





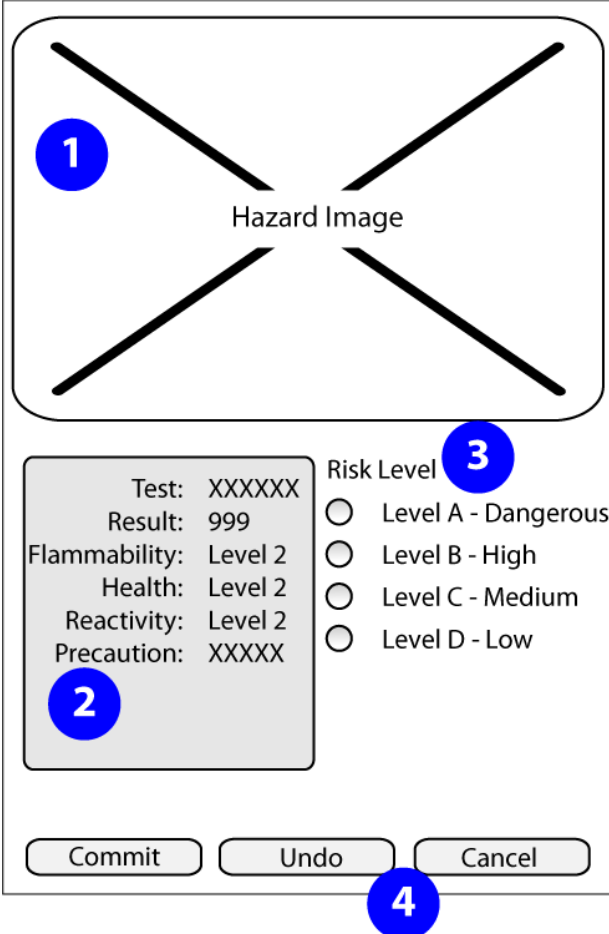
Hazard Sampling Dialog

General Layout

The dialog's purpose is to display information about the hazardous material being sampled by the UGV so either the system or the UV specialist can identify the risk level of the hazard. The dialog is associated with the hazmat reading icons (Table 1). Components of the dialog include an image of the hazardous material, textbox for presenting hazmat reading information, risk level selection radio buttons, and dialog buttons (Figure 1). Table 2 shows descriptions of each component.

Table 1. Hazmat reading icons.

| | | | |
|---|---|--|---|
|  |  |  |  |
| Action Support | Blended Decision Making | Supervisory Control | Normal |



1

Hazard Image

2

Test: XXXXXX
Result: 999
Flammability: Level 2
Health: Level 2
Reactivity: Level 2
Precaution: XXXXX

3

Risk Level

☐ Level A - Dangerous
☐ Level B - High
☐ Level C - Medium
☐ Level D - Low

4

Commit Undo Cancel

Figure 1. Basic layout of hazard sampling task dialog.

Table 2. Description of dialog components.

| Number | Component Name | Functional Description |
|--------|-----------------------------|---|
| 1 | Hazard image | The image of the hazardous scene or material taken by the UGV is shown here. |
| 2 | Hazard information text box | Specific information about the hazardous material should be presented in the textbox. The information includes: contaminant test, contaminant test result, flammability hazard divisional severity, health hazard divisional severity, reactivity hazard divisional severity, and hazard reading special precaution. The textbox should be read-only across all conditions (Action Support, Blended Decision Making, and Supervisory Control). |
| 3 | Risk level selection | <p>1) If the dialog is in Action Support condition, no default selection should be made.</p> <p>2) If the dialog is in Blended Decision Making condition, a default selection should be made when the dialog is open.</p> <p>3) If the dialog is in Supervisory Control condition, a default selection should be made when the UV specialist chooses to open the dialog.</p> |
| 4 | Dialog buttons | <p>1) If the request icon is in Action Support condition, clicking on the Commit button will commit the risk level selection made by the UV specialist and change the dialog's icon to the normal hazmat reading icon in Table 1. (Note that the commit currently does nothing in the system. The current GVA grouping of hazmat readings is based on test result (concentration), but in the future the grouping could be changed to be based on the risk level specified by the UV specialist.) Clicking on the Undo button will clear the risk level selection. Clicking on the Cancel button will close the dialog without committing the risk level selection on the dialog and the associated icon will not be changed.</p> <p>2) If the request icon is in Blended Decision Making condition, clicking on the Commit button will commit the current risk level selection on the dialog and change the dialog's icon to the normal hazmat reading icon. (In the future the dialog's icon could be assigned to one of the GVA groups of hazmat readings based on risk level). Clicking on the Undo button will set the risk level to its initial (default) setting. Clicking on the Cancel button will close the dialog without committing any selection on the dialog and the</p> |

| | | |
|--|--|--|
| | | <p>dialog's icon will remain the same.</p> <p>3) If the request icon is in Supervisory Control condition, there will be a time-out (30 seconds or longer), after which the icon will be automatically changed to the normal hazmat reading icon. The timer starts immediately when the icon appears. If the UV specialist right click on the dialog's icon within the time-out period and choose to open the dialog, the timer will be paused. When the dialog is open, clicking on the Commit button will commit the current risk level selection, change the dialog's icon to the normal hazmat reading icon, and stop (or delete) the timer. Clicking on the Undo button will set the risk level to the initial (default) setting. Clicking on the Cancel button will close the dialog without committing any change and the timer will resume.</p> |
| | Timer in Supervisory Control condition | <p>The timer is associated with the request icon in Supervisory Control condition. The timer starts immediately when the request icon appears. If the UV specialist chooses to right click on the icon and open the dialog, the timer will be paused. If the UV specialist clicks on the Commit button, the dialog will be closed and the timer will be stopped (or deleted). If the UV specialist clicks on the Cancel button, the dialog will be closed and the timer will resume. After the time-out, the request icon will automatically change to an object icon.</p> |

Explanation of Risk Levels

The following risk levels are derived from ratings of hazmat protective clothing in the US (http://en.wikipedia.org/wiki/Hazmat_suit).

Level A – Dangerous: The concentration of the hazardous material is extremely high and the responder may have continuous contact with the material. Level A hazmat protective clothing with self-contained breathing apparatus (SCBA) or a supplied air respirator (SAR) with an SCBA escape cylinder is required for this risk level.

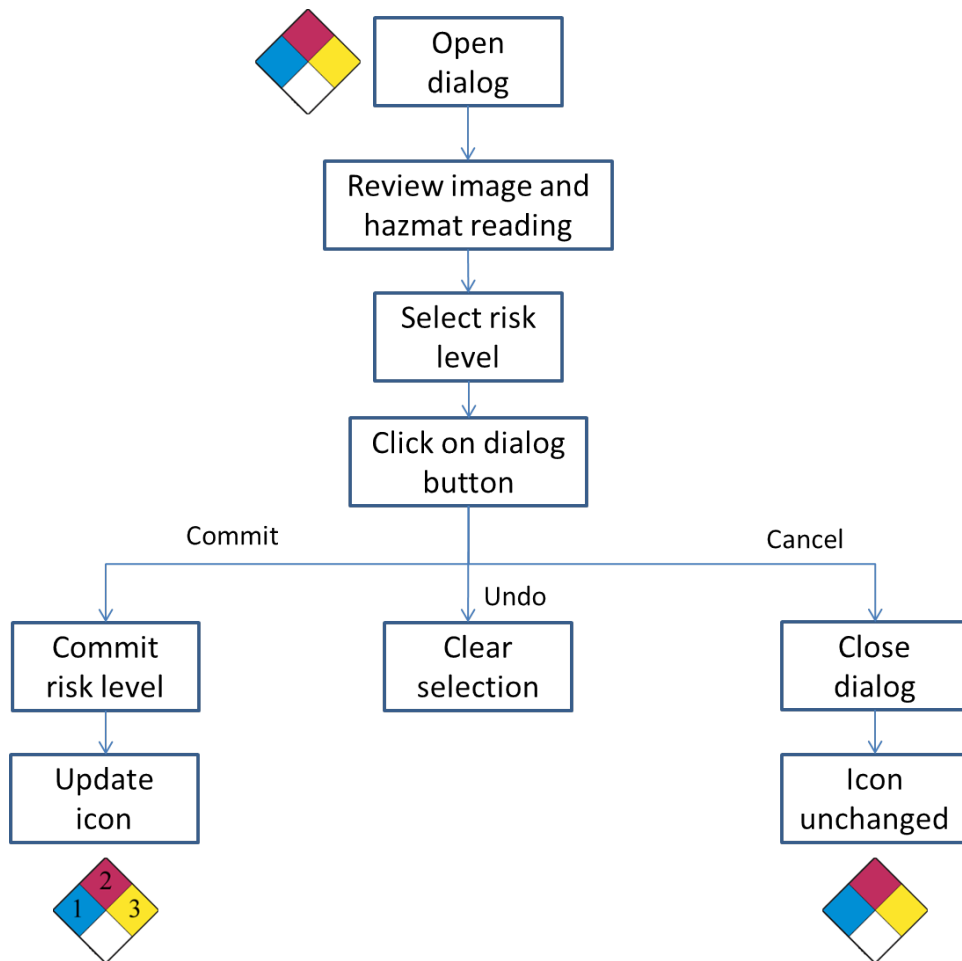
Level B – High: The concentration of the hazardous material is higher than the defined danger level and the responder may have continuous contact with the material. Level B hazmat protective clothing with self-contained breathing apparatus (not vapor-protective) is required for this risk level.

Level C – Medium: The concentration of the hazardous material is around the defined danger level and the responder has a good chance of contact with the material. Level C hazmat protective clothing with respiratory protection is required for this risk level.

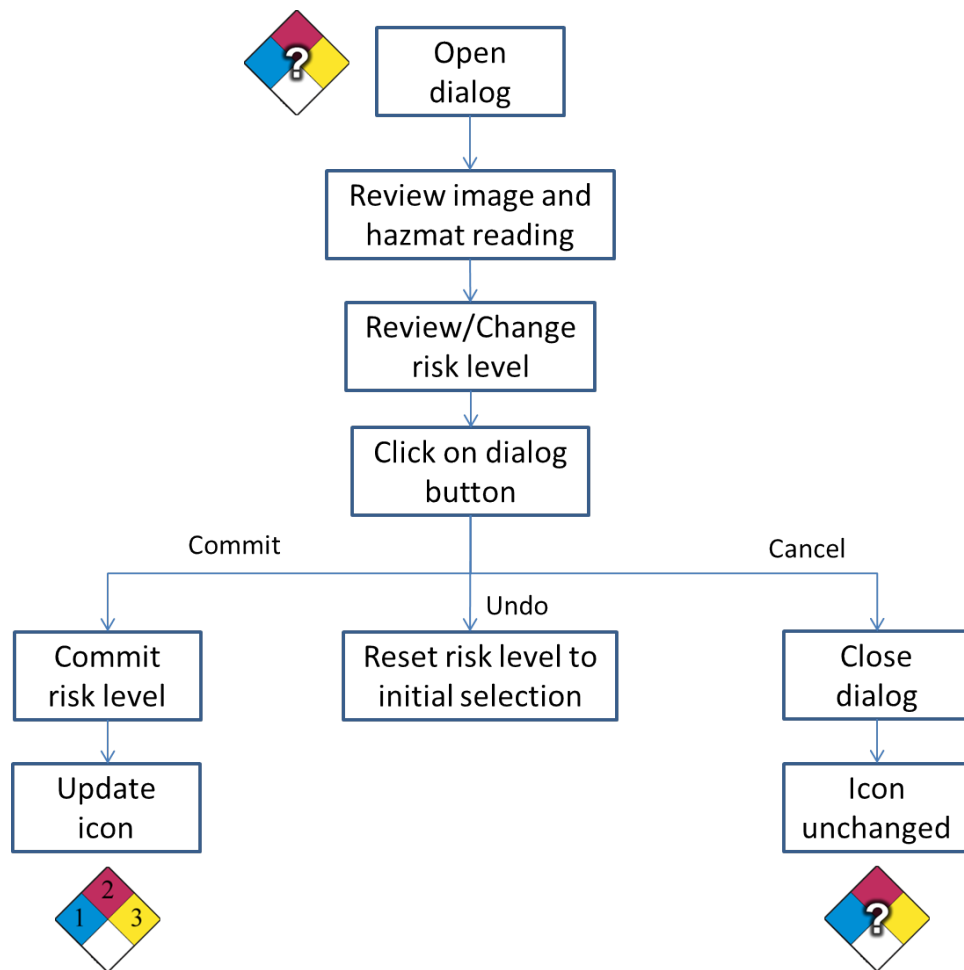
Level D – Low: The concentration of the hazardous material is below a defined danger level and the responder has little possibility of contact with the material. Level D hazmat protective clothing (e.g., most firefighter turnout gear) is required for this risk level.

Action Flows

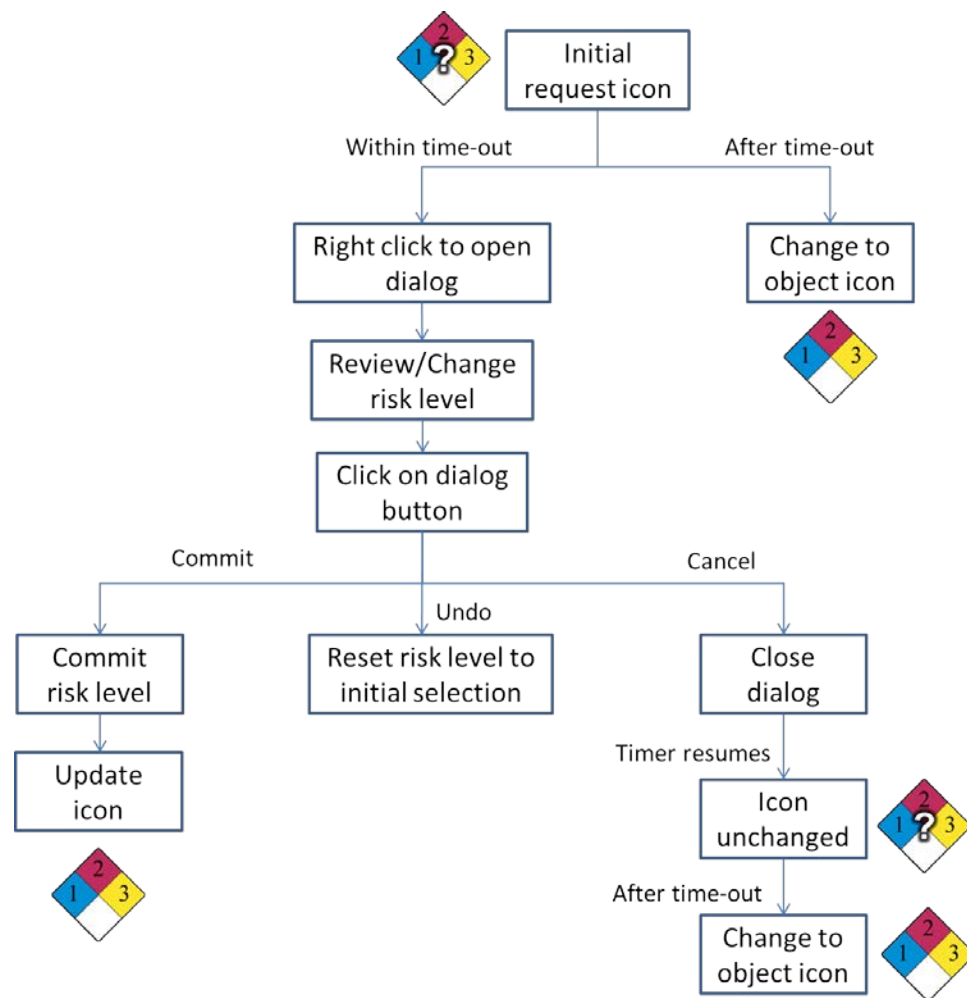
1. Action Support



2. Blended Decision Making



3. Supervisory Control



Completion Check

1. The dialog should check if the user has made the risk level selection when the user clicks on the Commit button.