Selection in Maya

Introduction
Selection, in creative software, is the action of specifying an object or group of objects that are to be changed. This sounds simple but – particularly in 3D software – there are many ways to do this.

In Maya these include:

1. adding to or removing objects or subobjects from an existing selection group
2. toggling selected/deselected items
3. selecting or deselecting multiple objects by dragging the cursor in the 3D window
4. selecting or deselecting objects in a list based interface window
5. partially selecting objects or subobject elements

Simple selection
Create an item, such as a sphere, in the center of a Maya scene and go to Top view. With the item selected, go to Edit – Duplicate Special and click on the square to open the dialog box. Make sure that Copy – not Instance – is active.

Translate (move) the item about twice its diameter along the X axis and make 10 copies, using Apply to keep the dialog box open. You should have a line of eleven items. Next, select all the items, Translate them the same distance along the Z axis (returning the X axis value to zero), and again hit Apply. You should have 121 in eleven rows and eleven columns.

Click away from the array to deselect them all and close the Duplicate Special dialog box. Double click on the Select tool on the left side of the screen to open its options box, but don’t change the defaults at this stage.

Now left click on the center item; it will turn green. Holding down the Shift key, click on the eight items surrounding it; they will all turn white except for the last one selected, which will be green. Shift-click a second time on the center item: it will be deselected – Shift toggles a selection. Shift-click a second time: it will be selected, but this time it will be the last item selected so it will be green. Using Control instead of Shift will remove only, not add (and a small minus sign will appear next to the cursor). Using Shift+Control will add (and a small plus sign will appear next to the cursor). For Shift, Control, and Shift+Control dragging, dragging diagonally will toggle, select, or deselect anything crossing the edge of the rectangular area drawn. Note that the green last-selected item will vary randomly when selecting multiple items. The Shift+Control click command can be used to define last selected without first deselecting it.

The Select tool (the arrow icon on the left of the screen) is enabled with the Q key shortcut. When you’ve finished using any tool, always return to the Select tool by using this shortcut or clicking on the icon.

Below the Select tool is the Lasso tool. Hold down the left mouse button and drag with this to select a group of items rapidly; hold down the Shift key and drag to add to a previous selection or, if selected items are included in the new select, deselect them. If the Lasso tool’s track runs through any part of an item, that item is selected. To only remove items (not add them accidentally) use Control with Left-dragging. The use of Shift (toggle), Control (remove only), and Shift+Control (add only) is the same as for the Select tool.
Below the Lasso tool is the Paint Selection tool. Again, open its options by double clicking on its icon.
Finally, Alt+D is Deselect All.

Components and selection
In a polygonal model, the components are vertices, edges, and faces. In a NURBS model, they are surfaces. To see the components of an object, select it and then right-click over it to show them.
To grow a selection use Shift+>; to reduce it use Shift+<. To select vertices along a series of linked edges, click the first then double click the last. To select an edgeloop double click on one of the edges.
To make changes that blend smoothly into surrounding geometry we can use soft selection. Access this by double clicking on the Move, Rotate, or Scale tools to bring up the Tool Settings window; you can also click on the Tool Settings icon at the top right of the screen as shown left.
Open the Soft Select rollout and turn it on. Choose the Falloff Mode according to what you want to do: Volume will extend the soft selection to the components of neighboring objects and Surface will limit the selection to the distance along the surface of the selected object.
You can also turn Symmetry on or off in the rollout below Soft Selection.

The Select Menu
This is a drop-down menu in the top bar, and appears in every layout mode. There are too many options to describe in this handout, but it is recommended you explore them with the help tutorial links on the Autodesk site such as this: https://knowledge.autodesk.com/support/maya/learn-explore/caas/CloudHelp/cloudbhelp/2018/ENU/Maya-Basics/files/GUID-D1BBC051-0EE7-4A91-B4FF-2A369764EC8B-htm.html.

Soft selections
When you double-click on the Select, Move, Rotate, or Scale tools and open the dialog box, you’ll see an option for Soft Selection. Open that rollout panel and enable Soft Selection.
There are a number of options. The first two – Volume and Surface – are for component modeling and will change only the selected object. The second two – Global and Object – are for complete objects and affect the scene. We’ll look at each in turn.

**Volume soft selection**
This moves, rotates, or scales a subobject selection based on the falloff radius and type. The selection can be vertices, edges, or faces and the falloff is based on a 3D volume of a sphere positioned at the center of the region of influence.

**Surface soft selection**
This selects all the objects within the falloff radius (more or less, depending on their distance from the original selection) and moves/distorts them on a vertex level. When the Falloff Mode is set to Surface, the falloff is based on a circular region that conforms to the contours of the surface. Surface mode is useful when you want the Soft Selection falloff to conform to a surface. For example, you can separate the upper lip from the bottom lip on a characters face using the surface-based falloff mode.

**Global soft selection**
This selects all the objects within the falloff radius (more or less, depending on their distance from the original selection) and changes not only their location but their structure on a vertex basis.

**Object soft selection**
Object soft selection does the same as global, but this time doesn’t change their structure. Each object looks the same as it did before, just their locations change.
Finally ...
After using Soft Select, then going to something else, you’ll find when you come back that it’ll still be active. It’s a good idea to turn off Soft Select once you’re done with it.

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