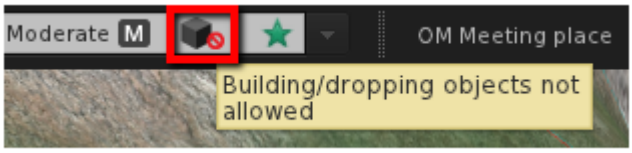
1. HOW TO BUILD OBJECTS

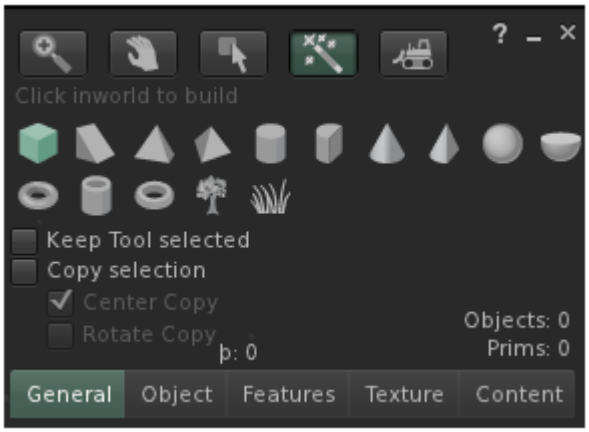
Getting started

You can create objects only on land that permits building. Land that prohibits object creation is marked Building/dropping not allowed: when you are on such a parcel, you will see an icon at the top of your screen as shown in the image below:



To begin building:

- Right-click the ground and choose Build to open the Build window. You can also press Ctrl+4 or Ctrl+B or select Build from the top menu on your Viewer.
- In the Build window, choose the type of basic shape (or primitive) you wish to create, then click the location inworld where you wish to build it.
- The shape appears (typically with a resounding "whoosh" sound).



Editing prims

Use the Build window to move, resize, rotate and otherwise manipulate inworld objects.

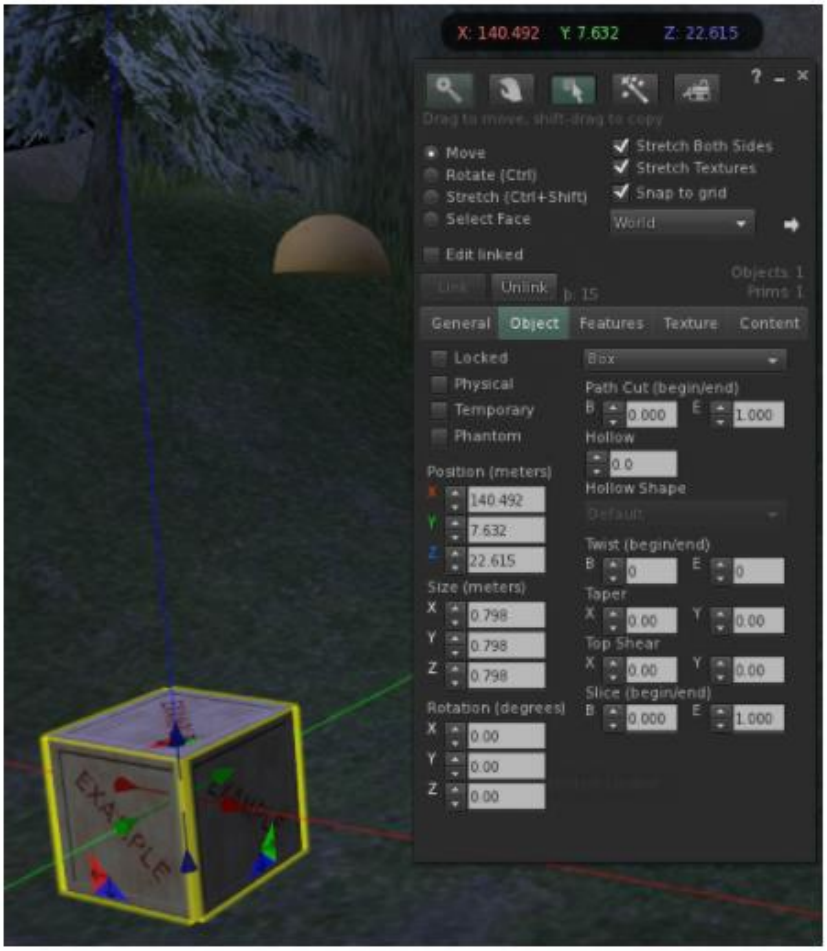
Tip: Checking Snap to grid in the Build window forces you to position objects on an arbitrary grid. This is helpful in making sure that objects line up correctly and are precisely spaced.

In the link that is written below there is a video that is about how do you create and object and rotate it:

https://community.secondlife.com/knowledgebase/english/build-tools-r12/#Section__1

Moving

- Right-click an object and select Edit. This opens the Build window to the Object tab.
- Choose Move to enable the Position function.
- Click and drag the red/green/blue axes on an object to move it around.
- Clicking on the red (X), green (Y), and blue (Z) arrows lets you drag the object only along those axes.



Rotating

- Right-clilck an object and select Edit.
- Choose Rotate in the Build window to bring up the rotation sphere.
- Click and drag anywhere within the sphere to rotate the object freely along all three axes.
- Click and drag a specific ring (red/green/blue) to rotate the object only around that axis.

Resizing

- Right-clilck an object and select Edit.
- Choose Stretch from the Build window to bring up the sizing box.
- Click and drag one of the white corner boxes to scale the entire object proportionally.
- Click and drag a red, green or blue box to re-size a prim's length, width or height (respectively) without changing the other dimensions.

If the Stretch Both Sides option is checked, the object's opposite corner moves in the opposite direction. If Stretch Both Sides is unchecked, the opposite corner remains in place.

If the Stretch Textures option is checked, the object's textures are proportionally resized together with the object. If unchecked, the textures retain their original size. This means that if you are increasing the object's size, the textures repeat rather than stretching to fill the additional area. If you are downsizing, you will see only as much of the original texture as fits on the smaller object.

Entering specific values

Under the Object tab (shown above), enter specific X, Y, and Z coordinates to move, re-size, or rotate the object. Changes to these values are always based on the center of the object (the point where the red, green and blue axes meet).

Advanced edits

The Object tab offers several additional options for editing basic prim shapes. Here are some common examples:

- **Path Cut (begin/end):** Takes out a slice of the object along its Z axis. You can specify where the cut starts and ends.

- **Hollow:** Puts a hollow center in the object starting from the center of the shape and expanding out. You can specify what percentage of the radius is hollow.
- **Twist (begin/end):** Puts twists into the object, warping its shape as well as texture alignment.
- **Taper:** Reduces the size of the top or bottom sides (x or y axes, negative or positive) of the prim.
- **Top Shear:** Shifts (shears/skews) the top surface of the object away from the bottom. You can shift the X and Y axes separately.
- **Dimple (begin/end):** Cuts a hole in a sphere from ring of latitude (you specify the percentage) to the top or bottom of the Z axis. The dimple cuts straight to the origin of the object (leaving a cone-shaped hole).

Three useful features

You may find the following features useful as you build and move objects:

Show Hidden Selection - Choose **Build > Options > Show Hidden Selection** to see the hidden contours and planes of a selected object.

Show Light Radius for Selection - This feature shows the range of illumination for a lighted object. To use it:

- Right-click the desired object and select Edit > Features.
- Select the checkbox next to Light.The object is now a light source.
- Choose Build > Options > Show Light Radius for Selection to see how far the emitted light from the object travels.
- To adjust the distance of the object's emitted light, right-click it, select Edit > Features, and click the up and down arrows to increase or decrease the Radius.

Show Selection Beam - The selection beam is the line of particles you see when you are pointing at and manipulating objects. The feature is on by default, but if you think it gets in the way, you can disable it: Choose Build > Options and uncheck Show Selection Beam.

Using Shift-drag to copy objects

You can Shift -drag to copy an object you have permission to copy. This isn't obviously stated in the build tools but is a popular way to copy objects. Here's a simple example:

- Right-click the ground and choose Build.
- Click the ground again to rez a generic cube.
- Right-click the cube and choose Edit. The positioning arrows appear.
- Hold down Shift , left-click one of the arrow heads, and drag the object. You're dragging the original, and a copy is left behind at the original location.

Tip: If you use Build > Undo (Ctrl+Z) after Shift -dragging an object, the original snaps back to its original position — a creative use of selective Undo. You can do this to align it another way.

Using the Copy selection feature

Copy selection allows you to duplicate selected prims and align them adjacent to each other. For example, if you're copying sections of a wall and Shift -dragging to copy is proving tricky to fine-tune, you may want to take advantage of this alternative.

To understand how this works, let's use a simple example:

- Right-click the ground and choose Build.
- Click the ground again to rez a generic cube.
- From the Build Tools window, select Create.
- Check Keep Tool selected so we can do the following steps repeatedly.
- Click the Copy selection checkbox. For now, check Center Copy and uncheck Rotate Copy.
- Now, click on the faces of the cube. Each time you do so, the cube is duplicated, aligned edge-to-edge with a previous cube.

Here's what the options do:

- **Center Copy** - Copies are centered on the target object, which is useful for neat building in-a-line where you want objects to be aligned along an axis. Otherwise, objects will be placed edge-to-edge, but may be

staggered or askew. Note that with curved prims like spheres, this means one of the copy's edges is touching the source, but isn't interpenetrating (overlapping).

- **Rotate Copy -** Copies rotate to match the target object, instead of the original values the source object has. This can make it easier to line up something that's already at an angle, such as a house's slanted roof.

Using the Content tab

If you have permission to modify an object, you ca use the Content tab to::

- Drag any objects from your Inventory into the Content folder.
- Copy or move the contents of an object to your Inventory.
- Permanently delete objects from the Content folder.

To add inventory to the object Content folder:

Right-click on the object inworld and choose Open from the pie menu. Use one of the following options:

- Open your Inventory and drag the contents to your Inventory window.
- Click Copy to Inventory.
- Click Copy and Wear.

Note: If the contents have copy permissions, a copy is placed in your Inventory. If an object is (no copy), the object will leave the Contents folder and move to your Inventory.

- Select one or more objects (Ctrl-select more than one object), right-click and select Delete (or press the Delete key on your keyboard) to remove objects without placing them in your Inventory.

Important: Objects that are not rezzed, but are instead deleted from a Content folder do not go to your Inventory Trash folder! They are permanently deleted. If the object is (no copy), be aware it will be gone if you select it and press the Delete key!

Note: Unlike your own inventory, an object's inventory cannot have two items with the same name. If you copy an item with the same name as an existing item into the object's inventory, the new object will be renamed; e.g. object, object 1, object 2 etc.

Linking objects

You can link several primitives (prims) together to create one cohesive object. A linked object is, for all intents and purposes, considered one object. It has one name, acts as one object (for example, if physics are enabled on it), and it cannot be broken apart unless you Unlink it. However, a linked object still counts as the sum of its prims when determining your land's object limits.

One prim of the object is considered the parent or root link. The name of the parent link is the name of the whole linked object. The inventory of the root prim is, for most purposes, the inventory of the whole object. The center (or origin) of the root prim is the center of the whole object, even if the root prim is not the physical center of the object itself. Vehicle scripts look at the root prim's orientation to determine the "front" of the vehicle. As a result, it is important which prim you select as the root prim.

Linking

Follow these steps to link together two or more prims:

- If you are not in the object Editor already, right-click any object and choose Edit, or open the Editor with Ctrl-3.
- With no object selected in the editor, hold down Shift and click on each prim you wish to link together, one at a time. Make the most important prim and/or scripted prim (root) the last one you select (such as the seat of a vehicle).
- Then, go to the Tools menu and select Link, or just press Ctrl-L.
- You can select Tools->Unlink or press Ctrl-Shift-L to break the object apart.

Be aware of the following limitations:

- A linked object cannot exceed 54 meters in any dimension.
- Normally a linkset can have up to 256 prims; sitting avatars count as one prim each.
- Vehicles, or any physics-enabled object, cannot have more than 32 prims (sitting avatars don't count toward the physical prim limit).

- There is no nesting of linked groups. In other words, if you link a third object to two objects already linked and then unlink them it will not yield two groups but three.

The Undo Feature

Second Life's Undo is used to revert certain changes to an earlier state. While selecting an object, use Build > Undo, or the much quicker keyboard shortcut of Ctrl-Z.

You can watch the second video in that link:

https://community.secondlife.com/knowledgebase/english/build-tools-r12/#Section__1

Limitations

Undo doesn't work if you have:

- Changed any of the texture settings on an object. (It won't switch back to the previous setting.)
- Deleted an object. (It won't bring it back inworld.)
- Added contents to an object. (If you drag a no-copy object from inventory into another object's contents, selecting Undo won't take it out.)

This isn't all-inclusive; Undo generally doesn't work for most of an object's parameters.

What does undo work on?

Undo primarily reverts changes made to the position, size, and rotation of an object. For example, if you accidentally move a sofa inside a wall, undo snaps it back to where it was last.

As shown in the video in the link, Undo can help you retrieve objects lost in walls.

If you change the position, size, or rotation of an object using the numerical entry fields in the Build window's Object tab, you must click the object again to bring into focus and make Undo work.

You can also use Undo when writing notecards or editing scripts; in this context, it functions similarly to a word processor's, and untypes what you last entered.

Undo should also work on attachments.

Please note that:

- Each object has its own independent "chain" of undos which remembers multiple steps.
- Since this data is stored on our servers, you should be able revert changes to objects inworld even after relogging.
- Remember that you must specifically select an object to undo changes to that object. (You'll see the positioning arrows and a yellow silhouette glow.)

You can watch these videos for the information about how do you create the objects?

https://www.youtube.com/watch?v=nvWave3eD60

https://www.youtube.com/watch?v=ktxiZ2ZUDq0

Also you can find more detail information about SL:

https://community.secondlife.com/knowledgebase/english/

2. SCRIPTING OBJECT BEHAVIOR

How to make an object do something

Linden Scripting Language, also referred to as LSL, is a programming language that allows you to add interactive behavior to any object in Second Life. For example, you can make fire, rain, or snow with particles, doors that open when you click them, lights that move or flash different colors — you can even create an entire game. Learning how to write scripts opens up countless creative possibilities, enabling you to bring your objects to life and make them interactive.

A script is a list of instructions that are to be executed in the order they are written. Since these instructions are performed by a computer, they must be written in a specific format and grammar (called a syntax). Learning a scripting or programming language for the first time can be a daunting task; however, if you've used other programming or scripting languages, you should be able to grasp LSL quickly.

How to make a temporary object

Temporary objects are automatically deleted after a short time. This is great for any short-term object you don't intend to keep. Examples include bullets from guns, physics experiments, or test scripts that involve motion or might otherwise get away from you. To make an object temporary:

- Right-click the object and choose Edit. Or press Ctrl-3 and click on the object.
- Open the Object tab. Click More if you don't see it.
- Select the checkbox next to Temporary.

Note: Temporary objects don't count toward your land object or prim limits.

Where to find scripting help

See our LSL (Linden Scripting Language) Portal, which contains links to helpful resources, including the Resident-run LSL Wiki.

The LSL Wiki is being actively expanded by Residents as a repository for scripting documentation, since any Resident can edit the Second Life Wiki. So if you've got help to give, you're welcome to share your knowledge.

Also, see the Scripting and Scripting Library forums (there are Scripting Tips and Scripting Library archives too, for contributions before February 2010).

Be sure to check the Event Calendar inworld for scripting classes hosted by knowledgeable Residents!

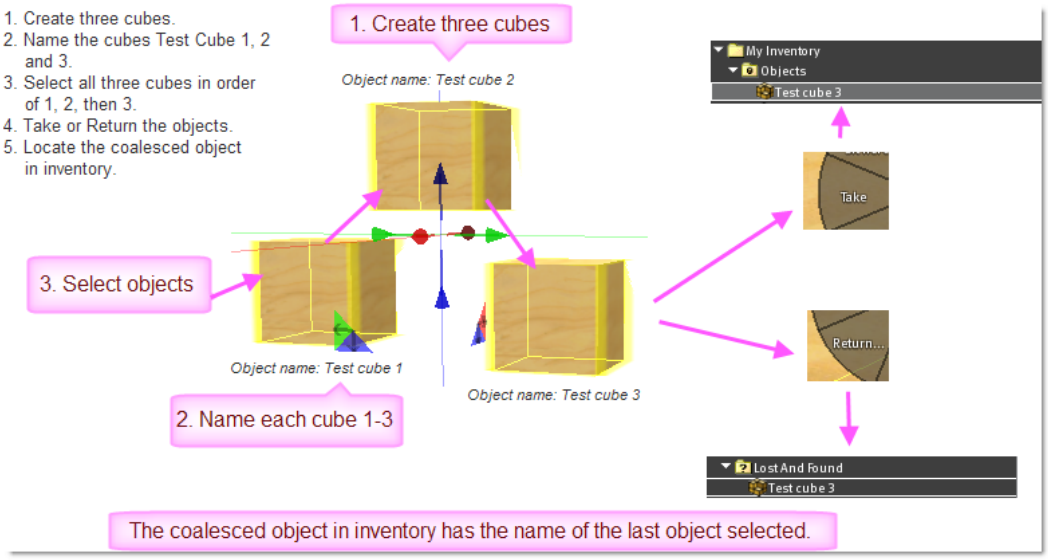
https://community.secondlife.com/knowledgebase/english/scripting-object-behavior-r62/

3. BUILDING TIPS

The coalesce feature

A coalesced object is a combination of objects taken or returned into inventory together. If you select multiple objects and choose Take from the object menu, they'll be taken into your inventory as a coalesced object

Try this experiment to locate your coalesced object in My Inventory:



As this experiment shows, coalesced objects are found in My Inventory with the name of the last object selected. When the selected objects are taken into inventory, the coalesced object is located in the Objects folder. When they are returned, the coalesced object is located in the Lost And Found folder.

Note: Single objects in inventory have an icon that looks like a cube, while coalesced groups of objects have an icon that looks like a stack of cubes.

Coalesced object relationships

When an object is placed inworld, it has coordinates that identify its location on the grid. These XYZ coordinates are relative to the region the object is placed in. When more than one object is taken or returned into a coalesced object and then rezzed at a new location, each object shows different XYZ values relative to the new location, however the objects maintain their spatial relationship to each other.

You can watch the first video in the link below:

https://community.secondlife.com/knowledgebase/english/building-tips-r13/

Now that you see how objects maintain their relationships to each other, you can use this information when creating a coalesced object on a large parcel and rezzing that object on a smaller parcel. Since the objects maintain their relative positions, you will need enough square meters of land to rez the coalesced object again.

Caveats about coalesced objects

- Rezzing a coalesced object near a parcel/region boundary may result in objects being returned to inventory.
- Coalesced objects have prim limits because the time required to rez them can exceed the capacities of Second Life's servers, causing problems when Residents attempt to take complex coalesced objects into inventory. To rez an object that exceeds the prim limit, create a support ticket requesting that the object be broken into a set of smaller objects.
- Parcel owners can rez Linden trees. When using the Click-Drag-Select method for your content, make sure the selection area does not contain Linden trees unless you are planning to rez the coalesced object on a parcel that you own. Take the same precautions when using Shift-Select.
- Selecting moving objects can cause those objects to go offworld when you rez the coalesced object. Either take those objects into inventory separately, or, if you want to turn off all scripts in all of the selected objects, go to Build > Scripts > Set Scripts to Not Running.

You can watch the second and third videos in the link below:

https://community.secondlife.com/knowledgebase/english/building-tips-r13/

Warning: If your coalesced object contains one or more no-copy objects and is rezzed across the boundary of a parcel where building isn't allowed, the content will not return to your inventory, resulting in content loss.

Warning: A maximum of 1000 scripts can be rezzed at once! If you are creating a coalesced object with many scripts, try creating objects in sections that contain scripts so that you will be able to rez those objects again. If you have valuable content, take those items into inventory before taking or returning your other items.

Troubleshooting selecting objects

Right-clicking an object and choosing Edit selects the object, opening a floating window with many editing options. Alternatively, in Edit mode, you can drag

and draw a selection rectangle over multiple objects. If both of these fail to make object outlines appear (indicating they have been selected), then try the steps below.

Go to Build > Options.

- Uncheck Select Only My Objects if you're trying to select objects owned by another Resident. This includes a friend who's given you permission to edit their objects.
- Uncheck Select Only Movable Objects if you're trying to select an object you can't move. This is generally determined by Allow anyone to move in the General tab of the build tools, but also applies to group-deeded objects and objects a friend has allowed you to edit.
- Uncheck Select By Surrounding if you have a hard time using the selection rectangle to select objects.
- Re-select the desired objects.

Building with other Residents

There are a few ways to allow friends to edit your objects in Second Life. This is often referred to as collaborative building or collaborative creation. It's a useful way to let groups of people work together on a building project.

The group method

- Right-click the object and choose Edit to bring up the object editor.
- Click on the General tab in the editor.
- Click on the Edit Wrench to the right of Group and assign the object to the group you and your friend are in.
- Select the checkbox below.

Note: If you want other group members to be able to take copies of your object, you should make sure to set the next owner permissions (Modify, Copy, Transfer) appropriately.

Note: Any other group members will also be able to edit the object. Group members can only edit objects that are shared with the group, according to their Group Role permissions.

You can watch the fifth video:

https://community.secondlife.com/knowledgebase/english/building-tips-r13/

The friend method

- Open your friends list by clicking Communicate > Friends.
- View your friend's profile by clicking the View profile icon on the far right by his or her name.
- Click the Gear button on the upper right of the profile window that appears and select Permissions from the dropdown.
- Select the Edit, delete or take my objects checkbox.
- Click Save.

Important: This gives your friend the ability to edit all of your objects.

Making sure you are shown as the creator of an object

It sometimes happens that a skin or shape you've modified and prepared to sell still lists someone else as the creator. (To view the item's creator, right-click it in Inventory and select Object Profile.) This tends to happen if you use one of our system default avatar templates in your Inventory's Library > Clothing folder.

If the item is fully permissive, then there are no functional restrictions: you can modify and sell it. For the sake of consistency, you may still prefer to have your name listed as its creator.

To make sure your name is listed as the creator of an object:

- Click the Inventory icon on the toolbar.
- Click the + button at the bottom. You'll see you can make new item types like scripts, notecards, gestures, clothes, and body parts. All of these will list you as creator. Try it and see!

While you cannot change the creator of an item, you can copy a modifiable item's settings to another item that lists you as creator. For example, a body shape consists of numerous slider settings, so you can reproduce the shape by using the same slider settings.

Important: Respect intellectual property! Don't use the technique above to infringe on someone else's copyright.

All objects you originally rez inworld are created in your name. If you link multiple objects together to form a linkset (Build > Link), the last selected prim will be the visible creator when an object's properties are shown, although that doesn't tell the full story.

To show all prim creators in an object:

- Right-click the object.
- Click Object Profile. The INVENTORY window opens.
- Click the Details button at the bottom of the window.

You can find more information about building in SL in the link below:

https://community.secondlife.com/search/?type=cms_records3&tags=building&nodes=30&search_and_or=or