

Published: 05/06/68

### Identification

Read or set access attributes  
mode  
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### Purpose

Mode provides the facility to read or set the access attributes associated with a user name for a segment in the file system hierarchy.

### Usage

```
mode$get (path, entry, acname, mode);  
mode$set (path, entry, acname, mode);  
dcl (path, entry, acname) char (*) or char(*) var,  
mode bit (5),
```

mode\$read returns in the bit string mode the mode associated with acname for the segment path>entry. mode\$set sets the mode associated with acname for the segment path>entry to the mode specified by the bit string mode. If acname is not on the access control list, it is added with the mode specified.

The five bits of the argument mode correspond to the attributes Trap, Read, Execute, Write and Append respectively. (See BX.8.00 for the meaning of these attributes.) If entry is null the common access control list of path is read or set. If acname is null the caller's name is assumed. The argument acname may be either of two forms. It may be a 50-character string with no periods to separate the three components of the name. Alternatively, it may be an adjustable character string with periods separating the three components. If only two components of the name are present the third component is assumed to be "\*". An acname of "\*" is interpreted as " \*.\*.\*".

### Comments

The user calling mode\$set must have the read and write attributes on for path>entry. The read attribute is required for mode\$get.

Implementation

Mode expects a valid pathname. A valid pathname is one that is relative to the root directory and does not contain the character "<". `readacl` is called to obtain the acl for the segment `path>entry`. The names on the acl returned by `readacl` are scanned for a name with a first component equal to the first component of `acname`. All names with that first component are compared with `acname` for a match in second and third components. `Acname = "*"` is interpreted to be the name `"*.*.*"`. (See BX.8.00 for full discussion of access control names.)

If `acname` is not on the acl in a call to the `$get` entry, an error is signalled as described below. If signal returns, control is returned to the caller with `mode` set to `"00000"b`. Otherwise the appropriate action is taken as indicated by the entry to `mode` that was called. If `acname` is not on the acl in a call to the `$set` entry, `mode` computes the weight of `acname` and inserts it in the appropriate place in the acl.

Errors

Four errors are recognized by mode. Mode calls `seterr` (BY.11.01) with the following error codes and error information. Mode then signals the condition `mode_err`, and if signal returns, returns to the caller.

Two errors are reflected from the file system:

<code>moderr</code>	User has incorrect access to the segment. [i.e., could not read the acl.]
<code>noentry</code>	Could not find the entry

The other two are defined by mode:

<code>nvalacnm</code>	Invalid access control name.
<code>noacnm</code>	Access control name not on acl. [only for the <code>\$get</code> entry]