Dissolves are similar to merges, but are performed automatically when we select them from the **Delete** popup menu that appears when we press **X**.

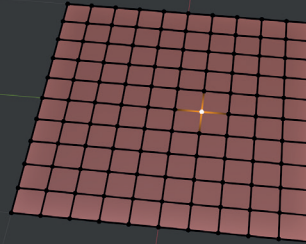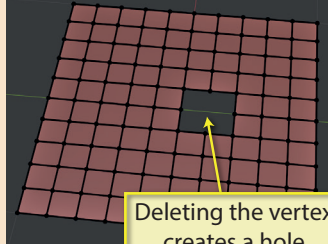We have the option to dissolve vertices, edges or faces.

Delete

Vertices
Edges
Faces
Only Edges & Faces
Only Faces

Dissolve Vertices
Dissolve Edges
Dissolve Faces

Limited Dissolve

Collapse Edges & Faces
Edge Loops

In a normal delete operation, deleting an element such as a vertex, will change the shape of a mesh in some way...
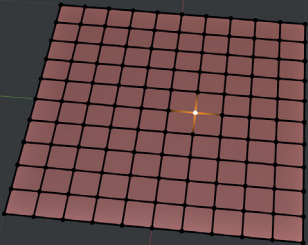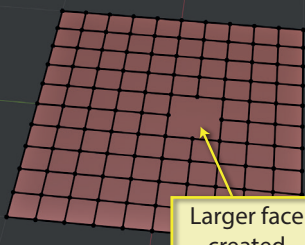
Initial Selection

X
Vertices

Deleting the vertex creates a hole

...but when we dissolve a vertex, Blender adjusts the mesh in such a way that it will retain its original shape if possible. In the example below a larger n-gon face is created.
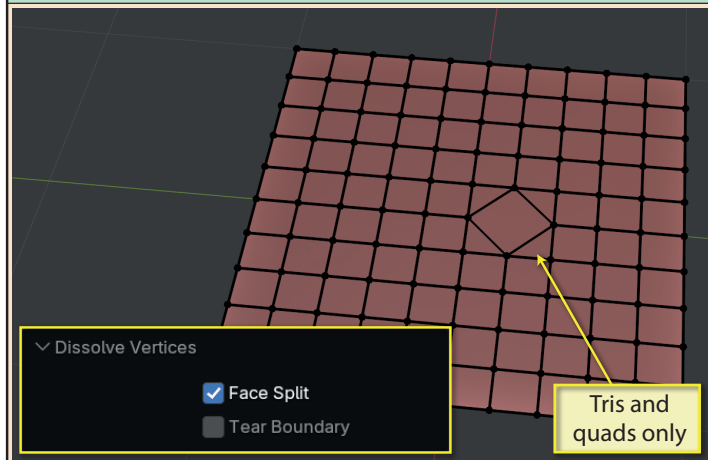
Initial Selection

X
Dissolve Vertices

Larger face created

In the *Last Op* panel, the **Face Split** checkbox, when selected, ensures that only tris or quads are created by the dissolve.

∨ Dissolve Vertices
☑ Face Split
☐ Tear Boundary

Tris and quads only

Tear Boundary is only relevant if the at least one of the vertices being dissolved is on a boundary of the mesh. Normally, dissolving a vertex at this location creates a face as expected, but with **Tear Boundary** selected, we get a "tear" in the outer edge of the mesh.

∨ Dissolve Vertices
☐ Face Split
☐ Tear Boundary

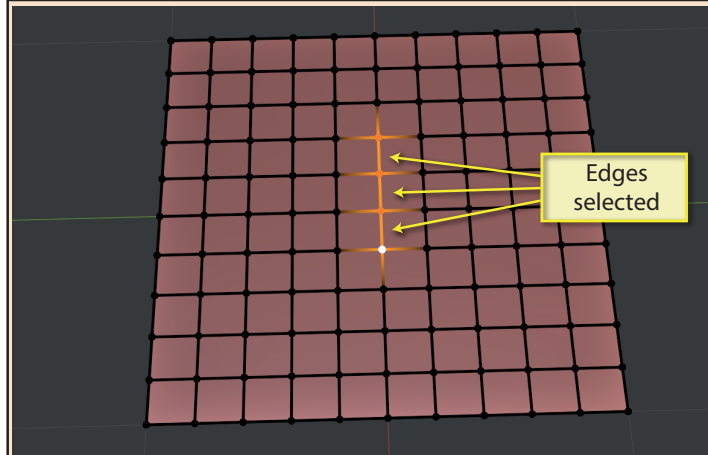Standard face

∨ Dissolve Vertices
☐ Face Split
☑ Tear Boundary

Tear in boundary

Dissolve Edges is the next option in the popup list. To demonstrate how this works, we'll stay in *Vertex Select* mode and select our edges by selecting the vertices at either end of those edges.
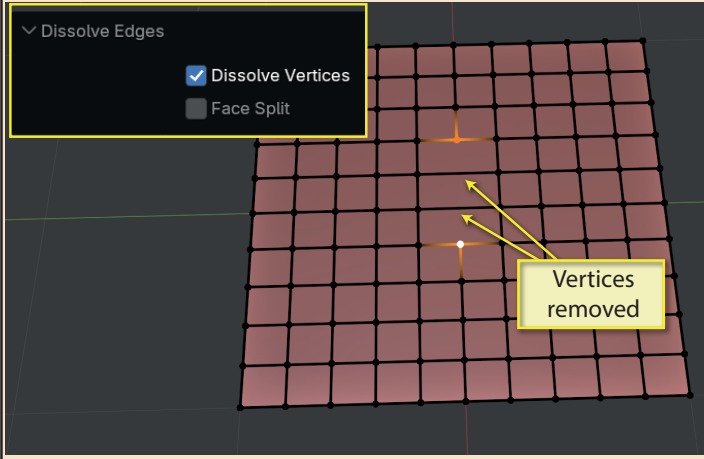
Edges selected

After executing the **Dissolve Edges** option we are left with unnecessary vertices.

X
Dissolve Edges

Unnecessary vertices
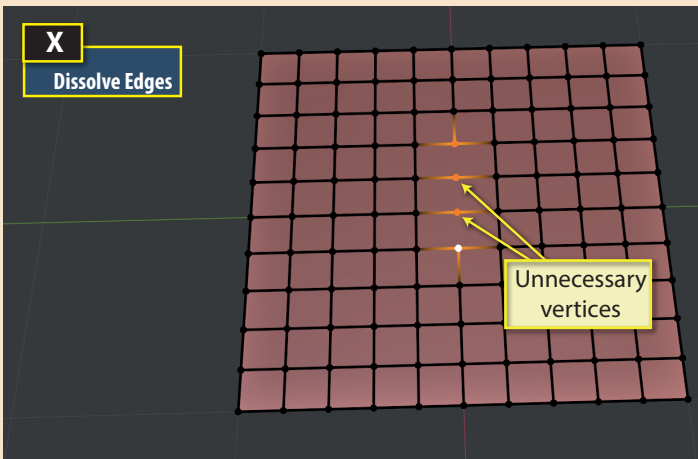
But the *Last Op* panel contains a **Dissolve Vertices**, checkbox, that, when used, will eliminate those vertices.

∨ Dissolve Edges
☑ Dissolve Vertices
☐ Face Split

Vertices removed

Dissolve Faces, merges the selected faces into a single n-gon. Of course, this assumes the selected faces are contiguous.

Initial Selection

X
Dissolve Faces
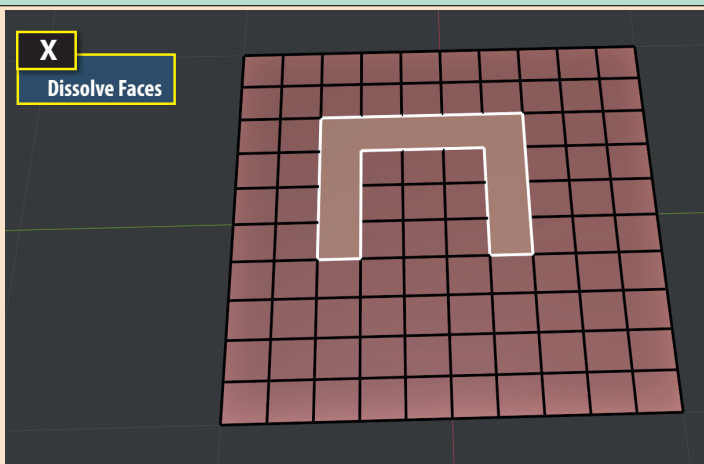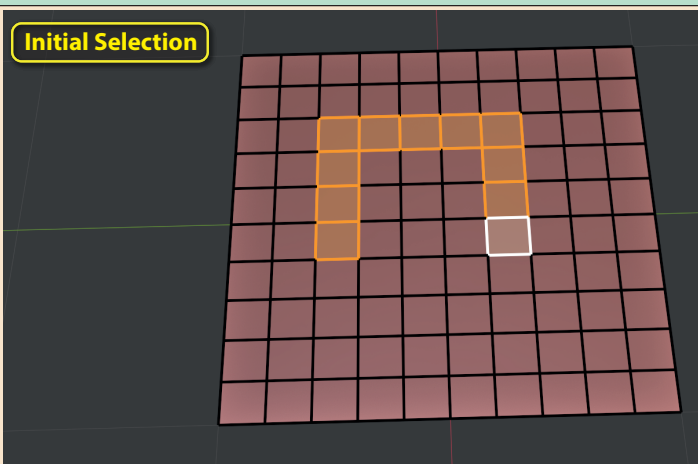
Dissolve Vertices in the *Last Op* panel, may adjust the shape of the newly created face.

∨ Dissolve Faces
☑ Dissolve Vertices
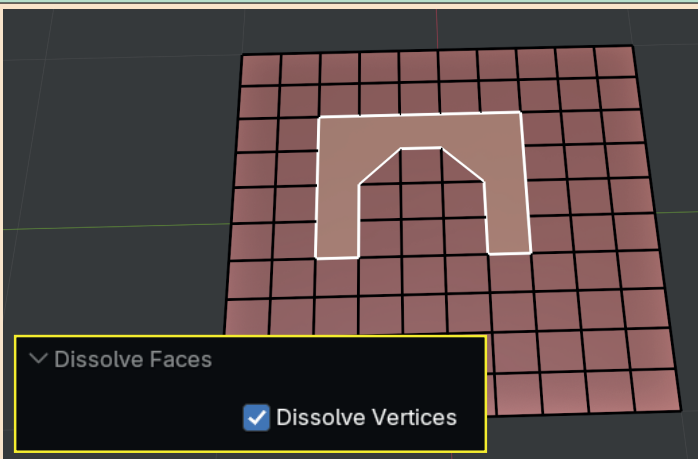
Pressing **F** once our initial set of faces has been selected is an alternative way of dissolving the faces, but this time, there is no *Last Op* panel.

Initial Selection

F   Fill as a single face

Blender Basics: Edit Mode
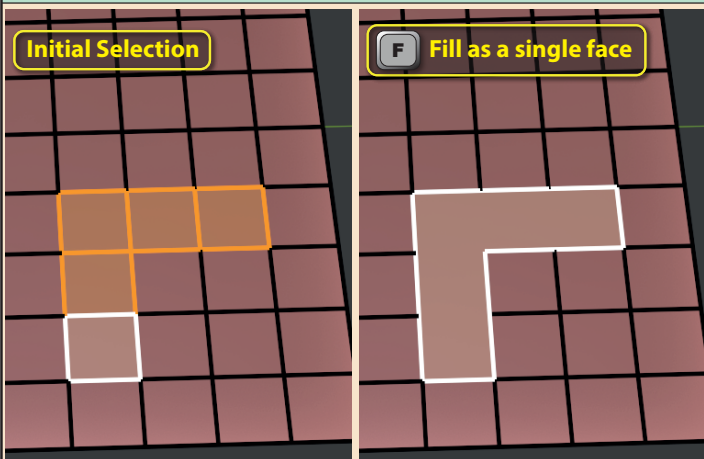
Another, even more powerful way of executing a dissolve is to press **Ctrl X**. Blender will perform a vertex, edge or face dissolve depending on the current select mode. For example, below, we can see the result of pressing **Ctrl X** when in *Edge Select* mode.
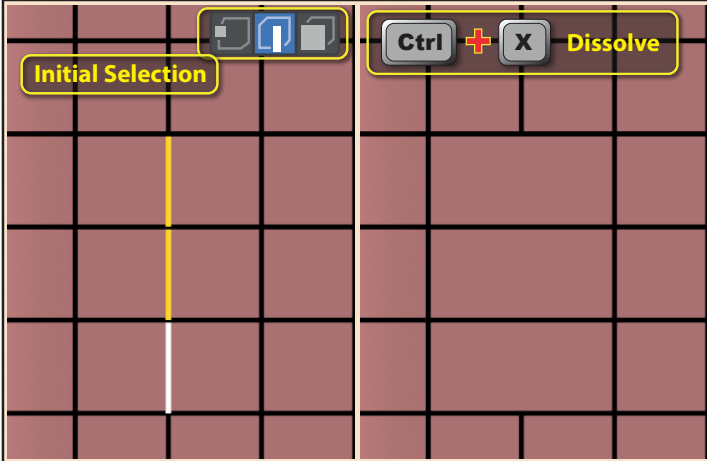
When we use **Ctrl X**, the *Last Op* panel shows all of the options from the individual dissolve operations.


Returning to the popup menu created by pressing **X**, the next entry is **Limited Dissolve**. This option dissolves faces that lie on the same plane. In the example below, we start with a Cube whose faces have been subdivide four times and one of the resulting faces moved outward. The additional faces on the other sides of the Cube are unnecessary, and are eliminated by the **Limited Dissolve** command.
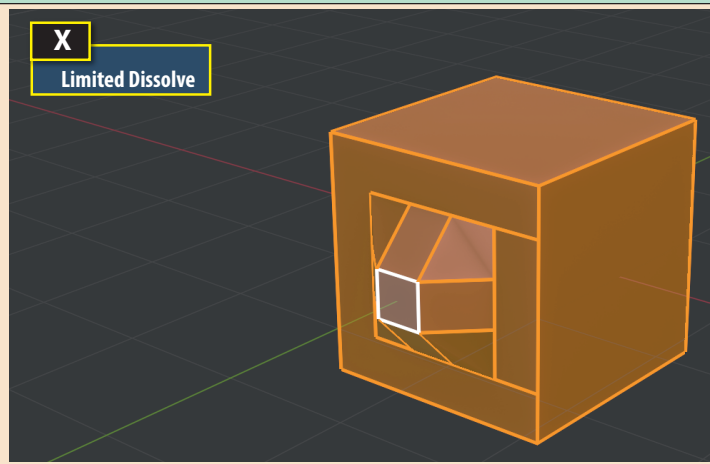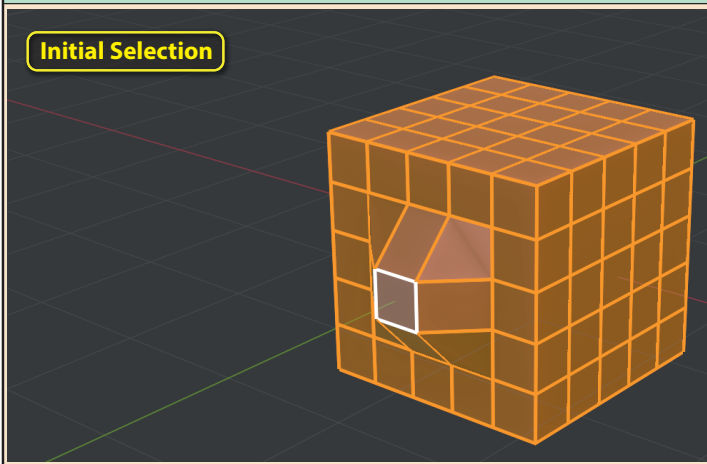

The *Last Op* panel for this command has several parameters.
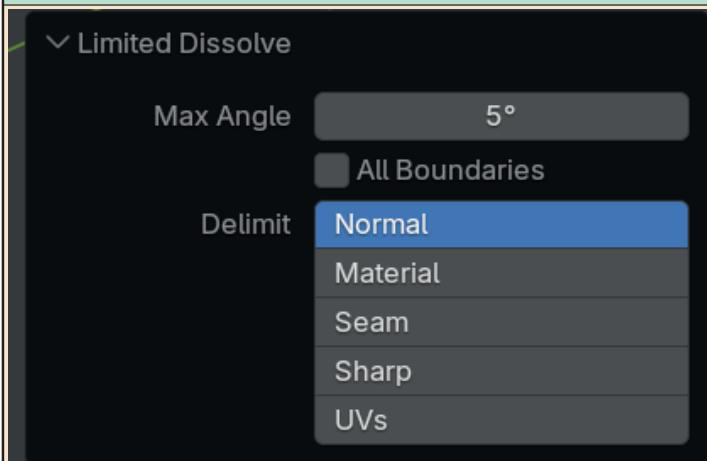
To explain the **Max Angle** parameter, we'll begin by executing *Limited Dissolve* on a UVsphere with 100 Segments and 16 rings.
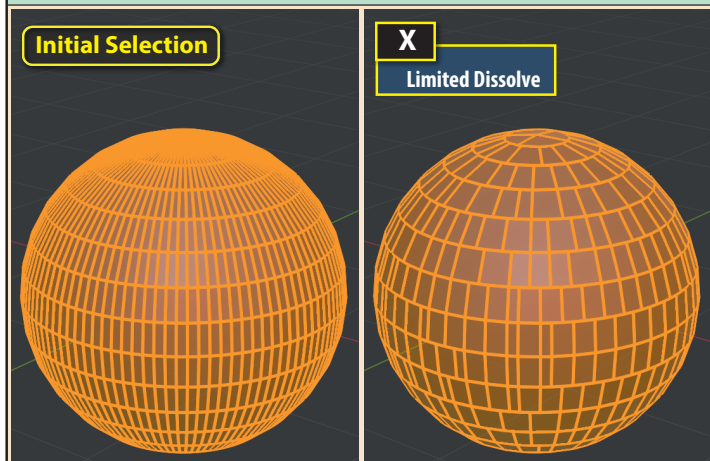
As we can see, some of the faces have merged even though no two of the original faces lay on the same plane. **Max Angle** specifies the maximum angle between faces that can be merged. If we make this value larger, more faces will merge.
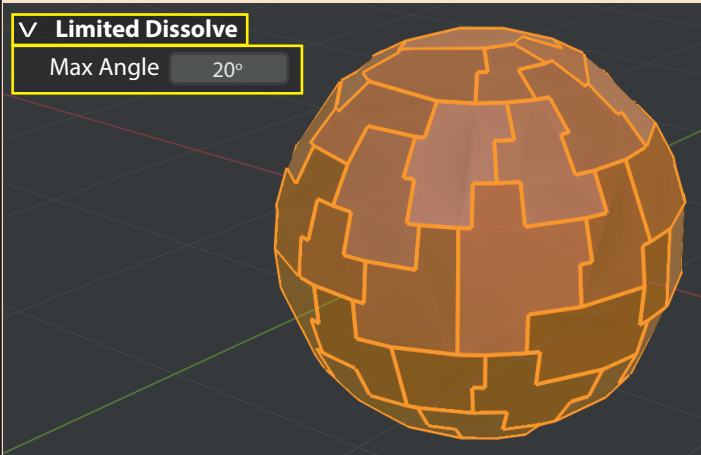

All Boundaries, when checked, ensures that adjacent faces share no more than one edge.
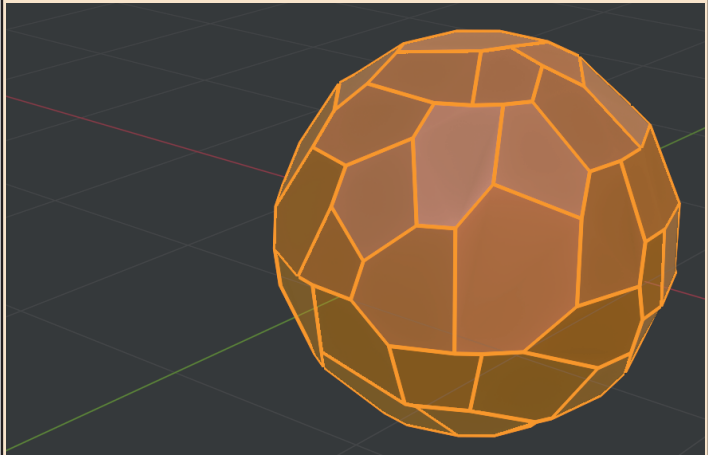

The **Delimit** options allow us to select restrictions on merging faces. For example, if **Material** is chosen, then faces that are assigned different materials cannot be merged.
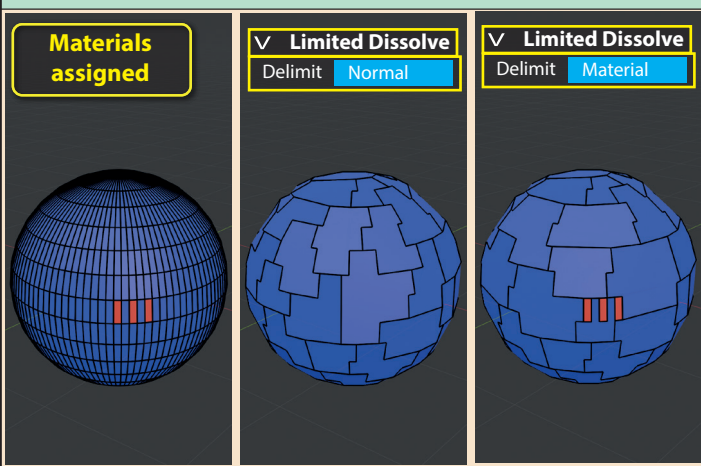
The next option in the Delete popup menu is **Collapse Edges and Faces**. This reduces the selected elements to a single vertex.
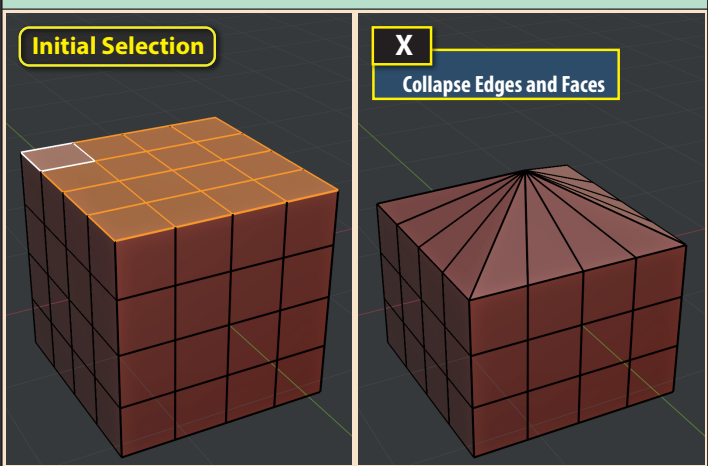
The final menu entry is **Edge Loops**. With a loop of edges selected, this option will dissolve those edges to merge the faces on either side of the selected edges.
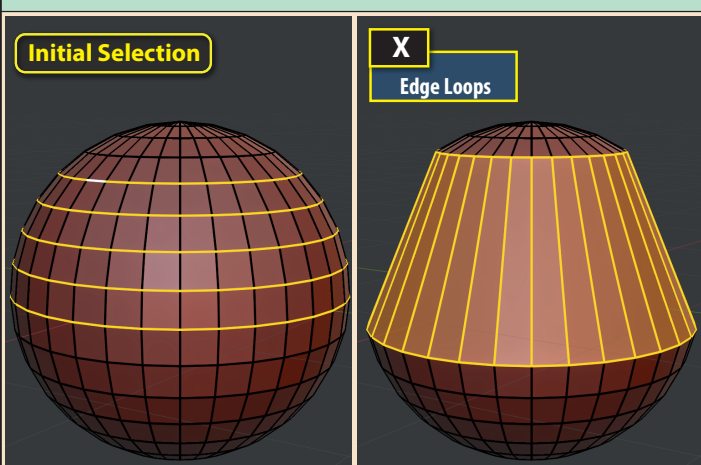
There is only one entry in the *Last Op* panel for the *Edge Loop* operation, **Face Split**, which, when selected, may edit face corners to eliminate n-gons.

Blender Basics: Edit Mode