**: 0 <=** *num*

Number of times flow control has been encountered over this connection.

`TA_CURENCRYPTBITS`**:** "**{**`0` | `40` | `56` | `128`**}**"

The current encryption level for this link. The level is negotiated between machines when the link is established.

Note: The link-level encryption value of 40 bits is provided for backward compatibility.

Limitations

None.

T_CLIENT Class Definition

Overview

The `T_CLIENT` class represents run-time attributes of active clients within an application. These attribute values identify and track the activity of clients within a running application.

Attribute Table

Table 43 TM_MIB(5): T_CLIENT Class Definition Attribute Table

Attribute 1	Type	Permissions	Values	Default
TA_STATE(k)	string	R-XR-XR--	GET: "{ACT | SUS | DEA}" SET: "{ACT | SUS | DEA}"	N/A N/A
TA_CLIENTID(*)	string	R--R--R--	*string*[1..78]	N/A
TA_CLTNAME(k)	string	R--R--R--	*string*[0..30]	N/A
TA_IDLETIME(k)	long	R--R--R--	0 <= *num*	N/A
TA_TPBLK_ALL	long	R--R--R--	0 <= *num*	0
TA_LMID(k)	string	R--R--R--	*LMID*	N/A
TA_PID(k)	long	R--R--R--	1 <= *num*	N/A
TA_CONTEXTID	long	R--R--R--	-2 <= *num* < 30,000	N/A
TA_SRVGRP(k)	string	R--R--R--	*string*[0..30]	N/A
TA_USRNAME(k)	string	R--R--R--	*string*[0..30]	N/A
TA_WSC(k)	string	R--R--R--	"{Y | N}"	N/A
TA_WSH(k)	string	R--R--R--	"{Y | N}"	N/A
TA_WSHCLIENTID(k)	string	R--R--R--	*string*[1..78]	N/A
TA_RELEASE	long	R--R--R--	0 <= *num*	N/A
TA_WSPROTO	long	R--R--R--	0 <= *num*	N/A
TA_NUMCONV	long	R-XR-XR--	0 <= *num*	N/A
TA_NUMDEQUEUE	long	R-XR-XR--	0 <= *num*	N/A
TA_NUMENQUEUE	long	R-XR-XR--	0 <= *num*	N/A
TA_NUMPOST	long	R-XR-XR--	0 <= *num*	N/A
TA_NUMREQ	long	R-XR-XR--	0 <= *num*	N/A

Table 43 TM_MIB(5): T_CLIENT Class Definition Attribute Table (Continued)

Attribute [1]	Type	Permissions	Values	Default
TA_NUMSUBSCRIBE	long	R-XR-XR--	0 <= *num*	N/A
TA_NUMTRAN	long	R-XR-XR--	0 <= *num*	N/A
TA_NUMTRANABT	long	R-XR-XR--	0 <= *num*	N/A
TA_NUMTRANCMT	long	R-XR-XR--	0 <= *num*	N/A
TA_CMTRET	string	R--R--R--	"{COMPLETE | LOGGED}"	N/A
TA_CURCONV	long	R--R--R--	0 <= *num*	N/A
TA_CURENCRYPTBIT	string	R--R-----	"{0 | 40 | 56 | 128}" [2]	N/A
TA_CURREQ	long	R--R--R--	0 <= *num*	N/A
TA_CURTIME	long	R--R--R--	1 <= *num*	N/A
TA_LASTGRP	long	R--R--R--	1 <= *num* < 30,000	N/A
TA_NADDR	string	R--R--R--	*string*[1..256] [3]	N/A
TA_NOTIFY	string	R--R--R--	"{DIPIN | SIGNAL | THREAD | IGNORE}"	N/A
TA_NUMUNSOL	long	R--R--R--	0 <= *num*	N/A
TA_RPID	long	R--R--R--	1 <= *num*	N/A
TA_TIMELEFT	long	R--R--R--	0 <= *num*	N/A
TA_TIMESTART	long	R--R--R--	1 <= *num*	N/A
TA_TRANLEV	long	R--R--R--	0 <= *num*	N/A

(k)—GET key field
(*)—GET/SET key, one or more required for SET operations

[1] All attributes in the T_CLIENT class are local attributes.
[2] Link-level encryption value of 40 bits is provided for backward compatibility.
[3] Maximum string length for this attribute is 78 bytes for BEA Tuxedo 8.0 or earlier.

Attribute Semantics

TA_STATE:

GET: "{ACTive | SUSpended | DEAd}"

A GET operation will retrieve run-time information for the selected T_CLIENT object(s). Note that client information is kept in local bulletin board tables only. Therefore, for maximum performance, inquiries on client status should be restricted using key fields as much as possible. The following states indicate the meaning of a TA_STATE returned in response to a GET request.

ACTive	T_CLIENT object active. This is not an indication of whether the client is idle or busy. A non 0 value retrieved for either the TA_CURCONV attribute or the TA_CURREQ attribute indicates a busy client.
SUSpended	T_CLIENT object active and suspended from making further service requests (tpcall() or tpacall()) and from initiating further conversations (tpconnect()). See SET SUSpended below for details. This state is ACTive equivalent for the purpose of determining permissions.
DEAd	T_CLIENT object identified as active in the bulletin board but currently not running due to an abnormal death. This state will exist only until the BBL local to the client notices the death and takes action to clean up the client's bulletin board resources. This state is ACTive equivalent for the purpose of determining permissions.

SET: "{ACTive | SUSpended | DEAd}"

A SET operation will update run-time information for the selected T_CLIENT object. The following states indicate the meaning of a TA_STATE set in a SET request. States not listed may not be set.

ACTive	Activate a SUSpended T_CLIENT object. State change allowed only when in the SUSpended state. Successful return leaves the object in the ACTive state.
unset	Modify an existing T_CLIENT object. This combination is allowed only when in the ACTive or SUSpended state. Successful return leaves the object state unchanged.

SUSpended	Suspend the T_CLIENT object from making service requests (tpcall() or tpacall()), initiating conversations (tpconnect()), beginning transactions (tpbegin()), and enqueuing new requests (tpenqueue()). Clients within a transaction will be permitted to make these calls until they abort or commit the current transaction, at which time they will become suspended. Invocations of these routines will result in a TPESYSTEM error return and a system log message being generated indicating the situation. State change allowed only when in the ACTive state. Successful return leaves the object in the SUSpended state.
DEAd	Abortively deactivate the T_CLIENT object. State change allowed only when in the ACTive or SUSpended state. The recommended method for deactivating clients is to first broadcast a warning message (tpbroadcast)), then to suspend them (see SET SUSpended above), and finally to abortively deactivate them by setting the state to DEAd. Successful return leaves the object in the DEAd state. Limitation: Workstation handlers (T_CLIENT:TA_WSH == Y) may not be set to a state of DEAd. The system may not be able to *kill* the client due to platform or signaling restrictions. In this case, a native client will be abortively terminated at its next access to ATMI, and a Workstation client's connection to a WSH will be preemptively torn down.

TA_CLIENTID**:** *string***[1..78]**

Client identifier. The data in this field should not be interpreted directly by the end user except for equality comparison.

TA_CLTNAME**:** *string***[0..30]**

Client name associated with client at tpinit() time via the cltname element of the TPINIT structure.

TA_IDLETIME**: 0 <=** *num*

Approximate amount of time, in seconds, since this client last interacted with the system via an ATMI call. This value is accurate to within TA_SCANUNIT (see the T_DOMAIN class) seconds. When specified as a key field, a positive value indicates that all clients with idle times of at least the indicated value match, a negative value indicates that all clients with no more than the indicated value match, and a 0 value matches all clients.

TA_TPBLK_ALL: **0 <=** *num*
: Reports the current tpsblktime(TPBLK_ALL) blocktime value per client. If TPBLK_ALL has not been set, then the TA_TPBLK_ALL value is 0.

TA_LMID: *LMID*
: Logical machine where client is running (native clients) or where client is connected (Workstation clients).

TA_PID: **1 <=** *num*
: Process identifier of client. Note that for Workstation clients, this identifier indicates the workstation handler through which the Workstation client is connected. A negative number may be specified on a GET operation for the purpose of retrieving client information for the calling process. If the calling process is not a client, an error will be returned.

TA_CONTEXTID: **-2 <=** *num* **< 30,000**
: Identifier for this particular application association.

TA_SRVGRP: *string***[0..30]**
: Server group with which the client is associated. This information is set via the grpname element of the TPINIT structure at tpinit() time.

TA_USRNAME: *string***[0..30]**
: User name associated with client at tpinit() time via the usrname element of the TPINIT structure.

TA_WSC: "**{**Y | N**}**"
: Workstation client. If this attribute is set to "Y", the indicated client is logged in to the application from a remote workstation.

TA_WSH: "**{**Y | N**}**"

: Workstation handler. If this attribute is set to "Y", the indicated client is a workstation handler process.

TA_WSHCLIENTID: *string***[1..78]**
: Client identifier for the associated workstation handler (WSH) if this client is a Workstation client (TA_WSH == Y); otherwise, this attribute will be returned as a 0-length string.

TA_RELEASE: **0 <=** *num*
: The BEA Tuxedo system major protocol release number for the machine where the client is running. This may be different from the TA_SWRELEASE for the same machine. Note that for Workstation clients (TA_WSC == Y), this value may be different than the major release

associated with the application administered machine through which the Workstation client accesses the application.

TA_WSPROTO: **0** <= *num*
: The BEA Tuxedo system Workstation protocol version number for a Workstation client. This value is changed with each update to the Workstation protocol. A value of 0 is returned for this attribute when associated with non-Workstation clients (TA_WSC == N).

TA_NUMCONV: **0** <= *num*
: Number of conversations initiated by this client via tpconnect().

TA_NUMDEQUEUE: **0** <= *num*
: Number of dequeue operations initiated by this client via tpdequeue().

TA_NUMENQUEUE: **0** <= *num*
: Number of enqueue operations initiated by this client via tpenqueue().

TA_NUMPOST: **0** <= *num*
: Number of postings initiated by this client via tppost().

TA_NUMREQ: **0** <= *num*
: Number of requests made by this client via tpcall() or tpacall().

TA_NUMSUBSCRIBE: **0** <= *num*
: Number of subscriptions made by this client via tpsubscribe().

TA_NUMTRAN: **0** <= *num*
: Number of transactions begun by this client.

TA_NUMTRANABT: **0** <= *num*
: Number of transactions aborted by this client.

TA_NUMTRANCMT: **0** <= *num*
: Number of transactions committed by this client.

TA_CMTRET: "**{**COMPLETE **|** LOGGED**}**"
: Setting of the TP_COMMIT_CONTROL characteristic for this client. See the description of the BEA Tuxedo System ATMI function tpscmt() for details on this characteristic.

TA_CURCONV: **0** <= *num*
: Number of conversations initiated by this client via tpconnect() that are still active.

TA_CURENCRYPTBITS: "**{**0 **|** 40 **|** 56 **|** 128**}**"
: The current encryption level for this client. The level is negotiated when the link is established.

Note: The link-level encryption value of 40 bits is provided for backward compatibility.

`TA_CURREQ`**: 0 <=** *`num`*
Number of requests initiated by this client via `tpcall()` or `tpacall()` that are still active.

`TA_CURTIME`**: 1 <=** *`num`*
Current time, in seconds, since 00:00:00 UTC, January 1, 1970, as returned by the time(2) system call on `T_CLIENT:TA_LMID`. This attribute can be used to compute elapsed time from the `T_CLIENT:TA_TIMESTART` attribute value.

`TA_LASTGRP`**: 1 <=** *`num`* **< 30,000**
Server group number (`T_GROUP:TA_GRPNO`) of the last service request made or conversation initiated from this client.

`TA_NADDR`**:** *`string`***[1..256] (up to 78 bytes for BEA Tuxedo 8.0 or earlier)**
For Workstation clients, this attribute indicates the network address of the client. Network addresses with unprintable characters are converted to one of the following formats:

- "0x*hex-digits*"
- "\\x*hex-digits*"

A string in either format must contain an even number of valid hex digits. Such a string is translated internally into a character array containing the hexadecimal representations of the string specified.

For TCP/IP addresses one of the following formats is used:

- "//*hostname*:*port*"
- "//#.#.#.#:*port_number*"

Each `#` (pound) sign represents a decimal number in the range of 0 to 255. The value of *`port_number`* is a decimal number in the range of 0 to 65535.

Note: Some port numbers may be reserved for the underlying transport protocols (such as TCP/IP) used by your system. Check the documentation for your transport protocols to find out which numbers, if any, are reserved on your system.

Non-Workstation clients have a 0-length string associated with them for this attribute value.

Limitation: The ability of the system to provide this information is determined by the transport provider in use. In some cases, Workstation clients may not have addresses associated with them if the provider does not make this information available.

TA_NOTIFY: "{DIPIN | SIGNAL | THREAD | IGNORE}"
: Setting of the notification characteristic for this client. See the T_DOMAIN class description of this attribute for more details.

TA_NUMUNSOL: **0 <=** *num*
: Number of unsolicited messages queued for this client awaiting processing.

TA_RPID: **1 <=** *num*
UNIX system message queue identifier for the client's reply queue. Limitation: This is a UNIX system specific attribute that may not be returned if the platform on which the application is being run is not UNIX-based.

TA_TIMELEFT: **0 <=** *num*
: Time left, in seconds, for this client to receive the reply for which it is currently waiting before it will timeout. This time out may be a transactional timeout or a blocking timeout.

TA_TIMESTART: **1 <=** *num*
: Time, in seconds, since 00:00:00 UTC, January 1, 1970, as returned by the time(2) system call on T_CLIENT:TA_LMID, since the client joined the application.

TA_TRANLEV: **0 <=** *num*
: Current transaction level for this client. 0 indicates that the client is not currently involved in a transaction.

Limitations

None.

T_CONN Class Definition

Overview

The T_CONN class represents run-time attributes of active conversations within an application.

Attribute Table

Table 44 TM_MIB(5): T_CONN Class Definition Attribute Table

Attribute [1]	Type	Permissions	Values	Default
TA_LMID(k)	string	R--R--R--	*LMID*	N/A
TA_STATE(k)	string	R--R--R--	GET: "ACT" SET: N/A	N/A N/A

Table 44 TM_MIB(5): T_CONN Class Definition Attribute Table

Attribute [1]	Type	Permissions	Values	Default
TA_SERVICENAME	string	R--R--R--	*string*[1..15]	N/A
TA_CLIENTID(k)	string	R--R--R--	*string*[1..78]	N/A
TA_CONNOGRPNO	long	R--R--R--	1 <= *num* < 30,001	N/A
TA_CONNOLMID	string	R--R--R--	*LMID*	N/A
TA_CONNOPID	long	R--R--R--	1 <= *num*	N/A
TA_CONNOSNDCNT	long	R--R--R--	0 <= *num*	N/A
TA_CONNOSRVID	long	R--R--R--	1 <= *num* < 30,001	N/A
TA_CONNSGRPNO	long	R--R--R--	1 <= *num* < 30,001	N/A
TA_CONNSLMID	string	R--R--R--	*LMID*	N/A
TA_CONNSPID	long	R--R--R--	1 <= *num*	N/A
TA_CONNSSNDCNT	long	R--R--R--	0 <= *num*	N/A
TA_CONNSSRVID	long	R--R--R--	1 <= *num* < 30,001	N/A
(k)—GET key field				

[1] All attributes in the T_CONN class are local attributes.

Attribute Semantics

TA_LMID: *LMID*

Retrieval machine logical machine identifier.

TA_STATE:

GET: "{ACTive}"

A GET operation will retrieve run-time information for the selected T_CONN object(s). The following states indicate the meaning of a TA_STATE returned in response to a GET request.

ACTive	The object returned reflects one or both sides of an active conversation within the application.

SET:

SET operations are not permitted on this class.

`TA_SERVICENAME`: *`string`*[1..15]
: Service name of the conversational service invoked by the originator and processed by the subordinate.

`TA_CLIENTID`: *`string`*[1..78]
: Client identifier. The data in this field should not be interpreted directly by the end user except for equality comparison.

`TA_CONNOGRPNO`: **1 <=** *`num`* **< 30,001**
: Server group number for the originator of the conversation. If the originator is a client, 30,000 is returned as the value for this attribute.

`TA_CONNOLMID`: *`LMID`*
: Logical machine identifier indicating where the originator is running or is accessing the application (in the case of Workstation clients).

`TA_CONNOPID`: **1 <=** *`num`*
: Process identifier for the originator of the conversation.

`TA_CONNOSNDCNT`: **0 <=** *`num`*
: Number of `tpsend()` calls done by the originator.

`TA_CONNOSRVID`: **1 <=** *`num`* **< 30,001**
: Server identifier for the originator of the conversation.

`TA_CONNSGRPNO`: **1 <=** *`num`* **< 30,001**
: Server group number for the subordinate of the conversation.

`TA_CONNSLMID`: *`LMID`*
: Logical machine identifier indicating where the subordinate is running or is accessing the application (in the case of Workstation clients).

`TA_CONNSPID`: **1 <=** *`num`*
: Process identifier for the subordinate in the conversation.

`TA_CONNSSNDCNT`: **0 <=** *`num`*
: Number of `tpsend()` calls done by the subordinate.

`TA_CONNSSRVID`: **1 <=** *`num`* **< 30,001**
: Server identifier for the subordinate in the conversation.

Limitations

None.

T_DEVICE Class Definition

Overview

The T_DEVICE class represents configuration and run-time attributes of raw disk slices or UNIX system files being used to store BEA Tuxedo system device lists. This class allows for the creation and deletion of device list entries within a raw disk slice or UNIX system file.

Attribute Table

Table 45 TM_MIB(5): T_DEVICE Class Definition Attribute Table

Attribute[1]	Type	Permissions	Values	Default
TA_LMID(*)	string	ru-r--r--	*LMID*	"local_lmid"
TA_CFGDEVICE(r)(*)	string	ru-r--r--	*string*[2..64]	N/A
TA_DEVICE(*)	string	ru-r--r--	*string*[2..64]	"TA_CFGDEVICE"
TA_DEVOFFSET(*)	long	ru-r--r--	0 <= *num*	0
TA_DEVSIZE(r)	long	rw-r--r--	0 <= *num*	1000 [3]
TA_DEVINDEX(*)[2]	long	r--r--r--	0 <= *num*	N/A
TA_STATE(k)	string	rwxr--r--	GET: "VAL" SET: "{NEW | INV}"	N/A N/A
(k)—GET key field (r)—required field for object creation (SET TA_STATE NEW) (*)—GET/SET key, one or more required for SET operations				

[1] All attributes in the T_DEVICE class are local attributes.
[2] TA_DEVINDEX is required for SET operations to identify the particular device list entry except when setting the state to NEW for the purpose of creating a new device list entry. In the latter case, TA_DEVINDEX must not be set; a value will be assigned by the system and returned after a successful creation.
[3] TA_DEVSIZE may only be SET on object creation.

Attribute Semantics

`TA_LMID`: *`LMID`*

Logical machine identifier where the device is located. Note that this attribute may be used as a key field in both unbooted and booted applications as long as they are already configured (that is, at least one `T_MACHINE` entry is defined). It is required as a key field on `SET` operations when accessing a booted application. If specified when accessing the `T_DEVICE` class in an unconfigured application, this attribute is ignored.

`TA_CFGDEVICE`: *`string`*[2..64]

Absolute pathname of the file or device where the BEA Tuxedo filesystem is stored or is to be stored.

`TA_DEVICE`: *`string`*[2..64]

Absolute pathname of the device list entry.

`TA_DEVOFFSET`: **0 <=** *`num`*

The offset, in blocks, at which space on this `TA_DEVICE` begins for use within the BEA Tuxedo System VTOC specified by `TA_CFGDEVICE`. Limitation: This attribute must be set to 0 for the first device list entry (`TA_DEVICE`) on the BEA Tuxedo filesystem (`TA_CFGDEVICE`).

`TA_DEVSIZE`: **0 <=** *`num`*

The size in pages of the disk area to be used for the device list entry. Limitation: This attribute may be set only in conjunction with a state change to `NEW`.

`TA_DEVINDEX`: **0 <=** *`num`*

Device index for `TA_DEVICE` within the device list addressed by `TA_CFGDEVICE`. This attribute value is used for identification purposes only in getting and setting attribute values relating to particular devices within a BEA Tuxedo filesystem.

`TA_STATE`:

`GET`: "`{VALid}`"

A `GET` operation will retrieve run-time information for the selected `T_DEVICE` object(s). The following states indicate the meaning of a `TA_STATE` returned in response to a `GET` request.

`VALid`	The BEA Tuxedo filesystem indicated by `TA_CFGDEVICE` exists and contains a valid device list. `TA_DEVICE` is a valid device within that filesystem with the device index `telnet lchome3`.

SET: "{NEW | INValid}"

A SET operation will update information for the selected T_DEVICE object or add the indicated object. The following states indicate the meaning of a TA_STATE set in a SET request. States not listed may not be set.

NEW	Create or reinitialize T_DEVICE object for application. State change allowed only when in the INValid or VALid state. Successful return leaves the object in the VALid state. If this state transition is invoked in the INValid state, the object is created; otherwise, it is reinitialized. The creation of the first TA_DEVICE device list entry on the TA_CFGDEVICE BEA Tuxedo filesystem will automatically create and initialize the necessary VTOC and UDL structures on TA_CFGDEVICE. The first device list entry created for a particular TA_CFGDEVICE must have equivalent values for the TA_DEVICE attribute.
INValid	Delete T_DEVICE object for application. State change allowed only when in the VALid state. Successful return leaves the object in the INValid state. Note that TA_DEVINDEX 0 is special and must be deleted last.

Limitations

None.

T_DOMAIN Class Definition

Overview

The T_DOMAIN class represents global application attributes. These attribute values serve to identify, customize, size, secure, and tune a BEA Tuxedo system application. Many of the attribute values represented here serve as application defaults for other classes represented in this MIB.

There is exactly one object of the T_DOMAIN class for each application. Because of this, there are no key fields defined for this class. A GET operation on this class will always return information representing this single object. Likewise, a SET operation will update it. GETNEXT is not permitted with this class.

Attribute Table

Table 46 TM_MIB(5): T_DOMAIN Class Definition Attribute Table

Attribute	Type	Permissions	Values	Default
TA_IPCKEY(r)	long	rw-r--r--	32,769 <= *num* < 262,144	N/A
TA_MASTER(r)	string	rwxr-xr--	"*LMID1*[,*LMID2*]"	N/A
TA_MODEL(r)	string	rw-r--r--	"{SHM | MP}"	N/A
TA_STATE	string	rwxr--r--	GET: "{ACT | INA}"	N/A
			SET: "{NEW | INV | ACT | INA | FIN}"	N/A
TA_DOMAINID	string	rwxr--r--	*string*[0..30]	""
TA_PREFERENCES	string	rwxr--r--	*string*[0..1023]	""
TA_UID	long	rwyr--r--	0 <= *num*	([1])
TA_GID	long	rwyr--r--	0 <= *num*	([1])
TA_PERM	long	rwyr--r--	0001 <= *num* <= 0777	0666
TA_LICEXPIRE	long	R--R--R--	*string*[0..78]	N/A
TA_LICMAXUSERS	long	R--R--R--	0 <= *num* < 32,768	N/A
TA_LICSERIAL	string	R--R--R--	*string*[0..78]	N/A
TA_MIBMASK	long	rwx------	0 <= *num* <= 0777	0000
TA_MAXACCESSERS	long	rwyr--r--	1 <= *num* < 32,768	50
TA_MAXCONV	long	rwyr--r--	0 <= *num* < 32,768	64
TA_MAXGTT	long	rwyr--r--	0 <= *num* < 32,768	100

Table 46 TM_MIB(5): T_DOMAIN Class Definition Attribute Table (Continued)

Attribute	Type	Permissions	Values	Default
TA_MAXBUFSTYPE	long	rw-r--r--	1 <= *num* < 32,768	32
TA_MAXBUFTYPE	long	rw-r--r--	1 <= *num* < 32,768	16
TA_MAXDRT	long	rw-r--r--	0 <= *num* < 32,768	0
TA_MAXGROUPS	long	rw-r--r--	100 <= *num* < 32,766	100
TA_MAXNETGROUPS	long	rw-r--r--	1 <= *num* < 8,192	8
TA_MAXMACHINES	long	rw-r--r--	256 <= *num* < 8,191	256
TA_MAXQUEUES	long	rw-r--r--	1 <= *num* < 8,192	50
TA_MAXRFT	long	rw-r--r--	0 <= *num* < 32,766	0
TA_MAXRTDATA	long	rw-r--r--	0 <= *num* < 32,761	0
TA_MAXSPDATA	long	rw-r--r--	1 <= *num* <= 2147483640	0
TA_MAXTRANTIME	long	rwyr--r--	1 <= *num* <= 2147483647	0
TA_MAXSERVERS	long	rw-r--r--	1 <= *num* < 8,192	50
TA_MAXSERVICES	long	rw-r--r--	1 <= *num* < 32,766	100
TA_MAXACLGROUPS	long	rw-r--r--	1 <= *num* < 16,384	16,384
TA_CMTRET	string	rwyr--r--	"{COMPLETE | LOGGED}"	"COMPLETE"
TA_LDBAL	string	rwyr--r--	"{Y | N}"	"Y"
TA_NOTIFY	string	rwyr--r--	"{DIPIN | SIGNAL | THREAD | IGNORE}"	"DIPIN"
TA_SYSTEM_ACCESS	string	rwyr--r--	"{FASTPATH | PROTECTED} [,NO_OVERRIDE]"	"FASTPATH"
TA_OPTIONS	string	rwyr--r--	"{[LAN | MIGRATE | ACCSTATS | NO_XA | NO_AA],*}"	""
TA_USIGNAL	string	rw-r--r--	"{SIGUSR1 | SIGUSR2}"	"SIGUSR2"

Table 46 TM_MIB(5): T_DOMAIN Class Definition Attribute Table (Continued)

Attribute	Type	Permissions	Values	Default
TA_SECURITY	string	rw-r--r--	"{NONE | APP_PW | USER_AUTH | ACL | MANDATORY_ACL}"	"NONE"
TA_PASSWORD	string	-wx------	*string*[0..30]	N/A
TA_AUTHSVC	string	rwxr--r--	*string*[0..15]	""
TA_SCANUNIT	long	rwxr-xr--	0 <= *num* <= 60	10[2]
TA_BBLQUERY	long	rwxr-xr--	0 <= *num* <32,768	300[3]
TA_BLOCKTIME	long	rwxr-xr--	0 <= *num* < 32,768	60[3]
TA_DBBLWAIT	long	rwxr-xr--	0 <= *num* < 32,768	20[3]
TA_SANITYSCAN	long	rwxr-xr--	0 <= *num* < 32,768	120[3]
TA_CURDRT	long	r--r--r--	0 <= *num* < 32,768	N/A
TA_CURGROUPS	long	r--r--r--	0 <= *num* < 32,768	N/A
TA_CURMACHINES	long	r--r--r--	0 <= *num* < 32,768	N/A
TA_CURQUEUES	long	r--r--r--	0 <= *num* < 32,768	N/A
TA_CURRFT	long	r--r--r--	0 <= *num* < 32,768	N/A
TA_CURRTDATA	long	r--r--r--	0 <= *num* < 32,768	N/A
TA_CURSERVERS	long	r--r--r--	0 <= *num* < 32,768	N/A
TA_CURSERVICES	long	r--r--r--	0 <= *num* < 32,768	N/A
TA_CURSTYPE	long	r--r--r--	0 <= *num* < 32,768	N/A
TA_CURTYPE	long	r--r--r--	0 <= *num* < 32,768	N/A

Table 46 TM_MIB(5): T_DOMAIN Class Definition Attribute Table (Continued)

Attribute	Type	Permissions	Values	Default
TA_HWDRT	long	r--r--r--	0 <= *num* < 32,768	N/A
TA_HWGROUPS	long	r--r--r--	0 <= *num* < 32,768	N/A
TA_HWMACHINES	long	r--r--r--	0 <= *num* < 32,768	N/A
TA_HWQUEUES	long	r--r--r--	0 <= *num* < 32,768	N/A
TA_HWRFT	long	r--r--r--	0 <= *num* < 32,768	N/A
TA_HWRTDATA	long	r--r--r--	0 <= *num* < 32,768	N/A
TA_HWSERVERS	long	r--r--r--	0 <= *num* < 32,768	N/A
TA_HWSERVICES	long	r--r--r--	0 <= *num* < 32,768	N/A
TA_SEC_PRINCIPAL_NAME	string	rwxr--r--	*string*[0..511]	“”
TA_SEC_PRINCIPAL_LOCATION	string	rwxr--r--	*string*[0..511]	“”
TA_SEC_PRINCIPAL_PASSVAR	string	rwxr--r--	*string*[0..511]	“”
TA_SIGNATURE_AHEAD	long	rwxr--r--	1 <= *num* <= 2147483647	3600
TA_SIGNATURE_BEHIND	long	rwxr--r--	1 <= *num* <= 2147483647	604800
TA_SIGNATURE_REQUIRED	string	rwxr--r--	“{Y|N}”	“N”
TA_ENCRYPTION_REQUIRED	string	rwxr--r--	“{Y|N}”	“N”
(r)—required field for object creation (SET TA_STATE NEW)				

[1] UID and GID as known to the UNIX system
[2] *num* must be a multiple of 2 or 5
[3] Specify *num* so that *num* times TA_SCANUNIT is approximately "Default"

Attribute Semantics

TA_IPCKEY**: 32,769 <=** *num* **< 262,144**

Numeric key for the well-known address in a BEA Tuxedo system bulletin board. In a single processor environment, this key “names” the bulletin board. In a multiple processor or LAN environment, this key names the message queue of the DBBL. In addition, this key is used as a basis for deriving the names of resources other than the well-known address, such as the names for bulletin boards throughout the application.

TA_MASTER: "*LMID1*[,*LMID2*]"

Master (*LMID1*) and backup (*LMID2*) logical machine identifiers. The master identifier (*LMID1*) must correspond to the local machine for INActive applications. SHM mode applications (see TA_MODEL below) may set only the master logical machine identifier. Modifications to this attribute value in an ACTive MP application (see TA_MODEL below) have the following semantics:
Assuming current active master LMID A, current backup master LMID B, and secondary LMIDs C, D, . . ., the following scenarios define the semantics of permitted changes to the TA_MASTER attribute in a running MP mode application.

```
A,B -> B,A - Master migration from A to B.
```

```
A,B -> A,C - Change backup master LMID designation to C.
```

Note that master migration may be either orderly or partitioned. Orderly migration takes place when the master machine is ACTive and reachable. Otherwise, partitioned migration takes place. All newly established or reestablished network connections will verify that the two sites connecting share a common view of where the master machine is. Otherwise, the connection will be refused and an appropriate log message generated. The master and backup machines in an ACTive application must always have a BEA Tuxedo release number greater than or equal to all other machines active in the application. The master and backup machines must be of the same release. Modifications to the TA_MASTER attribute must preserve this relationship.

TA_MODEL: "**{**SHM | MP**}**"

Configuration type. SHM specifies a single machine configuration; only one T_MACHINE object may be specified. MP specifies a multi-machine or network configuration; MP must be specified if a networked application is being defined.

TA_STATE:

GET: "{ACTive | INActive}"

A GET operation will retrieve configuration and run-time information for the T_DOMAIN object. The following states indicate the meaning of a TA_STATE returned in response to a GET request.

ACTive	T_DOMAIN object defined and the master machine is active.
INActive	T_DOMAIN object defined and application is inactive.

SET: "{NEW | INValid | ACTive | INActive | FINactive}"

A SET operation will update configuration and run-time information for the T_DOMAIN object. The following states indicate the meaning of a TA_STATE set in a SET request. States not listed may not be set.

NEW	Create T_DOMAIN object for application. State change allowed only when in the INValid state. Successful return leaves the object in the INActive state. Note that this state change will also create a NEW T_MACHINE object with TA_LMID inferred from TA_MASTER, TA_PMID based on the local system name, and TA_TUXCONFIG and TA_TUXDIR determined from the environment variables TUXCONFIG and TUXDIR respectively. Other configurable attributes of the T_MACHINE class may be set at this time by including values in the T_DOMAIN NEW request. If a value for TA_APPDIR is not specified, it will default to the current directory.
unset	Modify T_DOMAIN object. Allowed only when in the ACTive or INActive state. Successful return leaves the object state unchanged.
INValid	Delete T_DOMAIN object for application. State change allowed only when in the INActive state. Successful return leaves the object in the INValid state.
ACTive	Activate administrative processes (DBBL, BBL, etc.) on the master machine. For the purpose of determining permissions for this state transition, the active object permissions are considered (that is, --x--x--x). State change allowed only when in the INActive state. Successful return leaves the object in the INActive state.
INActive	Deactivate administrative processes (DBBL, BBL, etc.) on the master machine. State change allowed only when in the ACTive state. Successful return leaves the object in the INActive state.
FINactive	Forcibly deactivate administrative processes (DBBL, BBL, etc.) on the master machine. Attached clients will be ignored for the purpose of determining if shutdown should be allowed. State change allowed only when in the ACTive state. Successful return leaves the object in the INActive state.

`TA_DOMAINID`**:** *`string`***[0..30]**
: Domain identification string.

`TA_PREFERENCES`**:** *`string`***[0..1023]**
: Application defined field. This field is used by the BEA Tuxedo system /Admin GUI product to store and save GUI display preferences.

`TA_UID`**: 0 <=** *`num`*
: Default attribute setting for newly configured objects in the `T_MACHINE` class. Limitation: Changes to this attribute do not affect active or already configured `T_MACHINE` objects.

`TA_GID`**: 0 <=** *`num`*
: Default attribute setting for newly configured objects in the `T_MACHINE` class. Limitation: Changes to this attribute do not affect active or already configured `T_MACHINE` objects.

`TA_PERM`**: 0001 <=** *`num`* **<= 0777**
: Default attribute setting for newly configured objects in the `T_MACHINE` class. Limitation: Changes to this attribute do not affect active or already configured `T_MACHINE` objects.

`TA_LICEXPIRE`**:** *`string`***[0..78]**
: Expiration date for the binary on that machine or a 0-length string if binary is not a BEA Tuxedo system master binary.

`TA_LICMAXUSERS`**: 0 <=** *`num`* **< 32,768**
: Licensed maximum number of users on that machine or -1 if binary is not a BEA Tuxedo system master binary.

`TA_LICSERIAL`**:** *`string`* **[0..78]**
: Serial number of license.

`TA_MIBMASK`**: 0 <=** *`num`* **<= 0777**
: Attribute access mask. User type/access mode combinations specified by this attribute value will no longer be allowed for all class/attribute combinations defined in this reference page. For example, a setting of `0003` disallows all updates to users other than the administrator or the operator.

`TA_MAXACCESSERS`**: 1 <=** *`num`* **< 32,768**
: Default maximum number of clients and servers that can be simultaneously connected to the bulletin board on any particular machine in this application. If not specified, the default maximum number is 50. The `T_DOMAIN` value for this attribute can be overridden in the `T_MACHINE` class on a per-machine basis.

: System administration processes, such as the BBL, `restartsrv`, `cleanupsrv`, `tmshutdown()`, and `tmadmin()`, need not be accounted for in this value, but the DBBL, all bridge processes, all system-supplied and application server processes, and all potential client processes at a particular site need to be counted. (Examples of system-supplied servers are AUTHSVR, TMQUEUE, TMQFORWARD, TMUSREVT, TMSYSEVT, TMS (see T_GROUP:TA_TMSNAME attribute), TMS_QM, GWTDOMAIN, and WSL.) If the application is booting workstation listeners (WSLs) at a particular site, both the WSLs and the number of potential workstation handlers (WSHs) that may be booted need to be counted.

Note that for BEA Tuxedo pre-release 7.1 (6.5 or earlier), both the TA_MAXACCESSERS and TA_MAXSERVERS attributes for an application play a part in the user license checking scheme. Specifically, a machine is not allowed to boot if the number of TA_MAXACCESSERS for that machine + the number of TA_MAXACCESSERS for the machine (or machines) already running in the application is greater than the number of TA_MAXSERVERS + user licenses for the application. Thus, the total number of TA_MAXACCESSERS for an application must be less than or equal to the number of TA_MAXSERVERS + user licenses for the application.

Note also that the user license checking scheme in BEA Tuxedo release 7.1 or later considers only the following two factors when performing its checks: the number of user licenses for an application and the number of licenses currently in use for the application. When all user licenses are in use, no new clients are allowed to join the application.

Limitation: Changes to this attribute do not affect active or already configured T_MACHINE objects.

TA_MAXCONV**: 0 <=** *num* **< 32,768**

Maximum number of simultaneous conversations in which clients and servers on any particular machine in this application can be involved. If not specified, the default is 64 if any conversational servers are defined in the T_SERVER class, or 1 otherwise. The maximum number of simultaneous conversations per server is 64. The T_DOMAIN value for this attribute can be overridden in the T_MACHINE class on a per-machine basis.

Limitation: Changes to this attribute do not affect active or already configured T_MACHINE objects.

TA_MAXGTT**: 0 <=** *num* **< 32,768**

Maximum number of simultaneous global transactions in which any particular machine in this application can be involved. If not specified, the default is 100. The T_DOMAIN value for this attribute can be overridden in the T_MACHINE class on a per-machine basis.

Limitation: Changes to this attribute do not affect active or already configured T_MACHINE objects.

TA_MAXBUFSTYPE**: 1 <=** *num* **< 32,768**

Maximum number of buffer subtypes that can be accommodated in the bulletin board buffer subtype table.

TA_MAXBUFTYPE**: 1 <=** *num* **< 32,768**

Maximum number of buffer types that can be accommodated in the bulletin board buffer type table.

TA_MAXDRT**: 0 <=** *num* **< 32,768**

Maximum number of routing table entries that can be accommodated in the bulletin board routing table. One entry per T_ROUTING class object is required. Additional entries should be allocated to allow for run-time growth.

TA_MAXGROUPS**: 100 <=** *num* **< 32,766**

Maximum number of server groups that can be accommodated in the bulletin board server group table. Limitation: BEA Tuxedo release 4.2.2 and earlier sites have a fixed setting of 100 for this attribute. Interoperability with these sites requires that no more than 100 server group entries be in use at any time. Release 4.2.2 and earlier sites will not be allowed to join an application that has more than 100 defined server groups. Additionally, applications already including release 4.2.2 or earlier sites will not be allowed to add server groups beyond 100.

TA_MAXNETGROUPS**: 1 <=** *num* **< 8,192**

Specifies the maximum number of configured network groups to be accommodated in the NETWORK section of the TUXCONFIG file. This value must be greater than or equal to 1 and less than 8192. If not specified, the default is 8.

TA_MAXMACHINES**: 256 <=** *num* **< 8,191**

Maximum number of machines that can be accommodated in the bulletin board machine table. Limitation: BEA Tuxedo release 4.2.2 has a fixed setting of 256 for this attribute. Releases prior to release 4.2.2 have a fixed setting of 50 for this attribute. Interoperability with release 4.2.2 and earlier sites requires that no more than the lowest fixed setting number of machine table entries be in use at any time. Release 4.2.2 sites will not be allowed to join an application that has more than 256 defined machines. Pre-release 4.2.2 sites will not be allowed to join an application that has more than 50 defined machines. Additionally, applications already including active release 4.2.2 or earlier sites will not be allowed to add machines beyond the lowest applicable limit.

TA_MAXQUEUES**: 1 <=** *num* **< 8,192**

Maximum number of queues to be accommodated in the bulletin board queue table. Limitation: release 4.2.2 and earlier sites may join an active application only if the setting for TA_MAXQUEUES is equal to the setting for TA_MAXSERVERS.

`TA_MAXRFT`**: 0 <=** *`num`* **< 32,768**

Maximum number of routing criteria range table entries to be accommodated in the bulletin board range criteria table. One entry per individual range within a `TA_RANGES` specification is required plus one additional entry per `T_ROUTING` class object. Additional entries should be allocated to allow for run-time growth.

`TA_MAXRTDATA`**: 0 <=** *`num`* **< 32,761**

Maximum string pool space in bytes to be accommodated in the bulletin board string pool table. Strings and carrays specified within `TA_RANGES` values are stored in the string pool. Additional space should be allocated to allow for run-time growth.

`TA_MAXSPDATA` **0 <=** *`num`* **<= 2147483640**

Maximum string pool space in bytes to be accommodated in the bulletin board common string pool. This value must be greater than or equal to 0 and less than or equal to 2147483640. The default is 0. This attribute applies only to applications running BEA Tuxedo 8.1 or later software.

In most cases, accepting the default for this attribute will result in the BEA Tuxedo system allocating sufficient string pool space for the following `TUXCONFIG` parameter strings whose maximum allowed length has been increased to 256 bytes in BEA Tuxedo 8.1: `TUXCONFIG`, `TUXDIR`, `APPDIR`, `TLOGDEVICE`, `ULOGPFX`, `ENVFILE`, `TMSNAME`, `RCMD`, `NADDR`, `NLSADDR`, `FADDR`, and the `SERVERS` section `AOUT`.

For applications for which extensive dynamic configuration is anticipated (for example, anticipating the addition of six more machines to a BEA Tuxedo application), administrators can use the `TA_MAXSPDATA` attribute to increase the size of the common string pool. Note that adjusting the size of the common string pool has no effect on the size of the of the routing string pool controlled by the `TA_MAXRTDATA` attribute. The two string pools are separate.

Regardless of the value specified for `TA_MAXSPDATA`, the BEA Tuxedo system will *not* allocate an amount of string pool space outside of a system-calculated range based on (1) the strings actually specified in the `TUXCONFIG` file and (2) the amount of space that would be required if all 256-byte capable strings were specified. The `tmloadcf(1)` command will report a warning if the user-specified value is outside of this range and then set the value to the closest acceptable value.

Note that of the `TUXCONFIG` parameters whose maximum allowable length has been increased to 256 bytes, only the `GROUPS` section `TMSNAME` parameter and the `SERVERS` section `AOUT` and `RCMD` parameters are actually stored in the bulletin board. The others are read in at process startup time and stored in process memory.

TA_MAXTRANTIME **0 <=** *num* **<= 2147483647**

Maximum timeout in seconds allowed for transactions started in or received by this BEA Tuxedo application. This value must be greater than or equal to 0 and less than or equal to 2147483647. The default is 0, which indicates that no global transaction timeout limit is in effect. This attribute applies only to applications running BEA Tuxedo 8.1 or later software.

If the TA_MAXTRANTIME timeout value is less than the TRANTIME timeout value specified for an AUTOTRAN service or the timeout value passed in a tpbegin(3c) call to start a transaction, the timeout for a transaction is reduced to the TA_MAXTRANTIME value. TA_MAXTRANTIME has no effect on a transaction started on a machine running BEA Tuxedo 8.0 or earlier software, except that when a machine running BEA Tuxedo 8.1 or later software is infected by the transaction, the transaction timeout value is capped—reduced if necessary—to the TA_MAXTRANTIME value configured for that machine.

Even if the TRANTIME value specified in the SERVICES section of the UBBCONFIG file is greater than the TA_MAXTRANTIME value, the tmloadcf(1) command loads the configuration without error. Any BEA Tuxedo 8.1 or later machine infected with the AUTOTRAN transaction will automatically reduce the transaction timeout to the TA_MAXTRANTIME value configured for that machine.

Limitation: Run-time modifications to this attribute do not affect transactions started before the update takes place.

TA_MAXSERVERS**: 1 <=** *num* **< 8,192**

Maximum number of servers to be accommodated in the bulletin board server table for this application. If not specified, the default is 50.

All instances of system-supplied and application servers available to an application need to be accounted for in the bulletin board server table, which is a global table, meaning that the same server table resides on each machine in the application. Examples of system-supplied servers are AUTHSVR, TMQUEUE, TMQFORWARD, TMUSREVT, TMSYSEVT, TMS (see T_GROUP:TA_TMSNAME attribute), TMS_QM, GWTDOMAIN, and WSL.

Administration of each BEA Tuxedo system site adds approximately one system-supplied server. Additionally, the DBBL process and all BBL, bridge, and WSH processes must be accounted for in the TA_MAXSERVERS value.

TA_MAXSERVICES**: 1 <=** *num* **< 32,766**

Maximum number of services to be accommodated in the bulletin board service table. This value must be greater than 0 and less than 32,766. If not specified, the default is 100.

To calculate an adequate value, be sure to count the number of services used by both application servers and system servers, such as the BBL, DBBL, BRIDGE, TMS, and any other system-supplied servers needed for administrative purposes. For each BEA Tuxedo system site, add approximately five services to accommodate administration for the site. You should also include any administrative services that are added to support administrative components such as Workstation, /Q, and Domains.

`TA_MAXACLGROUPS`**: 1 <=** *num* **< 16, 384**

Maximum number of group identifiers that can be used for ACL permissions checking. The maximum group identifier that can be defined is `TA_MAXACLGROUPS` - 1.

`TA_CMTRET`**: "{**`COMPLETE` **|** `LOGGED`**}"**

Initial setting of the `TP_COMMIT_CONTROL` characteristic for all client and server processes in a BEA Tuxedo system application. `LOGGED` initializes the `TP_COMMIT_CONTROL` characteristic to `TP_CMT_LOGGED`; otherwise, it is initialized to `TP_CMT_COMPLETE`. See the description of the BEA Tuxedo System ATMI function `tpscmt()` for details on the setting of this characteristic.

Limitation: Run-time modifications to this attribute do not affect active clients and servers.

`TA_LDBAL`**: "{**`Y` **|** `N`**}"**

Load balancing is/will be on ("`Y`") or off ("`N`").
Limitation: Run-time modifications to this attribute do not affect active clients and servers.

`TA_NOTIFY`**: "{**`DIPIN` **|** `SIGNAL` **|** `THREAD` **|** `IGNORE`**}"**

Default notification detection method to be used by the system for unsolicited messages sent to client processes. This default can be overridden on a per-client basis using the appropriate `tpinit()` flag value. Note that once unsolicited messages are detected, they are made available to the application through the application defined unsolicited message handling routine identified via the `tpsetunsol()` function.

The value `DIPIN` specifies that dip-in-based notification detection should be used. This means that the system will detect notification messages only on behalf of a client process while within ATMI calls. The point of detection within any particular ATMI call is not defined by the system, and dip-in detection will not interrupt blocking system calls. `DIPIN` is the default notification detection method.

The value `SIGNAL` specifies that signal-based notification detection should be used. This means that the system sends a signal to the target client process after the notification message has been made available. The system installs a signal-catching routine on behalf of clients selecting this method of notification.

The value THREAD specifies that THREAD notification should be used. This means that the system dedicates a separate thread for the receipt of unsolicited messages and dispatches the unsolicited message handler in that thread. Only one unsolicited message handler executes at one time per BEA Tuxedo application association. This value is allowed only on platforms that offer support for multithreading. COBOL clients cannot use THREAD notification, and will default to DIPIN if THREAD is in effect.

The value IGNORE specifies that by default, notification messages are to be ignored by application clients. This would be appropriate in applications where only clients that request notification at tpinit() time should receive unsolicited messages.

Limitations: Run-time modifications to this attribute do not affect active clients. All signaling of native client processes is done by administrative system processes and not by application processes. Therefore, only native clients running with the same UNIX system user identifier as the application administrator can be notified using the SIGNAL method. Workstation clients may use the SIGNAL method, regardless of which user identifier they are running under.

Note: The SIGNAL notification method is not available for MS-DOS clients.

TA_SYSTEM_ACCESS: **{**FASTPATH | PROTECTED**}[**,NO_OVERRIDE**]**

Default mode used by BEA Tuxedo system libraries within application processes to gain access to BEA Tuxedo system's internal tables. FASTPATH specifies that BEA Tuxedo system's internal tables are accessible by BEA Tuxedo system libraries via unprotected shared memory for fast access. PROTECTED specifies that BEA Tuxedo system's internal tables are accessible by BEA Tuxedo system libraries via protected shared memory for safety against corruption by application code. NO_OVERRIDE can be specified to indicate that the mode selected cannot be overridden by an application process using flags available for use with tpinit(3c) or TPINITIALIZE(3cbl).

Limitations: (1) Updates to this attribute value in a running application affect only newly started clients and newly configured T_SERVER objects.
(2) Setting TA_SYSTEM_ACCESS to PROTECTED may not be effective for multithreaded servers because it is possible that while one thread is executing BEA Tuxedo code, which means it is attached to the bulletin board, another thread might be executing user code. The BEA Tuxedo system cannot prevent such situations.

TA_OPTIONS: "**{[**LAN | MIGRATE | ACCSTATS | NO_XA | NO_AA**]**, *****}**"

Comma-separated list of application options in effect. Valid options are defined below:

LAN—networked application.

MIGRATE—allow server group migration.

ACCSTATS—exact statistics (SHM mode only).

NO_XA—do not allow XA transactions.

NO_AA—the auditing and authorization plugin functions will not be called.

Limitation: Only the ACCSTATS may be set or reset in an active application.

TA_USIGNAL: **"{**SIGUSR1 **|** SIGUSR2**}"**
Signal to be used for signal-based notification (see TA_NOTIFY above).

TA_SECURITY: **"{**NONE **|** APP_PW **|** USER_AUTH **|** ACL **|** MANDATORY_ACL**}"**
Type of application security. A 0-length string value or NONE for this attribute indicates that security is/will be turned off. The identifier APP_PW indicates that application password security is to be enforced (clients must provide the application password during initialization). Setting this attribute requires a non-0 length TA_PASSWORD attribute. The identifier USER_AUTH is similar to APP_PW but, in addition, indicates that per-user authentication will be done during client initialization. The identifier ACL is similar to USER_AUTH but, in addition, indicates that access control checks will be done on service names, queue names, and event names. If an associated ACL is not found for a name, it is assumed that permission is granted. The identifier MANDATORY_ACL is similar to ACL but permission is denied if an associated ACL is not found for the name.

Note: If the NO_AA value is enabled in the TA_OPTIONS attribute, the security values NONE, APP_PW, and USER_AUTH will continue to work properly—except that no authorization or auditing will take place. The remaining modes of security, ACL and MANDATORY_ACL will continue to work properly—but will only use the default BEA security mechanism.

TA_PASSWORD: *string***[0 . . 30]**
Clear text application password. This attribute is ignored if the TA_SECURITY attribute is set to nothing. The system automatically encrypts this information on behalf of the administrator.

TA_AUTHSVC: *string***[0..15]**
Application authentication service invoked by the system for each client joining the system. This attribute is ignored if the TA_SECURITY attribute is set to nothing or to APP_PW.

TA_SCANUNIT: **0 <=** *num* **<= 60 (multiple of 5)**
Interval of time (in seconds) between periodic scans by the system. Periodic scans are used to detect old transactions and timed-out blocking calls within service requests. The TA_BBLQUERY, TA_BLOCKTIME, TA_DBBLWAIT, and TA_SANITYSCAN attributes are multipliers of this value. Passing a value of 0 for this attribute on a SET operation will cause the attribute to be reset to its default.

TA_BBLQUERY**: 0 <=** *num* **< 32,768**

Multiplier of the TA_SCANUNIT attribute indicating time between DBBL status checks on registered BBLs. The DBBL checks to ensure that all BBLs have reported in within the TA_BBLQUERY cycle. If a BBL has not been heard from, the DBBL sends a message to that BBL asking for status. If no reply is received, the BBL is partitioned. Passing a value of 0 for this attribute on a SET operation will cause the attribute to be reset to its default. This attribute value should be set to at least twice the value set for the TA_SANITYSCAN attribute value (see below).

TA_BLOCKTIME**: 0 <=** *num* **< 32,768**

Multiplier of the TA_SCANUNIT attribute indicating the minimum amount of time a blocking ATMI call will block before timing out. Passing a value of 0 for this attribute on a SET operation will cause the attribute to be reset to its default.

TA_DBBLWAIT**: 0 <=** *num* **< 32,768**

Multiplier of the TA_SCANUNIT attribute indicating maximum amount of time a DBBL should wait for replies from its BBLs before timing out. Passing a value of 0 for this attribute on a SET operation will cause the attribute to be reset to its default.

TA_SANITYSCAN**: 0 <=** *num* **< 32,768**

Multiplier of the TA_SCANUNIT attribute indicating time between basic sanity checks of the system. Sanity checking includes client/server viability checks done by each BBL for clients/servers running on the local machine as well as BBL status check-ins (MP mode only). Passing a value of 0 for this attribute on a SET operation will cause the attribute to be reset to its default.

TA_CURDRT**: 0 <=** *num* **< 32,768**

Current number of in use bulletin board routing table entries.

TA_CURGROUPS**: 0 <=** *num* **< 32,768**

Current number of in use bulletin board server group table entries.

TA_CURMACHINES**: 0 <=** *num* **< 32,768**

Current number of configured machines.

TA_CURQUEUES**: 0 <=** *num* **< 32,768**

Current number of in use bulletin board queue table entries.

TA_CURRFT**: 0 <=** *num* **< 32,768**

Current number of in use bulletin board routing criteria range table entries.

TA_CURRTDATA**: 0 <=** *num* **< 32,768**

Current size of routing table string pool.

`TA_CURSERVERS`**: 0 <=** *`num`* **< 32,768**
Current number of in use bulletin board server table entries.

`TA_CURSERVICES`**: 0 <=** *`num`* **< 32,768**
Current number of in use bulletin board service table entries.

`TA_CURSTYPE`**: 0 <=** *`num`* **< 32,768**
Current number of in use bulletin board subtype table entries.

`TA_CURTYPE`**: 0 <=** *`num`* **< 32,768**
Current number of in use bulletin board type table entries.

`TA_HWDRT`**: 0 <=** *`num`* **< 32,768**
High water number of in use bulletin board routing table entries.

`TA_HWGROUPS`**: 0 <=** *`num`* **< 32,768**
High water number of in use bulletin board server group table entries.

`TA_HWMACHINES`**: 0 <=** *`num`* **< 32,768**
High water number of configured machines.

`TA_HWQUEUES`**: 0 <=** *`num`* **< 32,768**
High water number of in use bulletin board queue table entries.

`TA_HWRFT`**: 0 <=** *`num`* **< 32,768**
High water number of in use bulletin board routing criteria range table entries.

`TA_HWRTDATA`**: 0 <=** *`num`* **< 32,768**
High water size of routing table string pool.

`TA_HWSERVERS`**: 0 <=** *`num`* **< 32,768**
High water number of in use bulletin board server table entries.

`TA_HWSERVICES`**: 0 <=** *`num`* **< 32,768**
High water number of in use bulletin board service table entries.

`TA_SEC_PRINCIPAL_NAME`**:** *`string`***[0..511]**
Security principal name identification string to be used for authentication purposes by an application running BEA Tuxedo 7.1 or later software. This attribute may contain a maximum of 511 characters (excluding the terminating `NULL` character). The principal name specified for this attribute becomes the identity of one or more system processes running in this domain.

`TA_SEC_PRINCIPAL_NAME` can be specified at any of the following four levels in the configuration hierarchy: `T_DOMAIN` class, `T_MACHINE` class, `T_GROUP` class, and

T_SERVER class. A principal name at a particular configuration level can be overridden at a lower level. If TA_SEC_PRINCIPAL_NAME is not specified at any of these levels, the principal name for the application defaults to the TA_DOMAINID string for this domain.

Note that TA_SEC_PRINCIPAL_NAME is one of a trio of attributes, the other two being TA_SEC_PRINCIPAL_LOCATION and TA_SEC_PRINCIPAL_PASSVAR. The latter two attributes pertain to opening decryption keys during application booting for the system processes running in a BEA Tuxedo 7.1 or later application. When only TA_SEC_PRINCIPAL_NAME is specified at a particular level, the system sets each of the other two attributes to a NULL (zero length) string.

TA_SEC_PRINCIPAL_LOCATION**:** *string***[0..511]**

Location of the file or device where the decryption (private) key for the principal specified in TA_SEC_PRINCIPAL_NAME resides. This attribute may contain a maximum of 511 characters (excluding the terminating NULL character).

TA_SEC_PRINCIPAL_LOCATION can be specified at any of the following four levels in the configuration hierarchy: T_DOMAIN class, T_MACHINE class, T_GROUP class, and T_SERVER class. When specified at any of these levels, this attribute must be paired with the TA_SEC_PRINCIPAL_NAME attribute; otherwise, its value is ignored. (TA_SEC_PRINCIPAL_PASSVAR is optional; if not specified, the system sets it to a NULL—zero length—string.)

TA_SEC_PRINCIPAL_PASSVAR**:** *string***[0..511]**

Variable in which the password for the principal specified in TA_SEC_PRINCIPAL_NAME is stored. This attribute may contain a maximum of 511 characters (excluding the terminating NULL character).

TA_SEC_PRINCIPAL_PASSVAR can be specified at any of the following four levels in the configuration hierarchy: T_DOMAIN class, T_MACHINE class, T_GROUP class, and T_SERVER class. When specified at any of these levels, this attribute must be paired with the TA_SEC_PRINCIPAL_NAME attribute; otherwise, its value is ignored. (TA_SEC_PRINCIPAL_LOCATION is optional; if not specified, the system sets it to a NULL—zero length—string.)

During initialization, the administrator must provide the password for each of the decryption keys configured with TA_SEC_PRINCIPAL_PASSVAR. The system automatically encrypts the password entered by the administrator and assigns each encrypted password to the associated password variable.

TA_SIGNATURE_AHEAD**: 1 <=** *num* **<= 2147483647**

Number of seconds into the future that a digital signature's timestamp is allowed to be, when compared to the local machine's clock. If not specified, the default is 3600 seconds (one hour). This attribute applies only to applications running BEA Tuxedo 7.1 or later software.

TA_SIGNATURE_BEHIND**: 1 <=** *num* **<= 2147483647**

Number of seconds into the past that a digital signature's timestamp is allowed to be, when compared to the local machine's clock. If not specified, the default is 604800 seconds (one week). This attribute applies only to applications running BEA Tuxedo 7.1 or later software.

TA_SIGNATURE_REQUIRED**:** "**{**Y | N**}**"

If set to "Y", every process running in this domain requires a digital signature on its input message buffer. If not specified, the default is "N". This attribute applies only to applications running BEA Tuxedo 7.1 or later software.

TA_SIGNATURE_REQUIRED can be specified at any of the following four levels in the configuration hierarchy: T_DOMAIN class, T_MACHINE class, T_GROUP class, and T_SERVICE class. Setting SIGNATURE_REQUIRED to "Y" at a particular level means that signatures are required for all processes running at that level or below.

TA_ENCRYPTION_REQUIRED**:** "**{**Y | N**}**"

If set to "Y", every process running in this domain requires an encrypted input message buffer. If not specified, the default is "N". This attribute applies only to applications running BEA Tuxedo 7.1 or later software.

TA_ENCRYPTION_REQUIRED can be specified at any of the following four levels in the configuration hierarchy: T_DOMAIN class, T_MACHINE class, T_GROUP class, and T_SERVICE class. Setting TA_ENCRYPTION_REQUIRED to "Y" at a particular level means that encryption is required for all processes running at that level or below.

Limitations

Many attributes of this class are tunable only when the application is inactive. Therefore, use of the ATMI interface routines to administer the application is not possible. The function tpadmcall() is being provided as a means of configuring or reconfiguring an unbooted application. This interface may only be used for configuration (SET operations) in an inactive application and only on the site being configured as the master site for the application. Once an initial configuration is created and activated, administration is available through the standard ATMI interfaces as described in MIB(5).

T_FACTORY MIB

Overview

The T_FACTORY MIB class represents occurrences of factories registered with the FactoryFinder. The available factories for the application are reflected in this MIB and can be shown to the administrator via the Administration Console or command-line tools. The scope is global.

Attribute Table

Table 47 TM_MIB(5): T_FACTORY Attributes

Attribute	Usage	Type	Permissions	Values	Default
TA_STATE	k	string	R--R--R--	GET:"{ACT}"	N/A
TA_FACTORYID	k	string	R--R--R--	*string*[1..25]	N/A
TA_INTERFACENAME	k	string	R--R--R--	*string*[1..128]	N/A
(k) - GET key field					

Attributes Semantics

TA_STATE

GET: {ACTive }

A GET operation will retrieve configuration and run-time information for the selected T_FACTORY objects.
The following state indicates the meaning of a TA_STATE returned in response to a GET request:

ACTive	The T_FACTORY object is registered with the FactoryFinder.

TA_FACTORY

The registered ID for the factory.

TA_INTERFACENAME

The fully qualified interface name for the factory. The interface repository ID for the factory. The format of this name is dependent on the options specified in the IDL which generates the interface implementation. See CORBA 2.1 Specification Section 7.6 for details.

T_GROUP Class Definition

Overview

The `T_GROUP` class represents application attributes pertaining to a particular server group. These attribute values represent group identification, location, and DTP information.

Attribute Table

Table 48 TM_MIB(5): T_GROUP Class Definition Attribute Table

Attribute	Type	Permissions	Values	Default
`TA_SRVGRP`(r)(*)	string	`rU-r--r--`	*`string`*[1. .30]	N/A
`TA_GRPNO`(k)(r)	long	`rU-r--r--`	1 <= *num* < 30,000	N/A
`TA_LMID`(k)(r) [1]	string	`rwyr--r--`	"*LMID1*[,*LMID2*]"	N/A
`TA_STATE`(k)	string	`rwxr-xr--`	`GET`: "{`ACT` | `INA` | `MIG`}"	N/A
			`SET`: "{`NEW` | `INV` | `ACT` | `RAC` |`INA` | `MIG`}"	N/A
`TA_CURLMID`(k)	string	`R--R--R--`	*LMID*	N/A
`TA_ENVFILE`	string	`rwyr--r--`	*`string`*[0..256] [2]	""
`TA_OPENINFO`	string	`rwyr--r--`	*`string`*[0..256]	""
`TA_CLOSEINFO`	string	`rwyr--r--`	*`string`*[0..256]	""
`TA_TMSCOUNT`	long	`rw-r--r--`	0 or 2 <= *num* < 11	3
`TA_TMSNAME`(k)	string	`rw-r--r--`	*`string`*[0..256] [2]	""
`TA_SEC_PRINCIPAL_NAME`	string	`rwxr--r--`	*`string`*[0..511]	""
`TA_SEC_PRINCIPAL_LOCATION`	string	`rwxr--r--`	*`string`*[0..511]	""
`TA_SEC_PRINCIPAL_PASSVAR`	string	`rwxr--r--`	*`string`*[0..511]	""
`TA_SIGNATURE_REQUIRED`	string	`rwxr--r--`	"{`Y`|`N`}"	"`N`"
`TA_ENCRYPTION_REQUIRED`	string	`rwxr--r--`	"{`Y`|`N`}"	"`N`"

(k)—`GET` key field
(r)—required field for object creation (`SET TA_STATE NEW`)
(*)—`GET/SET` key, one or more required for `SET` operations

[1] TA_LMID must be unique within this class.
[2] Maximum string length for this attribute is 78 bytes for BEA Tuxedo 8.0 or earlier.

Attribute Semantics

TA_SRVGRP: *string*[1..30]
: Logical name of the server group. The group name must be unique within all group names in the T_GROUP class and TA_LMID values in the T_MACHINE class. Server group names cannot contain an asterisk (*), comma, or colon.

TA_GRPNO: **1 <=** *num* **< 30,000**
: Group number associated with this server group.

TA_LMID: "*LMID1*[,*LMID2*]"
: Primary machine logical machine identifier for this server group (*LMID1*) and optional secondary logical machine identifier (*LMID2*). The secondary LMID indicates the machine to which the server group can be migrated (if the MIGRATE option is specified in the T_DOMAIN:TA_OPTIONS attribute). A single LMID specified on a GET operation will match either the primary or secondary LMID. Note that the location of an active group is available in the TA_CURLMID attribute. Logical machine identifiers specified with the TA_LMID attribute must be already configured. Limitation: Modifications to this attribute for an active object may only change the backup LMID designation for the group.

TA_STATE:

GET: "{ACTive | INActive | MIGrating}"
: A GET operation will retrieve configuration and run-time information for the selected T_GROUP object(s). The following states indicate the meaning of a TA_STATE returned in response to a GET request.

ACTive	T_GROUP object defined and active (TMS and/or application servers). Server groups with non NULL strings for the TA_TMSNAME attribute are considered active if the TMSs associated with the group are active. Otherwise, a group is considered active if any server in the group is active.

INActive	T_GROUP object defined and inactive.
MIGrating	T_GROUP object defined and currently in a state of migration to the secondary logical machine. The secondary logical machine is the one listed in TA_LMID that does not match TA_CURLMID. This state is ACTive equivalent for the purpose of determining permissions.

SET: "{NEW | INValid | ACTive | ReACtivate | INActive | MIGrating}"

A SET operation will update configuration and run-time information for the selected T_GROUP object. The following states indicate the meaning of a TA_STATE set in a SET request. States not listed may not be set.

NEW	Create T_GROUP object for application. State change allowed only when in the INValid state. Successful return leaves the object in the INActive state.
unset	Modify an existing T_GROUP object. This combination is allowed only when in the ACTive or INActive state. Successful return leaves the object state unchanged.
INValid	Delete T_GROUP object for application. State change allowed only when in the INActive state. Successful return leaves the object in the INValid state.

`ACTive`	Activate the `T_GROUP` object. State change allowed only when in the `INActive` or `MIGrating` state. For the purpose of determining permissions for this state transition, the active object permissions are considered (that is, `--x--x--x`). If the group is currently in the `INActive` state, TMS and application servers (subject to restriction by `TA_FLAGS` settings) are started on the primary logical machine if the primary logical machine is active; otherwise, the TMS and application servers are started on the secondary logical machine if it is active. If neither machine is active, the request fails. If the group is currently in the `MIGrating` state, the active secondary logical machine (identified as the alternate to `TA_CURLMID` in the `TA_LMID` list) is used to start TMS and application servers if it is active. Otherwise, the request fails. The `TMIB_NOTIFY TA_FLAG` value should be used when activating a server group if status on individual servers is required. Successful return leaves the object in the `ACTive` state.
`ReACtivate`	Identical to a transition to the `ACTive` state except that this state change is also allowed in the `ACTive` state in addition to being allowed in the `INActive` and `MIGrating` states. The `TMIB_NOTIFY TA_FLAG` value should be used when reactivating a server group if status on individual servers is required.
`INActive`	Deactivate the `T_GROUP` object. TMS and application servers (subject to restriction by `TA_FLAGS` settings) are deactivated. State change allowed only when in the `ACTive` or `MIGrating` state. Successful return leaves the object in the `INActive` state. The `TMIB_NOTIFY TA_FLAG` value should be used when deactivating a server group if status on individual servers is required.

`MIGrating`	Deactivate the `T_GROUP` object on its active primary logical machine (`TA_CURLMID`) and prepare the group to be migrated to the secondary logical machine. State change allowed only when in the `ACTive` state. Successful return leaves the object in the `MIGrating` state.
`UnAVailable`	Suspend all application services in the group. (Note: Individual services can be suspended through the `T_SVCGROUP` class.) A `SET` operation to this state is allowed only when the group is in the `ACTive` state. The operation leaves the group in the `ACTive` state, but with all its application services in a suspended state. Limitation: Operation will fail in a mixed-release application where any pre-release 6.4 machine is active.
`AVaiLable`	Unsuspend all application services in the group marked as suspended. A `SET` operation to this state value is allowed only when the group is in the `ACTive` state. The operation leaves the group in the `ACTive` state.

Limitation: Operation will fail in a mixed-release application where any pre-release 6.4 machine is active.

`TA_CURLMID`: *`LMID`*

Current logical machine on which the server group is running. This attribute will not be returned for server groups that are not active.

`TA_ENVFILE`: *`string`***[0..256] (up to 78 bytes for BEA Tuxedo 8.0 or earlier)**

Environment file for servers running in this group. If the value specifies an invalid filename, no values are added to the environment. the value of *`string`* is placed in the environment.

When booted, local servers inherit the environment of `tmboot(1)` and remote servers (not on the `MASTER`) inherit the environment of `tlisten(1)`. `TUXCONFIG`, `TUXDIR`, and `APPDIR` are also put in the environment when a server is booted based on the information in the associated `T_GROUP` object.

`PATH` is set in the environment to:

```
APPDIR:TUXDIR/bin:/bin:/usr/bin:path
```

where *`path`* is the value of the first `PATH=` line in the machine environment file, if one exists (subsequent `PATH=` lines is ignored). This `PATH` is used as a search path for servers that are specified with a simple or relative pathname (that is, one that does not begin with slash).

`LD_LIBRARY_PATH` is set in the environment to:

`APPDIR:TUXDIR/lib:/lib:/usr/lib:`*`lib`*

where *`lib`* is the value of the first `LD_LIBRARY_PATH=` line appearing in the machine environment file, if one exists (subsequent `LD_LIBRARY_PATH=` lines are ignored).

As part of server initialization (before `tpsvrinit(3c)` is called), a server reads and exports variables from both the machine and server `ENVFILE` files. If a variable is set in both the machine and server `ENVFILE`, the value in the server `ENVFILE` will override the value in the machine `ENVFILE` with the exception of `PATH` which is appended. A client processes only the machine `ENVFILE` file. When the machine and server `ENVFILE` files are processed, lines that are not of the form *`ident`*`=` is ignored, where *`ident`* contains only underscore or alphanumeric characters.

If a `PATH=` line is encountered, `PATH` is set to:

`APPDIR:TUXDIR/bin:/bin:/usr/bin:`*`path`*

where *`path`* is the value of the first `PATH=` line appearing in the environment file (subsequent `PATH=` lines are ignored). If `PATH` appears in both the machine and server files, *`path`* is defined as *`path1:path2`*, where *`path1`* is from the machine `ENVFILE`, and *`path2`* is from the server `ENVFILE`. If a `LD_LIBRARY_PATH=` line is encountered, `LD_LIBRARY_PATH` is set to:

`APPDIR:TUXDIR/lib:/lib:/usr/lib:`*`lib`*

where *`lib`* is the value of the first `LD_LIBRARY_PATH=` line appearing in the environment file (subsequent `LD_LIBRARY_PATH=` lines are ignored). Attempts to reset `TUXDIR`, `APPDIR`, or `TUXCONFIG` are ignored and a warning is displayed if the value does not match the corresponding `T_GROUP` attribute value. Limitation: Modifications to this attribute for an active object DO not affect running servers or clients.

`TA_OPENINFO`**:** *`string`***[0..256]**

The resource manager instance-dependent information needed when opening the resource manager for this group. The value must be enclosed in double quotes and must be less than or equal to 256 characters in length.

If a non `NULL` string other than `TMS` is specified for the `TA_TMSNAME` attribute, the `TA_OPENINFO` attribute value provides the resource manager dependent information needed when initiating access to the resource manager. Otherwise, the `TA_OPENINFO` attribute value is ignored.

A NULL string value for the TA_OPENINFO attribute means that the resource manager for this group (if specified) does not require any application specific information to open access to the resource.

The format of the TA_OPENINFO string is dependent on the requirements of the vendor providing the underlying resource manager. The information required by the vendor must be prefixed with the published name of the vendor's transaction (XA) interface followed immediately by a colon (:).

For BEA Tuxedo /Q databases, the format is:

# On UNIX #
```
OPENINFO = "TUXEDO/QM:qmconfig:qspace"
```

# On Windows #
```
OPENINFO = "TUXEDO/QM:qmconfig;qspace"
```

where TUXEDO/QM is the published name of the BEA Tuxedo /Q XA interface, *qmconfig* is replaced with the name of the QMCONFIG (see qmadmin(1)) on which the queue space resides, and *qspace* is replaced with the name of the queue space. For Windows, the separator after *qmconfig* must be a semicolon (;).

For other vendors' databases, the format of the TA_OPENINFO string is specific to the particular vendor providing the underlying resource manager.

Limitation: Run-time modifications to this attribute will not affect active servers in the group.

TA_CLOSEINFO**:** *string***[0..256]**

The resource manager instance-dependent information needed when closing the resource manager for this group. The value must be enclosed in double quotes and must be less than or equal to 256 characters in length. Note that a TA_CLOSEINFO string is not used for BEA Tuxedo /Q databases.

If a non NULL string other than TMS is specified for the TA_TMSNAME attribute, the TA_CLOSEINFO attribute value provides the resource manager-dependent information needed when terminating access to the resource manager. Otherwise, the TA_CLOSEINFO attribute value is ignored.

A NULL string value for the TA_CLOSEINFO attribute means that the resource manager for this group (if specified) does not require any application specific information to close access to the resource.

The format of the `TA_CLOSEINFO` string is dependent on the requirements of the vendor providing the underlying resource manager. The information required by the vendor must be prefixed with the published name of the vendor's transaction (XA) interface followed immediately by a colon (`:`).

Limitation: Run-time modifications to this attribute will not affect active servers in the group.

`TA_TMSCOUNT`**: 0 or 2 <=** *`num`* **< 11**

If a non `NULL` string is specified for the `TA_TMSNAME` attribute, the `TA_TMSCOUNT` attribute value indicates the number of transaction manager servers to start for the associated group. Otherwise, this attribute value is ignored.

`TA_TMSNAME`**:** *`string`***[0..256] (up to 78 bytes for BEA Tuxedo 8.0 or earlier)**

Transaction manager server `a.out` associated with this group. This attribute must be specified for any group entry whose servers will participate in distributed transactions (transactions across multiple resource managers and possibly machines that are started with `tpbegin()`, and ended with `tpcommit()/tpabort()`).

The value `TMS` is reserved to indicate use of the `NULL` XA interface. If a non-empty value other than `TMS` is specified, a `TLOGDEVICE` must be specified for the machine(s) associated with the primary and secondary logical machines for this object.

A unique server identifier is selected automatically for each TM server, and the servers will be restartable an unlimited number of times.

`TA_SEC_PRINCIPAL_NAME`**:** *`string`***[0..511]**

Security principal name identification string to be used for authentication purposes by an application running BEA Tuxedo 7.1 or later software. This attribute may contain a maximum of 511 characters (excluding the terminating `NULL` character). The principal name specified for this attribute becomes the identity of one or more system processes running in this group.

`TA_SEC_PRINCIPAL_NAME` can be specified at any of the following four levels in the configuration hierarchy: `T_DOMAIN` class, `T_MACHINE` class, `T_GROUP` class, and `T_SERVER` class. A principal name at a particular configuration level can be overridden at a lower level. If `TA_SEC_PRINCIPAL_NAME` is not specified at any of these levels, the principal name for the application defaults to the `TA_DOMAINID` string for this domain.

Note that `TA_SEC_PRINCIPAL_NAME` is one of a trio of attributes, the other two being `TA_SEC_PRINCIPAL_LOCATION` and `TA_SEC_PRINCIPAL_PASSVAR`. The latter two attributes pertain to opening decryption keys during application booting for the system processes running in a BEA Tuxedo 7.1 or later application. When only

TA_SEC_PRINCIPAL_NAME is specified at a particular level, the system sets each of the other two attributes to a NULL (zero length) string.

TA_SEC_PRINCIPAL_LOCATION: *string*[0..511]
: Location of the file or device where the decryption (private) key for the principal specified in TA_SEC_PRINCIPAL_NAME resides. This attribute may contain a maximum of 511 characters (excluding the terminating NULL character).

TA_SEC_PRINCIPAL_LOCATION can be specified at any of the following four levels in the configuration hierarchy: T_DOMAIN class, T_MACHINE class, T_GROUP class, and T_SERVER class. When specified at any of these levels, this attribute must be paired with the TA_SEC_PRINCIPAL_NAME attribute; otherwise, its value is ignored. (TA_SEC_PRINCIPAL_PASSVAR is optional; if not specified, the system sets it to a NULL—zero length—string.)

TA_SEC_PRINCIPAL_PASSVAR: *string*[0..511]
: Variable in which the password for the principal specified in TA_SEC_PRINCIPAL_NAME is stored. This attribute may contain a maximum of 511 characters (excluding the terminating NULL character).

TA_SEC_PRINCIPAL_PASSVAR can be specified at any of the following four levels in the configuration hierarchy: T_DOMAIN class, T_MACHINE class, T_GROUP class, and T_SERVER class. When specified at any of these levels, this attribute must be paired with the TA_SEC_PRINCIPAL_NAME attribute; otherwise, its value is ignored. (TA_SEC_PRINCIPAL_LOCATION is optional; if not specified, the system sets it to a NULL—zero length—string.)

During initialization, the administrator must provide the password for each of the decryption keys configured with TA_SEC_PRINCIPAL_PASSVAR. The system automatically encrypts the password entered by the administrator and assigns each encrypted password to the associated password variable.

TA_SIGNATURE_REQUIRED: "{Y | N}"
: If set to "Y", every process running in this group requires a digital signature on its input message buffer. If not specified, the default is "N". This attribute applies only to applications running BEA Tuxedo 7.1 or later software.

TA_SIGNATURE_REQUIRED can be specified at any of the following four levels in the configuration hierarchy: T_DOMAIN class, T_MACHINE class, T_GROUP class, and T_SERVICE class. Setting SIGNATURE_REQUIRED to "Y" at a particular level means that signatures are required for all processes running at that level or below.

TA_ENCRYPTION_REQUIRED: "{Y | N}"

If set to "Y", every process running in this group requires an encrypted input message buffer. If not specified, the default is "N". This attribute applies only to applications running BEA Tuxedo 7.1 or later software.

TA_ENCRYPTION_REQUIRED can be specified at any of the following four levels in the configuration hierarchy: T_DOMAIN class, T_MACHINE class, T_GROUP class, and T_SERVICE class. Setting TA_ENCRYPTION_REQUIRED to "Y" at a particular level means that encryption is required for all processes running at that level or below.

Limitations

None.

T_IFQUEUE Class

Overview

The T_IFQUEUE MIB class represents run-time attributes of an interface as it pertains to a particular server queue (T_QUEUE) in a CORBA environment. This is primarily a read-only class providing access to the inherited configuration attributes of an interface as well as statistics relating to the interface on the queue. Additionally, this class gives administrators finer granularity in suspending and activating interfaces. This class provides the link between an interface name and the server processes capable of processing method invocations on the interface, that is, TA_RQADDR can be used as a key search field on the T_SERVER class.

Attribute Table

Table 49 TM_MIB(5): T_IFQUEUE Class Definition Attribute Table

Attribute	Usage	Type	Permissions	Values	Default
TA_INTERFACENAME	*	string	R--R--R--	*string*[1..128]	N/A
TA_SRVGRP	*	string	R--R--R--	*string*[1..30]	N/A
TA_RQADDR	*	string	R--R--R--	*string*[1..30]	N/A
TA_STATE	k	string	R-XR-XR--	GET: "{ACT | SUS | PAR}" SET: "{ACT | SUS}"	N/A
TA_AUTOTRAN		string	R--R--R--	"{Y | N}"	N/A
TA_LOAD		long	R--R--R--	1 <= *num* < 32K	N/A
TA_PRIO		long	R--R--R--	1 <= *num* < 101	N/A
TA_TIMEOUT		long	R--R--R--	0 <= *num*	N/A

Table 49 TM_MIB(5): T_IFQUEUE Class Definition Attribute Table (Continued)

TA_TRANTIME		long	R--R--R--	0 <= *num*	N/A
TA_FBROUTINGNAME		string	R--R--R--	*string*[1..15]	N/A
TA_LMID	k	string	R--R--R--	*LMID*	N/A
TA_NUMSERVERS		long	R--R--R--	0 <= *num*	N/A
TA_RTPOLICY		string	R--R--R--	"{always|never}"	never
TA_TPPOLICY		string	R--R--R--	"{method|transaction |process}"	N/A
TA_TXPOLICY		string	R--R--R--	"{always|never| optional|ignore}"	N/A
TA_NCOMPLETED	l	long	R-XR-XR--	0 <= *num*	N/A
TA_NQUEUED	l	long	R--R--R--	0 <= *num*	N/A
TA_CUROBJECTS	l	long	R--R--R--	0 <= *num*	N/A
TA_CURTRANSACTIONS	l	long	R--R--R--	0 <= *num*	N/A

(k) - GET key field
(l) - local Field
(*) - GET/SET key, one or more required for SET operations

Attribute Semantics

TA_INTERFACENAME: *string*[1..128]
: The fully qualified interface name. The interface repository id for the interface. The format of this name is dependent on the options specified in the IDL which generates the interface implementation. See CORBA 2.1 Specification Section 7.6 for details.

TA_SRVGRP: *string*[0..30]
: Server group name. Server group names cannot contain an asterisk, comma or colon.

TA_RQADDR: *string*[1..30]
: Symbolic address of the request queue for an active server offering this interface. See T_SERVER:TA_RQADDR for more information on this attribute.

TA_STATE:

GET: "{ACTive | SUSpended | PARtitioned}"

A GET operation will retrieve configuration information for the selected T_IFQUEUE objects. The following states indicate the meaning of a TA_STATE returned in response to a GET request. States not listed will not be returned.

ACTive	T_IFQUEUE object represents an available interface in the running system.
SUSpended	T_IFQUEUE object represents a currently suspended interface in the running system.
PARtitioned	T_IFQUEUE object represents a currently partitioned interface in the running system.

SET: "{ACTive | SUSpended}"

The following states indicate the meaning of a TA_STATE set in a SET request. States not listed may not be set.

ACTive	Activate the T_IFQUEUE object. State change only allowed when in the SUSpended state. Successful return leaves object in ACTive state.
SUSpended	Suspend the T_IFQUEUE object. State change only allowed when in the ACTive state. Successful return leaves object in SUSpended state.

Limitation: Dynamic advertisement of interfaces (i.e., state change from INActive or INValid to ACTive) is not supported, nor is unadvertisement (i.e., state change from ACTive to INActive).

TA_AUTOTRAN: "**{**Y | N**}**"

Signifies whether a transaction will be automatically started for invocations made outside a transaction context. See T_INTERFACE description of this attribute for discussion of limitations regarding this attribute.

TA_LOAD: **1 <=** *num* **<= 32K**

This T_INTERFACE object imposes the indicated load on the system. Interface loads are used for load balancing purposes, that is, queues with higher enqueued workloads are less likely to be chosen for a new request.

`TA_PRIO`: **1 <=** *`num`* **<= 101**
: This `T_INTERFACE` object has the indicated dequeuing priority. If multiple interface requests are waiting on a queue for servicing, the higher priority requests will be handled first.

`TA_TIMEOUT`: **0 <=** *`num`*
: Time limit (in seconds) for processing individual method invocations for this interface. Servers processing method invocations for this interface will be abortively terminated if they exceed the specified time limit in processing the request. A value of 0 for this attribute indicates that the server should not be abortively terminated.

`TA_TRANTIME`: **0 <=** *`num`*
: Transaction timeout value in seconds for transactions automatically started for this `T_INTERFACE` object. Transactions are started automatically when a requests not in transaction mode is received and the `T_INTERFACE:TA_AUTOTRAN` attribute value for the interface is "`Y`".

`TA_FBROUTINGNAME`: *`string`***[1..15]**
: The factory-based routing criteria associated with this interface.

`TA_LMID`: *`LMID`*
: Current logical machine on which the queue offering this interface is located.

`TA_NUMSERVERS`: **0 <=** *`num`*
: Number of corresponding servers offering this interface on this queue.

`TA_RTPOLICY`: "**{**`always` | `never` |**}**"
: Used to mark an interface implementation as idempotent in the `implementation configuration` file (ICF). An idempotent implementation can be repeated without any negative side-effects. For example, `SET BALANCE`.

`TA_TPPOLICY`: "**{**`method` | `transaction` | `process`**}**"
: The TP framework deactivation policy. This reflects the policy registered with the framework at server startup. The first server to register the interface sets the value in `T_INTERFACE`. This value cannot be changed.

`TA_TXPOLICY`: "**{**`optional` | `always` | `never` | `ignore`**}**"
: The transaction policy for the interface. The setting in this attribute affects the effect of the `TA_AUTOTRAN` attribute. See `TA_AUTOTRAN` for further explanation. This attribute is always read-only. It is set by the developer when the server is built and registered at server startup.

TA_NCOMPLETED: **0** <= *num*
: Number of interface method invocations completed since the interface was initially offered.

TA_NQUEUED: **0** <= *num*
: Number of requests currently enqueued for this interface.

TA_CUROBJECTS: **0** <= *num*
: Number of active objects for this interface for associated queue. This number represents the number of entries in the active object table for this queue on the associated machine. This includes objects that are not in memory but that were invoked within an active transaction.

TA_CURTRANSACTIONS: **0** <= *num*
: Number of active global transactions associated with this interface for its associated queue.

T_INTERFACE Class

Overview

The T_INTERFACE MIB class represents configuration and run-time attributes of CORBA interfaces at both the domain and server group levels.

A domain-level T_INTERFACE object is one that is not associated with a Server Group. Its TA_SRVGRP attribute contains a NULL string (string of length 0, "").

A server group level T_INTERFACE object is one that has an associated server group (i.e., its TA_SRVGRP attribute contains a valid server group name for the domain). This Server Group level representation of an interface also provides a container for managing interface state (TA_STATE) and for collecting accumulated statistics.

An associated server group level T_INTERFACE object must exist for any CORBA Interfaces that are activated in a server. The activation of interfaces in a server is controlled by the state of a T_IFQUEUE object for the interface. Activation of a T_IFQUEUE object causes its attributes to be initialized with the values specified for the associated server group level T_INTERFACE object. If such an object does not exist, one will be dynamically created. This dynamically-created server group level T_INTERFACE object will be initialized with the attributes of the domain level T_INTERFACE object for the interface if one exists. If an associated domain level T_INTERFACE object does not exist, system specified default configuration values will be applied. Once activated, interfaces are always associated with a server group level T_INTERFACE object.

The specification of configuration attributes for interfaces at any level is completely optional, system defined defaults will be provided and run-time server group level `T_INTERFACE` objects will be created. Interfaces to be offered by a server are identified via the ICF file used to generate server skeletons and advertised automatically by the system at server activation time.

Attribute Table

Table 50 TM_MIB(5): T_INTERFACE Class Definition Attribute Table

Attribute	Usage	Type	Permissions	Values	Default
TA_INTERFACENAME	r*	string	ru-r--r--	*string*[1..12]	N/A
TA_SRVGRP	r*	string	ru-r--r--	*string*[0..30]	N/A
TA_STATE	k	string	rwxr-xr--	GET: "{ACT | INA | SUS | PAR}" SET: "{NEW | INV | ACT | REA | SUS}"	N/A
TA_AUTOTRAN		string	rwxr-xr--	"{Y | N}"	"N"
TA_LOAD		long	rwxr-xr--	1 <= *num* < 32K	50 [1]
TA_PRIO		long	rwxr-xr--	1<= *num* < 101	50
TA_TIMEOUT		long	rwxr-xr--	0 <= *num*	0
TA_TRANTIME		long	rwxr-xr--	0 <= *num*	30
TA_FBROUTINGNAME		string	rwyr-yr--	*string*[1...15]	([2])
TA_LMID	k	string	R--R--R--	*LMID*	N/A
TA_NUMSERVERS		long	R--R--R---	0 <= *num*	N/A
TA_RTPOLICY		string	R--R--R--	"{always | never}"	never
TA_TPPOLICY		string	R--R--R--	"{method | transaction | process}"	N/A
TA_TXPOLICY		string	R--R--R--	"{always | never | optional | ignore}"	N/A
TA_NCOMPLETED	l	long	R-XR-XR--	0 <= *num*	N/A [3]

Table 50 TM_MIB(5): T_INTERFACE Class Definition Attribute Table (Continued)

Attribute	Usage	Type	Permissions	Values	Default
TA_NQUEUED	l	long	R--R--R--	0 <= *num*	N/A

(k) - GET key field
(l) - local Field
(r) - required field for object creation (SET TA_STATE NEW)
(*) - GET/SET key, one or more required for SET operations

1. Group level T_INTERFACE objects (TA_SRVGRP != "") determine their defaults from the domain level T_INTERFACE object with a matching TA_INTERFACENAME setting if one exists. The listed defaults apply if no domain level object exists or if a domain level object is being created.
2. All T_INTERFACE objects with the same TA_INTERFACENAME must have matching TA_FBROUTINGNAME values. Therefore, the default for a newly configured object is the 0 length string ("") if there are currently no matching objects with the same TA_INTERFACENAME. Otherwise, the default (and in fact only legal value) is the currently configured TA_FBROUTINGNAME value for the existing matched objects.
3. TA_NCOMPLETED and TA_IMPLID (locals) require TA_LDBAL="Y" in the T_DOMAIN MIB class.

Attribute Semantics

TA_INTERFACENAME: *string*[1..128]

The fully qualified interface name. The interface repository ID for the interface. The format of this name is dependent on the options specified in the IDL which generates the interface implementation. See CORBA 2.1 Specification Section 7.6 for details.

TA_SRVGRP: *string*[0..30]

Server group name. Server group names cannot contain an asterisk, comma or colon. An explicitly specified 0 length string for this attribute is used to specify and query domain level configuration and run-time information for an interface. There are certain limitations and semantic differences noted in other attributes with respect to domain and group level objects in this class.

TA_STATE:

Following are the semantics for GET and SET TA_STATE values on the T_INTERFACE class. Where semantics differ between group and domain level objects, those differences are noted.

GET: "{ACTive | INActive | SUSpended | PARtitioned}"

A GET operation will retrieve configuration information for the selected T_INTERFACE objects. The following states indicate the meaning of a TA_STATE returned in response to a GET request. States not listed will not be returned.

ACTive	T_INTERFACE object is defined and at least one corresponding T_IFQUEUE entry is in the ACTive state. **Note:** For a group level T_INTERFACE object, corresponding T_IFQUEUE entries are those with matching TA_INTERFACENAME and TA_SRVGRP attributes. For a domain level T_INTERFACE object, corresponding T_IFQUEUE entries are those with matching TA_INTERFACENAME attributes regardless of their TA_SRVGRP value.
INActive	T_INTERFACE object is defined and there are no corresponding T_IFQUEUE entries in any ACTive equivalent state.
SUSpended	T_INTERFACE object is defined and amongst all corresponding T_IFQUEUE entries there are none in the ACTive state and at least one in the SUSpended state. This state is ACTive equivalent for the purpose of determining permissions.
PARtitioned	T_INTERFACE object is defined and amongst all corresponding T_IFQUEUE entries there are: 1. None in the ACTive state 2. None in the SUSpended state and 3. At least one in the PARtitioned state. This state is ACTive equivalent for the purpose of determining permissions.

SET: "{NEW | INValid | ACTive | REActivate | SUSpended}"

A SET operation will update configuration and run-time information for the selected T_INTERFACE object. Note that modifications may affect more than one server group when making domain level changes and run-time modifications may affect more than one server if multiple servers are currently offering an interface. The following states indicate the meaning of a TA_STATE set in a SET request. States not listed may not be set.

`NEW`	Create `T_INTERFACE` object for application. State change only allowed when in the `INValid` state. Successful return leaves object in `INActive` state. Creation of a domain level `T_INTERFACE` object will affect existing group level objects with the same `TA_INTERFACENAME` value by resetting all `TA_FBROUTINGNAME` values if a new value is explicitly specified. All other configuration attribute settings will not affect existing group level `T_INTERFACE` objects.
`INValid`	Delete `T_INTERFACE` object for application. State change only allowed when in the `INActive` state. Successful return leaves object in `INValid` state.
`ACTive`	Activate the `T_INTERFACE` object. Setting this state on the domain level object has the effect of activating all corresponding `T_IFQUEUE` entries that are currently `SUSpended` throughout the domain. Setting this state on the group level object will affect only servers within the group offering the interface. State change only allowed when in the `SUSpended` state. Successful return leaves object in `ACTive` state.
`REActivate`	Reactivate the `T_INTERFACE` object. Setting this state on the domain level object has the effect of activating all corresponding `T_IFQUEUE` entries that are currently `SUSpended` throughout the domain. Setting this state on the group level object will affect only servers within the group offering the interface. State change only allowed when in the `ACTive` or `SUSpended` states. Successful return leaves object in `ACTive` state. This state permits global activation of `T_IFQUEUE` entries suspended at the group level without having to individually activate each group level `T_INTERFACE` object.
`SUSpended`	Suspend the `T_INTERFACE` object. Setting this state on the domain level object has the effect of suspending all corresponding `T_IFQUEUE` entries that are currently `ACTive` throughout the domain. Setting this state on the group level object will affect only servers within the group offering the interface. State change only allowed when in the `ACTive` state. Successful return leaves object in `SUSpended` state.

Limitation: Dynamic advertisement of interfaces (i.e., state change from `INActive` or `INValid` to `ACTive`) is not supported, nor is unadvertisement (i.e., state change from `ACTive` to `INActive`).

`TA_AUTOTRAN`: "**{**`Y` | `N`**}**"
Signifies whether a transaction will be automatically started for invocations made outside a transaction context.
Limitations: Run-time updates to this attribute are not reflected in active equivalent `T_INTERFACE` objects and `TA_TXPOLICY` may override the value specified for this attribute in the `UBBCONFIG` file. If `TA_TXPOLICY` is:

`always`	A value of `N` will have no effect at run time. Behavior will be as though the setting was `Y`.
`never`	A value of `Y` will have no effect at run time. The interface will never be involved in a transaction.
`ignore`	A value of `Y` will have no effect at run time. The interface will never be involved in a transaction.

`TA_LOAD`: **1 <=** *num* **<= 32K**
This `T_INTERFACE` object imposes the indicated load on the system. Interface loads are used for load balancing purposes, that is, queues with higher enqueued workloads are less likely to be chosen for a new request.
Limitation: Run-time updates to this attribute for domain level objects will not affect corresponding group level objects for the same interface.

`TA_PRIO`: **1 <=** *num* **<= 101**
This `T_INTERFACE` object has the indicated dequeuing priority. If multiple interface requests are waiting on a queue for servicing, the higher priority requests will be handled first.
Limitation: Run-time updates to this attribute for domain level objects will not affect corresponding group level objects for the same interface.

`TA_TIMEOUT`: **0 <=** *num*
Time limit (in seconds) for processing individual method invocations for this interface. Servers processing method invocations for this interface will be abortively terminated if they exceed the specified time limit in processing the request. A value of 0 for this attribute indicates that the server should not be abortively terminated.
Limitation: Run-time updates to this attribute for domain level objects will not affect corresponding group level objects for the same interface.

TA_TRANTIME: **0 <=** *num*

Transaction timeout value in seconds for transactions automatically started for this T_INTERFACE object. Transactions are started automatically when a requests not in transaction mode is received and the T_INTERFACE: TA_AUTOTRAN attribute value for the interface is "Y".
Limitation: Run-time updates to this attribute for domain level objects will not affect corresponding group level objects for the same interface.
Note: Updating this value at run-time for domain level objects should cause a warning, since the only use would be to set the default for a subsequent boot of the application.

TA_FBROUTINGNAME: *string***[1..15]**

The factory-based routing criteria associated with this interface. The name FBROUTINGNAME is used to allow for the future possibility of other routing criteria for message-based routing. This will be less confusing than trying to overload ROUTINGNAME.
Limitation: This attribute may be set only for a domain level T_INTERFACE object, i.e., TA_SRVGRP is "".

TA_LMID: *LMID*

Current logical machine with which the active equivalent group level T_INTERFACE object is associated. This attribute is blank, i.e., "" for domain level objects unless a local query is performed, i.e., TA_FLAGS has the MIB_LOCAL bit set. In the local case, multiple domain level objects will be returned for the same interface, one per machine, with the local values retrieved from each machine represented in the separate objects.

TA_NUMSERVERS: **0 <=** *num*

Number of corresponding servers offering this interface.

TA_RTPOLICY: "**{**always | never**}**"

Used to mark an interface implementation as idempotent in the implementation configuration file (ICF). An idempotent implementation can be repeated without any negative side-effects. For example, SET BALANCE.

TA_TPPOLICY: "**{**method | transaction | process**}**"

The TP framework deactivation policy. This reflects the policy registered with the framework at server startup. The first server to register the interface sets the value in T_INTERFACE. This value cannot be changed.

TA_TXPOLICY: "**{**optional | always | never | ignore**}**"

The transaction policy for the interface. The setting in this attribute affects the effect of the TA_AUTOTRAN attribute. See TA_AUTOTRAN for further explanation. This attribute is always read-only. It is set by the developer when the server is built and registered at server startup.

TA_NCOMPLETED: **0** <= *num*
: Number of interface method invocations completed with respect to the corresponding T_IFQUEUE objects since they were initially offered. Local queries (TA_FLAGS MIB_LOCAL bit set) on domain level objects will return one object per machine with the statistics for the indicated interface on that machine.

TA_NQUEUED: **0** <= *num*
: Number of requests currently enqueued for this interface. Local queries (TA_FLAGS MIB_LOCAL bit set) on domain level objects will return one object per machine with the statistics for the indicated interface on that machine.

Implementation Hint

The T_INTERFACE MIB is a mapping from an interface to a BEA Tuxedo service. The MIB server can implement some of the get/set operations for an interface by calling the existing logic for the associated T_SERVICE object.

T_MACHINE Class Definition

Overview

The T_MACHINE class represents application attributes pertaining to a particular machine. These attribute values represent machine characteristics, per-machine sizing, statistics, customization options, and UNIX system filenames.

Attribute Table

TM_MIB(5): T_MACHINE Class Definition Attribute Table

Attribute	Type	Permissions	Values	Default
TA_LMID(r)(*) 1	string	rU-r--r--	*string*[1..30]	N/A
TA_PMID(r)(*) 1	string	rU-r--r--	*string*[1..30]	N/A
TA_TUXCONFIG(r)	string	rw-r--r--	*string*[2..256] 5	N/A
TA_TUXDIR(r)	string	rw-r--r--	*string*[2..256] 6	N/A
TA_APPDIR(r)	string	rw-r--r--	*string*[2..256] 6	N/A

TM_MIB(5): T_MACHINE Class Definition Attribute Table (Continued)

Attribute	Type	Permissions	Values	Default
TA_STATE(k)	string	rwyr-yr--	GET: "{ACT | INA | PAR}"	N/A
			SET: "{NEW | INV | ACT | RAC | INA | FIN | CLE}"	N/A
TA_UID	long	rw-r--r--	0 <= *num*	(2)
TA_GID	long	rw-r--r--	0 <= *num*	(2)
TA_ENVFILE	string	rwyr--r--	*string*[0..256] 6	""
TA_PERM	long	rwyr--r--	0001 <= *num* <= 0777	(2)
TA_ULOGPFX	string	rwyr--r--	*string*[0..256] 6	(3)
TA_TYPE	string	rw-r--r--	*string*[0..15]	""
TA_MAXACCESSERS	long	rw-r--r--	1 <= *num* < 32,768	(2)
TA_MAXCONV	long	rw-r--r--	0 <= *num* < 32,768	(2)
TA_MAXGTT	long	rw-r--r--	0 <= *num* < 32,768	(2)

TM_MIB(5): T_MACHINE Class Definition Attribute Table (Continued)

Attribute	Type	Permissions	Values	Default
TA_STATE(k)	string	rwyr-yr--	GET: "{ACT | INA | PAR}"	N/A
			SET: "{NEW | INV | ACT | RAC | INA | FIN | CLE}"	N/A
TA_UID	long	rw-r--r--	0 <= *num*	([2])
TA_GID	long	rw-r--r--	0 <= *num*	([2])
TA_ENVFILE	string	rwyr--r--	*string*[0..256] [6]	""
TA_PERM	long	rwyr--r--	0001 <= *num* <= 0777	([2])
TA_ULOGPFX	string	rwyr--r--	*string*[0..256] [6]	([3])
TA_TYPE	string	rw-r--r--	*string*[0..15]	""
TA_MAXACCESSERS	long	rw-r--r--	1 <= *num* < 32,768	([2])
TA_MAXCONV	long	rw-r--r--	0 <= *num* < 32,768	([2])
TA_MAXGTT	long	rw-r--r--	0 <= *num* < 32,768	([2])

TM_MIB(5): T_MACHINE Class Definition Attribute Table (Continued)

Attribute	Type	Permissions	Values	Default
TA_STATE(k)	string	rwyr-yr--	GET: "{ACT | INA | PAR}" SET: "{NEW | INV | ACT | RAC | INA | FIN | CLE}"	N/A N/A
TA_UID	long	rw-r--r--	0 <= *num*	(2)
TA_GID	long	rw-r--r--	0 <= *num*	(2)
TA_ENVFILE	string	rwyr--r--	*string*[0..256] [6]	""
TA_PERM	long	rwyr--r--	0001 <= *num* <= 0777	(2)
TA_ULOGPFX	string	rwyr--r--	*string*[0..256] [6]	(3)
TA_TYPE	string	rw-r--r--	*string*[0..15]	""
TA_MAXACCESSERS	long	rw-r--r--	1 <= *num* < 32,768	(2)
TA_MAXCONV	long	rw-r--r--	0 <= *num* < 32,768	(2)
TA_MAXGTT	long	rw-r--r--	0 <= *num* < 32,768	(2)

TM_MIB(5): T_MACHINE Class Definition Attribute Table (Continued)

Attribute	Type	Permissions	Values	Default
TA_STATE(k)	string	rwyr-yr--	GET: "{ACT | INA | PAR}" SET: "{NEW | INV | ACT | RAC | INA | FIN | CLE}"	N/A N/A
TA_UID	long	rw-r--r--	0 <= *num*	(2)
TA_GID	long	rw-r--r--	0 <= *num*	(2)
TA_ENVFILE	string	rwyr--r--	*string*[0..256] 6	""
TA_PERM	long	rwyr--r--	0001 <= *num* <= 0777	(2)
TA_ULOGPFX	string	rwyr--r--	*string*[0..256] 6	(3)
TA_TYPE	string	rw-r--r--	*string*[0..15]	""
TA_MAXACCESSERS	long	rw-r--r--	1 <= *num* < 32,768	(2)
TA_MAXCONV	long	rw-r--r--	0 <= *num* < 32,768	(2)
TA_MAXGTT	long	rw-r--r--	0 <= *num* < 32,768	(2)

TM_MIB(5): T_MACHINE Class Definition Attribute Table (Continued)

Attribute	Type	Permissions	Values	Default
TA_STATE(k)	string	rwyr-yr--	GET: "{ACT | INA | PAR}" SET: "{NEW | INV | ACT | RAC | INA | FIN | CLE}"	N/A N/A
TA_UID	long	rw-r--r--	0 <= *num*	(^{2})
TA_GID	long	rw-r--r--	0 <= *num*	(^{2})
TA_ENVFILE	string	rwyr--r--	*string*[0..256] ^{6}	""
TA_PERM	long	rwyr--r--	0001 <= *num* <= 0777	(^{2})
TA_ULOGPFX	string	rwyr--r--	*string*[0..256] ^{6}	(^{3})
TA_TYPE	string	rw-r--r--	*string*[0..15]	""
TA_MAXACCESSERS	long	rw-r--r--	1 <= *num* < 32,768	(^{2})
TA_MAXCONV	long	rw-r--r--	0 <= *num* < 32,768	(^{2})
TA_MAXGTT	long	rw-r--r--	0 <= *num* < 32,768	(^{2})

TM_MIB(5): T_MACHINE Class Definition Attribute Table (Continued)

Attribute	Type	Permissions	Values	Default
TA_STATE(k)	string	rwyr-yr--	GET: "{ACT | INA | PAR}" SET: "{NEW | INV | ACT | RAC | INA | FIN | CLE}"	N/A N/A
TA_UID	long	rw-r--r--	0 <= *num*	(2)
TA_GID	long	rw-r--r--	0 <= *num*	(2)
TA_ENVFILE	string	rwyr--r--	*string*[0..256] 6	""
TA_PERM	long	rwyr--r--	0001 <= *num* <= 0777	(2)
TA_ULOGPFX	string	rwyr--r--	*string*[0..256] 6	(3)
TA_TYPE	string	rw-r--r--	*string*[0..15]	""
TA_MAXACCESSERS	long	rw-r--r--	1 <= *num* < 32,768	(2)
TA_MAXCONV	long	rw-r--r--	0 <= *num* < 32,768	(2)
TA_MAXGTT	long	rw-r--r--	0 <= *num* < 32,768	(2)

TM_MIB(5): T_MACHINE Class Definition Attribute Table (Continued)

Attribute	Type	Permissions	Values	Default
TA_STATE(k)	string	rwyr-yr--	GET: "{ACT | INA | PAR}" SET: "{NEW | INV | ACT | RAC | INA | FIN | CLE}"	N/A N/A
TA_UID	long	rw-r--r--	0 <= *num*	(2)
TA_GID	long	rw-r--r--	0 <= *num*	(2)
TA_ENVFILE	string	rwyr--r--	*string*[0..256] 6	""
TA_PERM	long	rwyr--r--	0001 <= *num* <= 0777	(2)
TA_ULOGPFX	string	rwyr--r--	*string*[0..256] 6	(3)
TA_TYPE	string	rw-r--r--	*string*[0..15]	""
TA_MAXACCESSERS	long	rw-r--r--	1 <= *num* < 32,768	(2)
TA_MAXCONV	long	rw-r--r--	0 <= *num* < 32,768	(2)
TA_MAXGTT	long	rw-r--r--	0 <= *num* < 32,768	(2)

TA_MAXWSCLIENTS	long	rw-r--r--	0 <= *num* < 32,768	0
TA_MAXACLCACHE	long	rw-r--r--	10 <= *num* <= 32,000	100
TA_TLOGDEVICE	string	rw-r--r--	*string*[0..256] 5	""
TA_TLOGNAME	string	rw-r--r--	*string*[0..30]	"TLOG"
TA_TLOGSIZE	long	rw-r--r--	1 <= *num* < 2,049	100
TA_BRIDGE	string	rw-r--r--	*string*[0..78]	N/A
TA_BRTHREADS	string	rw-r--r--	"{Y | N}"	"N"
TA_NADDR	string	rw-r--r--	*string*[0..256] 6	N/A
TA_NLSADDR	string	rw-r--r--	*string*[0..256] 6	N/A
TA_FADDR	string	rw-r--r--	*string*[0..256] 6	""
TA_FRANGE	long	rw-r--r--	1 <= *num* <= 65,535	1
TA_CMPLIMIT	string	rwyr-yr--	"*remote*[,*local*]"	MAXLONG
TA_TMNETLOAD	long	rwyr-yr--	0 <= *num* < 32,768	0
TA_SPINCOUNT	long	rwyr-yr--	0 <= *num*	0
TA_ROLE	string	r--r--r--	"{MASTER | BACKUP | OTHER}"	N/A
TA_MINOR	long	R--R--R--	1 <= *num*	N/A
TA_RELEASE	long	R--R--R--	1 <= *num*	N/A
TA_MINENCRYPTBITS	string	rwxrwx---	"{0 | 40 | 56 | 128}" 4	"0"
TA_MAXENCRYPTBITS	string	rwxrwx---	"{0 | 40 | 56 | 128}" 4	"128"
TA_MAXPENDINGBYTES	long	rw-r--r--	100000 <= *num* <= MAXLONG	2147483647
TA_SICACHEENTRIESMAX	string	rw-r--r--	"0"–"32767"	