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Identification

procedures to push and pop the options stack
push_opt, pop_opt
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Purpose

To push and pop the options stack. A user should push the options stack whenever he sets options which may override values of the same options in previous frames. Section BX.12.00 discusses the options stack and "pushing" and "popping". Section BY.9.03 contains an example of how a procedure uses push_opt and pop_opt when setting options.

Usage

```
call push_opt
```

Each call to push_opt pushes down the options stack by one frame. A limit on the depth of the options stack is given by the "option_stack" option. When "option_stack" is on, its specification gives the maximum depth of the options stack. The default maximum (if "option_stack" is off) is 40. If the user calls push_opt when options are stacked to the maximum depth, push_opt signals an error condition:

```
signal condition (options_201);
```

To pop the options stack to frame n

```
call pop_opt (n)
```

If the current frame number < n, pop_opt signals an error without popping the stack:

```
signal condition (options_202);
```

If n= 0, pop_opt pops up the stack by one frame. If n< 0, pop_opt signals an error condition (options_203). If n = 1, pop_opt signals an error, because the stack must maintain frame 2 (console session) values until logout:

```
signal condition (options_204).
```

Implementation

The implementation of push_opt and pop_opt follows trivially from the representation of options presented in BX.12.01.

Push_opt adds one to the current frame number (option_seg.fno). Pop_opt (n) sets option_seg.fno to n, and deletes all frames >n. To delete frame i, pop_opt deletes all settings in the chain pointed to by the ith entry of the frame table. If k is the current frame number, pop_opt deletes frame k, frame k-1, and so on, until frame n+1 is deleted.

At times push_opt may expand the frame table in order to record a new frame. (Initially the frame table has 20 entries, but it may be expanded to 40 entries--or to the number specified with the "option_stack" option.) The frame table is expanded in the same way as the hash table (see addopt, BY.9.05.)

Similarly pop_opt may contract the frame table when the frame table is found to be unnecessarily large. When

$$\text{nframes} < \frac{\text{max}}{2} - 5,$$

(where nframes = number of frames and max > 20 is the current size of the frame table), push_opt halves the frame table. If max $\leq$ 20, the frame table is not contracted.

The contraction of the frame table is analogous to the contraction of the hash table (see the implementation of delete_opt, BY.9.05).