CD Transfer Tools v1.0 For Cinema 4D 9.6+

CD Transfer Tools is a workflow plugin, consisting of a set of commands and tags, which makes transferring objects around in the scene much easier. The transfer commands allow you to select an object and then a target and use the command to transfer the object to the target. The options for each command are stored in the plugin's preferences so that you can use the commands as single click solutions when you have several of the same type of transfers to make.

The components of CD Transfer Tools are:

Command Tools: Tags:
    CD Transfer   CD Transfer Selected
    CD Transfer Mirror   CD Zero Transformation
    CD Transfer Replace
    CD Transfer Swap
    CD Transfer Align
    CD Transfer Axes
    CD Transfer Animation
    CD Transfer Links
    CD Transfer User Data
    CD Freeze Transformation
    CD Coordinates Manager
    CD Select All Same
    CD Add Transfer Selected
    CD Add Zero Transformation
    CD Return Zero Home
    CD Link Objects
    CD Unlink Objects
    CD Zero Global Rotation
    CD Zero Local Rotation

Selecting Objects in Order

CD Transfer Tools keeps track of the order in which objects are selected when selecting more than one object. This works best when shift selecting the objects one at a time in the viewport. If you drag a selection around a group of objects so that several objects are selected at once, then the order will be determined by the order in which the objects appear in the Object Manager. Remember that in R10 and above, when selecting multiple objects in the Object Manager, you must control select the objects.

Command Tools
The command tools are designed to perform various transfer functions with a single click.

Some of the commands require you to select a certain number of objects before calling the command, while others allow you to select multiple objects. Most of the commands have options dialogs which you can access by holding down the control key while calling the command. Some of the commands may also have modifier keys to perform special transfers. A few of the commands may not show up in the CD Transfer Tools menu, if you also have CD Joints & Skin and CD IK Tools installed, and will show up in the other plugins' menus. The commands that are duplicates from other plugins are so noted below.

CD Transfer

This command transfers an object's position, scale and/or rotation to a target object or group of objects. It can also transfer an object to a selected component of an editable target object in any of the edit modes (Point, Edge and Polygon modes). To use the command you select the object that will be transferred, then shift select the target object or group of objects, as described above in the section **Selecting Objects in Order**, and then click on the command. If the object is editable and the Axis tool is selected, then the command only transfers the object's axis to the target object. When in any of the edit modes, and only one editable object is selected, the command can transfer the object's axis to selected components of the object. Holding the **shift key** down allows you to perform hierarchal transfers without altering the positions of the unselected objects in the hierarchy, as in transferring a parent object to a selected child object or group of child objects. Holding the **option key** down (Alt key on Windows) in any of the edit modes allows you to transfer the axis of an editable object to the selected components of the target object.

Options Dialog
In the *Group Transfer* section, the *First To Group* option transfers the first selected object to the center of the rest of the group and the *Group To Last* option transfers all of the selected objects to the last selected object. In the *Transfer* section, the *Enable Position* option performs a position transfer according to which of the *X*, *Y* and *Z* options are enabled. The *Enable Scale* performs a scale transfer and the *Enable Rotation* performs a rotation transfer. The *Normal Axis* option determines which axis of the object will be aligned to the target object's selected component's surface normal when performing Edit mode transfers. You can choose to align the *X*, *Y* or *Z* axes. In the *Auto Key* section, if **Auto Key** mode is enabled in the **Timeline**, then enabling the *Enable Auto Keyframing* option will allow PSR keys to be set automatically when the transfer is made, according to which of the position, scale and rotation options are enabled in the **Timeline** and in the **CD Transfer** options dialog. The Keep Current Selection will keep both the transferred object and the target object selected after the transfer has been made and keys have been set.

CD Transfer Mirror

This command will transfer an object to a mirrored location of a target object. To use the command you select the object that will be transferred, then shift select the target object, as described above in the section **Selecting Objects in Order**, and then click on the command. If you only

select one object, then the command will transfer that object to a mirrored location of itself. This command will not function if more than two objects are selected. If the object is editable and the Axis tool is selected, then the command only transfers the object's axis to the mirrored location of the target object. Holding the **shift key** down allows you to perform hierarchal transfers without altering the positions of the unselected objects in the hierarchy, as in transferring a parent object to a selected child object.

Options Dialog

In the *Mirror* section, you set the parameters that determine the mirrored location of the target object. You can choose between *Global Axis* and *Local Axis* and across which axis to mirror: *X Axis*, *Y Axis* or *Z Axis*. Choosing *Global Axis* will mirror the object according to world coordinate space, while choosing *Local Axis* will mirror the object according to the target object's local coordinate space. In the *Transfer* section, the *Enable Position* option performs a position transfer according to which of the *X*, *Y* and *Z* options are enabled. The *Enable Scale* performs a scale transfer and the *Enable Rotation* performs a rotation transfer. *Include Children* will enable the mirroring of hierarchies. In the *Auto Key* section, if **Auto Key** mode is enabled in the **Timeline**, then enabling the *Enable Auto Keyframing* option will allow PSR keys to be set automatically when the transfer is made, according to which of the position, scale and rotation options are enabled in the **Timeline** and in the **CD Transfer Mirror** options dialog. The Keep Current Selection will keep both the transferred object and the target object selected after the transfer has been made and keys have been set.

CD Transfer Swap

This command will transfer two selected objects to each other's location. This command requires you to select two objects, otherwise it will not function. To use the command you select an object, then shift select another object, as described above in the section **Selecting Objects in Order**, and then click on the command. If the objects are editable and the Axis tool is selected, then the command only transfers the objects' axes to each other's location. Holding the **shift key** down allows you to perform hierarchal transfers without altering the positions of the unselected objects in the hierarchy, as in swapping between a parent object and a selected child object.

Options Dialog

In the *Swap* section, you set the parameters that determine the type of swap transfer that will be made. You can choose between *Global Axis* and *Local Axis*. Choosing *Global Axis* will transfer the objects according to world coordinate space, while choosing *Local Axis* will transfer the objects according to each object's local coordinate space. Enabling the *Clamp Swap Axis* allows you to clamp either the *X*, *Y* or *Z* axis, so that the command performs a mirror transfer instead of a swap transfer on the selected axis, while the other two remaining axes perform the normal swap transfer. For this option to function properly, you must
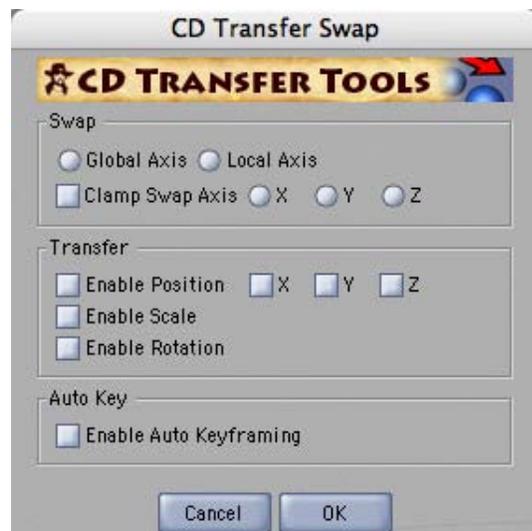
have all three position axes enabled in the *Transfer* section. In the *Transfer* section, the *Enable Position* option performs a position transfer according to which of the *X*, *Y* and *Z* options are enabled. The *Enable Scale* performs a scale transfer and the *Enable Rotation* performs a rotation transfer. In the *Auto Key* section, if **Auto Key** mode is enabled in the **Timeline**, then enabling the *Enable Auto Keyframing* option will allow PSR keys to be set automatically when the transfer is made, according to which of the position, scale and rotation options are enabled in the **Timeline** and in the **CD Transfer Swap** options dialog.

CD Transfer Replace

This command will replace an object or group of objects with another object. When replacing a group of objects, all of the objects in the group will be replaced by copies of the replacement object. To use the command you select the object that will be the replacement object, then shift select the target object or group of objects, as described above in the section **Selecting Objects in Order**, and then click on the command. If the target object has any rigging on it, such as User Data and expression tags, the rigging will be transferred to the replacement object. If the replacement object is editable and the Axis tool is selected, then the command only transfer's the object's axis to the target object's location. Holding the **shift key** down allows you to perform hierarchal transfers without altering the positions of the unselected objects in the hierarchy, but this only works if the replacement object is in a different hierarchy than the target hierarchy.

Options Dialog
In the *Replace* section, you can choose to replace a *Single Object* or replace *Multiple Objects*. In the *Transfer* section, the *Enable Position* option performs a position transfer according to which of the *X*, *Y* and *Z* options are enabled. The *Enable Scale* performs a scale transfer and the *Enable Rotation* performs a rotation transfer. *Use Target Name* will transfer the target's name to the replacement object.

CD Transfer Align

This command will align an object's axis to a target object or group of objects. It can also do a hierarchal alignment in that a parent object will align its axis to a child object. To use the command you select the object that will have its axis aligned, then shift select the target object or group of objects, as described above in the section **Selecting Objects in Order**, and then click on the command. When performing a hierarchal alignment, you only need to select the parent object. If the object is editable and the Axis tool is selected, then the command only aligns the object's axis to the target object. When in any of the edit modes, and only one editable object is selected, the command can align the object's axis to selected components of the object. Holding the **option key** down (Alt
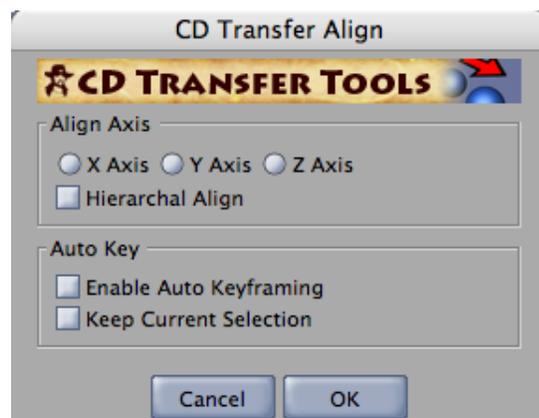
key on Windows) in any of the edit modes allows you to align the axis of an editable object to the selected components of the target object.

Options Dialog
In the *Align Axis* section you can choose which axis will be aligned to the target object: the *X Axis*, *Y Axis* or *Z Axis*. Enabling the Hierarchal Align allows you to perform a hierarchal alignment. In the *Auto Key* section, if **Auto Key** mode is enabled in the **Timeline**, then enabling the *Enable Auto Keyframing* option will allow PSR keys to be set automatically when the transfer is made, according to which of the position, scale and rotation options are enabled in the **Timeline**. The Keep Current Selection will keep both the transferred object and the target object selected after the transfer has been made and keys have been set.

CD Transfer Axes

This command will transfer one of the axes of a selected object or objects to another, while preserving the orientation of an editable object's geometry, for example transferring the Z axis to the Y axis. When the axis transfer is made, it will also realign the other remaining axes, so that each axis is perpendicular to the plane in which the other 2 axes reside. This command works on a single selected object, multiple selected objects or selected hierarchies of objects.
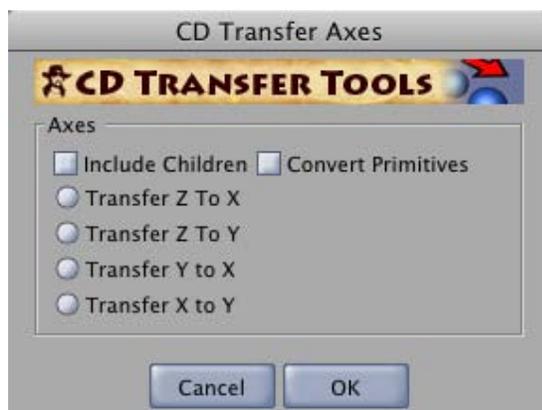
Options Dialog
The **CD Transfer Axes** command will always open an options dialog box to allow you to set the parameters of the transfer. Enabling *Include Children* allows you make hierarchal axes transfers. You need only to select the top most parent object to make hierarchal axes transfers. Enabling *Convert Primitives* will first make geometric primitive objects editable and then transfer the axes while preserving the orientation of the geometry. The *Transfer Z to X* option will transfer Z to X, X to Y and Y to Z. The *Transfer Z to Y* option will transfer Z to Y, Y to X and X to Z. The *Transfer Y to X* option will transfer Y to X and X to -Y, while the Z axis is preserved. The *Transfer X to Y* option will transfer the X to Y and the Y to -X, while the Z axis is preserved.

CD Transfer Animation

This command will transfer the animation tracks from one object to another, or from one hierarchy to another hierarchy. The animation tracks on the source objects will be preserved and will only be copied to the destination objects. Any existing animation tracks on the destination objects before the transfer will be deleted. When transferring animation tracks of a hierarchy of objects, if the 2 hierarchies are not identical you will get an alert dialog box warning you that the hierarchies are not identical. You can then choose to continue or cancel the operation. To use the command you select the source object or hierarchy of objects, then shift select the target object or hierarchy of objects, as described
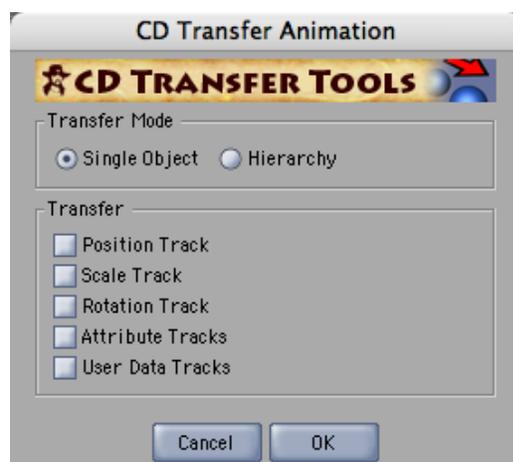
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above in the section **Selecting Objects in Order**, and then click on the command.

Options Dialog
In the *Transfer Mode* section you can choose whether to transfer the tracks of a single object or a hierarchy of objects. In the *Transfer* section you can select which animation tracks will be included in the transfer. The choices are *Position Track*, *Scale Track*, *Rotation Track*, *Attributes Tracks* and *User Data Tracks*. If the source and destination objects are not of the same type, then the attributes tracks will not transfer. If the User Data parameters of the sources object are not identical to the User Data parameters on the destination objects, you will get an alert dialog warning you that the User Data parameters are not identical. You can then choose to continue or cancel the operation.

CD Transfer User Data

This command will transfer the User Data from one object to another object or group of objects. The User Data on the source object will be preserved. Any existing User Data on the target objects before the transfer will be deleted. To use the command you select the source object, then shift select the target object, as described above in the section **Selecting Objects in Order**, and then click on the command.

Options Dialog
In the *Transfer* section you can choose whether to transfer the User Data of the source object to a *Single Object* or to *Multiple Objects*.

CD Transfer Links

This command will change all links pointing to one object, to point to another object. For example any expression tag that has a link to the first object will be changed to link to the second object. To use the command you select the source object, which will have its links transferred, then shift select the target object, as described above in the section **Selecting Objects in Order**, and then click on the command.

CD Freeze Transformation

This command will "freeze" (or normalize) the transformation of the selected objects. If you control click on the command, it will open up the options dialog where you can choose to freeze the *Position*, *Scale* or *Rotation* of the object. Freezing an object's position will move the axis to world 0,0,0 position. Freezing an object's scale will set the axis scale to 1,1,1. Freezing an object's rotation will set the objects axis rotation to 0,0,0. If the object is a polygon object, freezing the object will leave the geometry where it is and only change the object's axis according to which of the PSR options are

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enabled. You can also freeze primitive objects in the same way by enabling the *Convert Primitives* option, which will convert the primitive object to a polygon object. Otherwise a primitive's geometry will change according to how the axis is changed. The Include Children will also freeze all child objects of the selected objects. *NOTE: If you have the CD Joints & Skin plugin installed, this command will not appear in the CD Transfer Tools menu.*

CD Link Objects

This command will link objects by placing selected objects into another object's hierarchy. To use the command you shift select the objects in order, as described above in the section **Selecting Objects in Order**, selecting the parent object last, then click on the command. All of the objects will be placed as a child of the last selected object in the order they were selected, an below any existing child objects. If you hold the control key down when you click on the command, then the selected objects will be place above any existing child objects. If the objects are CD Joints, holding the shift key down will enable their *Connected to Parent* option. *NOTE: If you have the CD Joints & Skin plugin installed, this command will not appear in the CD Transfer Tools menu.*

CD Unlink Objects

This command will unlink objects by pulling the selected objects out of their parent object's hierarchy. To use the command you simply select the objects and click on the command. The object's will be pulled out of their parent's hierarchy and placed at the top in the Object Manager. If you hold the control key down and click on the command, the objects will be pulled out of their parent's hierarchy and placed at the bottom in the Object Manager. *NOTE: If you have the CD Joints & Skin plugin installed, this command will not appear in the CD Transfer Tools menu.*

CD Zero Global Rotation

This command sets the selected object's orientation to global zero. This is useful for objects, used as controllers, that are located inside or outside of the hierarchy. Holding the shift key down will reorient the selected object without changing it's child objects. This command will also work with multiple selections. *NOTE: If you have the CD IK Tools plugin installed, this command will not appear in the CD Transfer Tools menu.*

CD Zero Local Rotation

This command sets the selected object's orientation to local zero. This is useful for objects, used as controllers, that are located inside of the hierarchy. Holding the shift key down will reorient the selected object without changing it's child objects. This command will also work with multiple selections.

CD Select All Same

This command will select all of the same type of object or tag. To use the command you select a single object or tag and call the command. It will then select all of the same type of object or

tag in entire document.

CD Add Transfer Selected

This command will add a **CD Transfer Selected** tag to an object. To use the command you select the object that will receive the tag, then shift select the target object, as described above in the section **Selecting Objects in Order**, and then click on the command. The command will then add a **CD Transfer Selected** tag to the first object, and place the second object in the tag's link. If only one object is selected, then the command will simply add the CD Transfer Selected tag to that object.

CD Add Zero Transformation

This command will add a **CD Zero Transformation** tag to the selected object or objects. It will automatically zero out the *Zero Transformation* coordinates in the tag after the tag has been added to the object.

CD Return Zero Home

This command only works on the selected object or objects that have a **CD Zero Transformation** tag on them. It will return the object to the zero position and orientation as set by the tag's *Zero Transformation* coordinates.

CD Coordinates

This command is a manager and works the same as the standard Coordinates Manager, but it has a few additional options that make it a bit more versatile. It can be used as a replacement for the standard Coordinates Manager. The CD Coordinates manager allows you to work in real world units, and also allows you to scale the units to get the scene in a workable size for the view. In the **CD Coordinates** manager window, the *Unit* popup menu allows you to switch the unit type. When you switch the unit type all unit values in the value fields are recalculated and converted to the new unit type. The Scale Factor parameter sets the scale of the unit, according to the scale of 1mm. For example, 1mm = 1 would be full scale, 1mm = 0.5 would be half scale, 1mm = 2 would be double scale, and so on. There are input fields for *Position*, *Scale* and *Rotation* the same as the standard Coordinates Manager. The popup menu under the *Position* input fields allows you to choose between *Local*, *Global* or *Object+* modes. *Local* displays and sets the PSR of the object in local coordinate space. *Global* displays and sets the PSR of the object in global coordinate space. *Object+* displays and sets the PSR of the object in the object's coordinate space. The popup menu under the *Scale* input fields allows you to select how the scale/size of an object is displayed. *Scale* displays and sets the object's scale according to which mode is selected, as described above. *Size* displays and sets the object's geometry size according to the actual size in global coordinate space. *Size+*
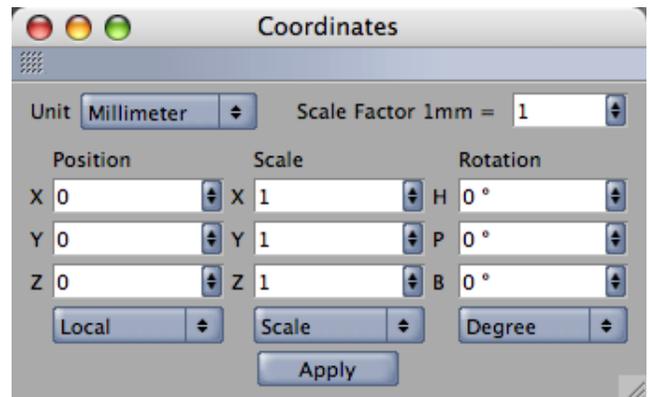
displays and sets the object's geometry size including all child objects. *Scale3* displays the scale of an object the same as *Scale*, but it sets the scale of the object proportionally on all three axes by inputting a value in only one of the axis fields. *Size3* displays the size of an object's geometry the same as *Size*, but it sets the size of the object proportionally on all three axes by inputting a value in only one of the axis fields. The popup menu under the Rotation input fields allows you to choose between displaying the objects rotation in *Degree* or *Radian*. The *Apply* button will set the object's PSR according to the values in the input fields.

Tags

CD Zero Transformation

This tag gives you a readout of a second set of transformation coordinates for T-position, T-scale and T-rotation. The *Zero Transformation* button allows you to zero out the transformation coordinates with the joint in an arbitrary orientation, so that the readouts will show the position, scale and rotations from that arbitrary orientation. *Return to Zero* will return the joint to the transformation coordinates' zero orientation. *Keep Local Zero Transformation* locks the zeroed out coordinates so that they can't be accidentally changed.
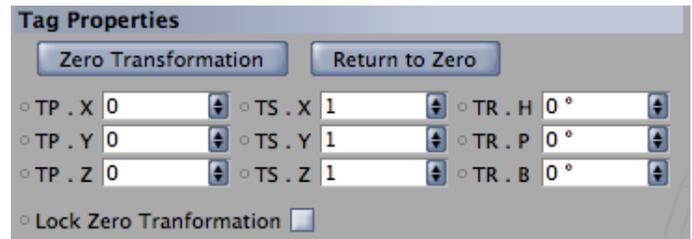
CD Transfer Selected

This tag will transfer the selection of an object to another object so that the other object is selected instead of the original selected object. It can also transfer the selection of an object to a tag so that the tag is selected instead of the object. The *Transfer On* parameter allows you to turn the selection transferring on and off. The *Target* link holds the object or tag to which the selection is transferred. If the *Target* link is empty and the *Transfer On* parameter is enabled, then the tag will simply deselect the object whenever it is selected. *Transfer to Button* allows the selection transfer to trigger a button of the target object or tag. The popup menu next to this option allows you to choose which button to trigger.