

Published: 06/16/67

Identification

Summary of Reserver Calls  
J. H. Saltzer, R. C. Daley

Purpose

This section provides in summary form the calling sequences of all calls to the initial Reserver, declarations of arguments, and brief comments as to meaning of calls and arguments. The Reserver is described elsewhere, in overview in section BT.3.00, and in detail in later parts of BT.3.

Summary of calls

Reservation-making calls are described first, followed by reservation-using (allocating) calls. Errors are reflected by setting the argument status to a non-zero value. The possible status values are described at the end.

Reservation making:

```
call reserve$resource(resource_name,start_time,hold_time,
    status);
```

makes a reservation in the name of this user for resource resource\_name from time start\_time to stop\_time.

```
call reserve$type(resource_type,start_time,hold_time,status);
```

makes a reservation in the name of this user for some resource of type resource\_type from start\_time to stop\_time.

```
call reserve$hold(resource_name,user_id,hold_time,status);
```

will hold the resource resource\_name for the interval of time hold\_time in a state such that only the process group with id user\_id can perform successful allocation calls. (This call will be accepted only if the caller has the device allocated to himself.)

```
call reserve$group(group_name,resource_list,early_start_time,
    late_start_time,start_time_list,hold_time_list,
    assigned_start_time,status);
```

will, if possible, set up a reservation group for the current user for all of the resources in the array resource\_list, as described in section BT.3.00. It will associate the name group\_name with the

reservation group. The reservation group will begin at the time assigned\_start\_time, which will be set by reserve\_group to some time between early\_start\_time and late\_start\_time. The reservation for the resource named in resource\_list(j) will start at time start\_time\_list(j) after assigned\_start\_time, and will be for the interval hold\_time\_list(j).

(Entry reserve\_group is not provided in the initial implementation of the reserver.)

call release\_group(group\_name,status);

will release the reservation group previously made under name group\_name.

call release\_resource(resource\_name,status);

releases the reservation or hold on resource\_name for this user.

call release\_type(resource\_type,status);

releases the reservation for a resource of type resource\_type for this user.

Allocating calls:

call alloc\_resource(type\_name,resource\_name,status);

allocates the resource resource\_name to the calling process group.

call alloc\_type(type\_name,resource\_name,status);

allocates a resource of type type\_name to the calling process group. Resource\_name will be set to contain the name of the particular resource of type type\_name which has been allocated.

call de\_alloc\_resource(resource\_name,status);

will release the allocation of resource resource\_name.

call de\_alloc\_all;

will release all allocations currently held by the user process group.

Argument declarations.

```
declare resource_type character(32),
       resource_name character(32),
       group_name character(32),
       resource_list(*) character(32),
       start_time_list(*) bit(72),
       hold_time_list(*) bit(72),
       early_start_time bit(72),
       late_start_time bit(72),
       assigned_start_time bit(72),
       start_time bit(72),
       hold_time bit(72),
       user_id character(50),
       status integer;
```

resource\_type and resource\_name are most commonly I/O system device types or names. Start\_times are standard calendar clock times, and hold\_times are standard calendar clock intervals. User\_id is the user-process-group identification assigned by login.

Status returns.

The following values of the return argument status are defined:

- 1 A requested reservation cannot be made, for lack of resources.
- 2 A requested reservation cannot be made because of a possible error in the calling sequence (attempt to reserve unreservable resource type, stop\_time precedes start\_time, etc.)
- 3 A requested hold is not permitted.
- 4 Attempt to release non-existent reservation.
- 5 Allocation call made without previous reservation, and therefore rejected.
- 6 Allocation call made without previous reservation, but accepted. User takes chance on being bumped by a later reservation holder. (Only allowed on some devices.)

- 7 Allocation call cannot be accepted because of lack of resource; previously made reservation cannot be honored. Very sorry. (See project administrator for reparations.)
- 8 Allocation call cannot be accepted because of lack of resource. No previous reservation. Tough luck.
- 9 Allocation call cannot be accepted because of possible error in calling sequence. (e.g., illegal device name)
- 10 Allocation call is redundant--process group is already allocated this resource. Allocation remains.
- 11 Attempt to deallocate a resource which was never allocated.