

# Radio buttons

Radio buttons are used to show and set state, not to initiate actions. A radio button is indicated by a circular icon that's filled in or highlighted when the button is on, and not when the button is unselected.

Radio buttons are always used in groups of two or more. The icon indicates that **no more than one button in the group can be on at a time**; a button is turned off by turning another one on. A group of radio buttons should be further constrained to require one (and only one) button to be chosen at all times. If it's logically possible to not have any of the buttons in the set turned on, the set should be extended to explicitly include *none* as the first or the last choice. In other words, radio buttons should carry the meaning *one and only one*, rather than *at least one*.

## Radio Buttons and Pop-Up Lists

A matrix of radio buttons and a pop-up list have the same semantic: They each permit the user to choose one and only one setting out of a list of possible choices. The following considerations enter into the decision whether to implement a set of controls as a pop-up list or as radio buttons:

- If it's important to conserve space within a window, a pop-up list might be the better choice.
- If the set of controls will be used frequently, radio buttons might be the better choice, since they're easier to operate and more accessible to the user.

- When a pop-up list isn't on-screen, only one of its options is displayed. So, if it's not immediately obvious from just seeing one of the options what the others might be, radio buttons might be the better choice.
- If there's a problem organizing the controls within a window so that the arrangement doesn't appear too complicated, a pop-up list might be the better choice. Pop-up lists present the user with less information initially. They're also easier to lay out in relation to other controls. For example, a button that brings up a pop-up list can be placed alongside similar buttons that don't control lists.
- A pop-up list usually pops up so that the current selection is under the cursor. But if the list is long and near the edge of the screen, it shifts so that the entire list can appear on-screen, and this may change the selection under the cursor. Users might therefore unwittingly make a new selection while intending only to see what's in the list. If the list will usually pop up near the edge of the screen and it's important to avoid this behavior, radio buttons might be the better choice.