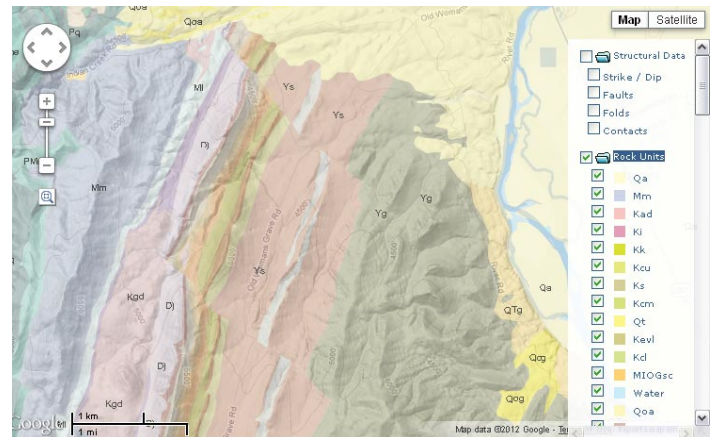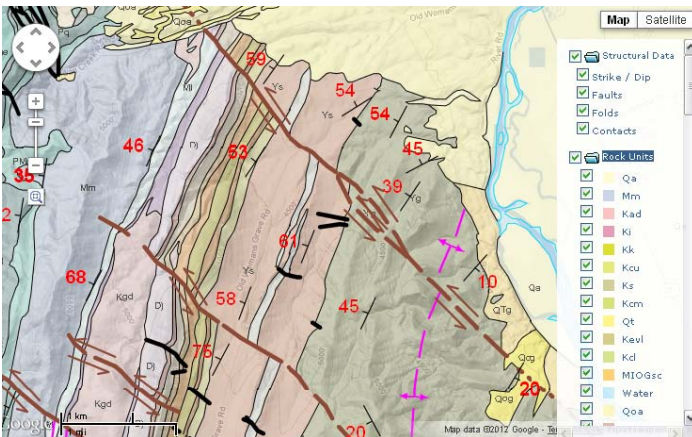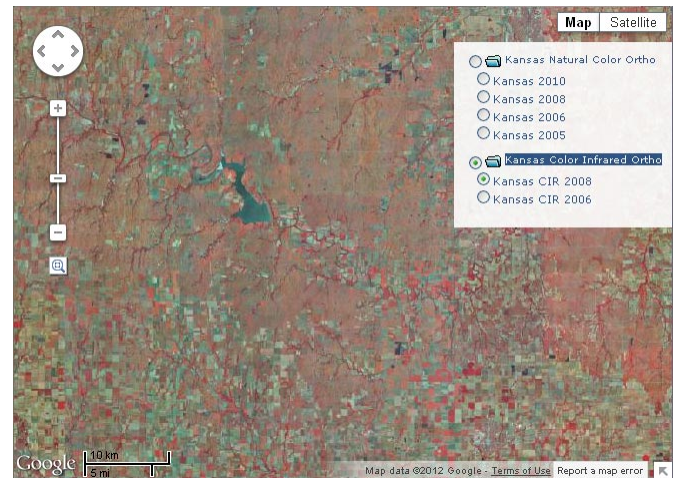# Grouping Overlays in Geomashups

Geologic map geomashup made up of five SVG geometric tilesets illustrating the use of overlay groups. The lowermost overlay consists of a single tileset depicting the rock unit polygons, while the other four tilesets were added to a layer set that was designated as an overlay group named Structural Data. All of the overlays in the Structural Data group can be turned on (illustrated above left) or off (above right) simultaneously using the group checkbox. The overlays in this group can also be turned on or off individually when the group is checked on.

Custom overlays in geomashups can be organized in *overlay groups*. An overlay group has a folder icon in the layer controls that allows the viewer to open (expand) the group to show the component overlays in the layer controls or to close the group to show only the group name. The overlays within a group have individual layer controls allowing them to be turned on or off, and the group has a control allowing all overlays in the group to be turned off simultaneously. A group can be configured so that its overlays can each be turned on or off independently with checkbox controls (illustrated above), or so that its overlays are mutually exclusive, provided with radiobutton controls so that only one overlay in the group can be visible in the map view at a time (illustrated to the right). Use of overlay groups allows you to create logical associations of overlays with control behavior appropriate to the type and purpose of the map or image data.

Geomashup of orthoimage tilesets acquired in different years for the state of Kansas illustrating mutually exclusive overlays in groups. Natural color and color-infrared (CIR) image tilesets have been assigned to separate groups. The overlays within each group have been set to be mutually exclusive and thus are provided with radiobutton controls. Additionally, the two groups have been set to be mutually exclusive. Thus only one overlay in one group is visible in the geomashup at a time, which is appropriate behavior for these coextensive image tilesets.
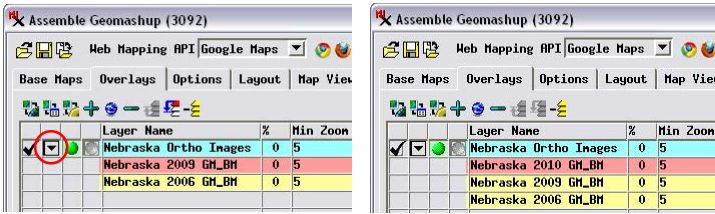
In order to create an overlay group in the Assemble Geomashup process, add the desired layers (standard web tilesets, SVG or KML geometric tilesets, KML files, or Google Fusion Tables) to a single *layer set*. You can do this by adding all of the layers in a single operation, or add components one by one to an existing layer set (see illustration on the reverse). You can expand or collapse the list-

Assemble Geomashup window for the Kansas orthoimage geomashup illustrated above. The two layer sets in this list were set to be groups by turning on the *Show as Group in Layer Controls* toggle in the Group Settings dialog (opened using the Custom Settings icon button for each overlay group as shown). When this setting is turned on, a folder icon is shown for the *Show/Hide components of overlay* button in the Assemble Geomashup window. The Group Settings dialog also allows setting whether the group folder is shown initially closed or open, and setting the contents of the group to be mutually exclusive (providing them with radiobutton controls). The two overlay groups have been set to be mutually exclusive by turning on the *Combine with other overlays* toggle for each one as shown.
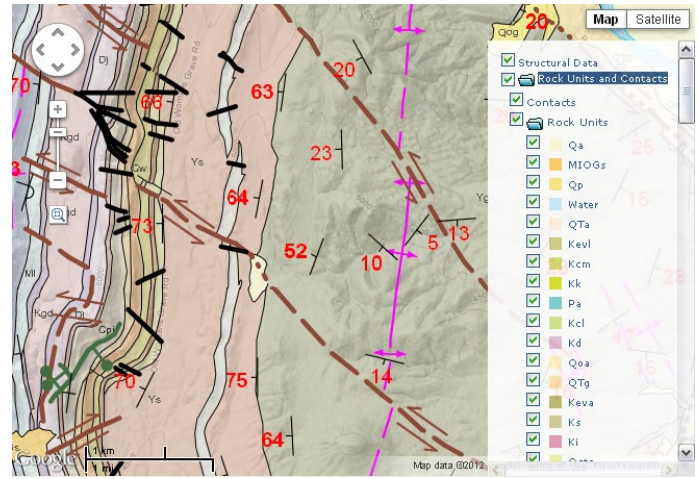
(over)

You can added components to an existing layer set by:
• turning on the Show/Hide components of overlay button (circled in red above left)
• left-click in any field of one of the components to highlight it (orange color above)
• use any of the Add buttons to add one or more tilesets, KML files, or fusion tables to the layer set.
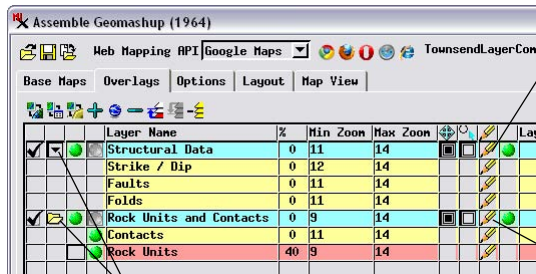
ing of the layer set components using the *Show/Hide components of overlay* button in the layer list. (The layer set list is expanded automatically when you add multiple layers in a single operation). Edit the Layer Name field to provide an appropriate name for the set.

The Group Settings window allows you to designate how the layers within the layer set behave in the geomashup. This window is opened automatically when you add multiple layers at once; it can be opened manually by clicking on the Custom Settings icon button for the layer set. The *Show as Group in Layer Controls* toggle in the Group Settings window determines whether or not the layers in the layerset are treated as a group. If this toggle is turned off, the layer set components are treated as a single overlay, are not listed individually in the geomashup layer controls, and thus cannot be turned on or off individually. If the *Show as Group in Layer Controls* toggle is turned on, the layer set components are treated as individual overlays within a group and are provided with individual layer controls in the geomashup. Use the Folder Options buttons (Closed, Open) to set whether the group is initially shown collapsed or expanded in the geomashup layer controls. Use the *Contents of Group Are Exclusive Layers* toggle to set whether the overlays in the group are provided with checkbox or radiobutton controls.

The *Show/Hide components of overlay* button is automatically assigned different icons in the Assemble Geomashup window depending on the status of the layer set. It has an arrow icon for a layer or layer set designated as a single overlay, but the icon changes to a folder when the layer set is designated as a group (see illustration above right). Thus these icons give a quick visual indication of which layers are set as groups and which are set as single overlays.
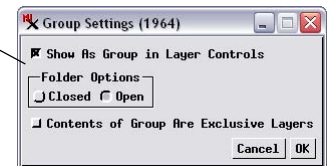
The illustration above shows a geologic map geomashup using the same data as the example on the reverse but with a different organization of the component tilesets. Here the Folds, Faults, and Strike / Dip tilesets are in a layer set that functions as a single overlay named Structural Data (set by not turning on the *Show As Group in Layer Controls* toggle in the Group Settings dialog; see illustrations below). These "sublayer" components are not shown individually in the layer controls in the geomashup, so they cannot be turned on or off independently. The Rock Units and Contacts tilesets are in a layer set designated as an overlay group, so these tilesets are shown separately in the layer controls within the Rock Units and Contacts group and have their own layer control checkboxes.

The *Show/Hide components of overlay* button has an arrow icon for a layer or layer set designated as a single overlay and a folder icon for a layer set designated as a group.

Settings for Structural Data layer set designated as a single overlay with sublayers that cannot be independently controlled in the geomashup.

Settings for Rock Units and Contacts layer set designated as a group with independent overlays.

A geomashup can include as many groups and/or individual overlays as desired. Groups and other overlays can be set to be mutually exclusive using the *Combine with other overlays* toggles as shown for the Kansas orthoimage geomashup example on the previous page.