

Advantage FAQ

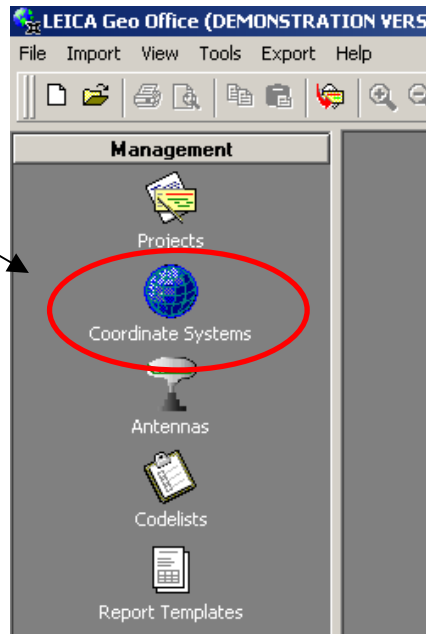
Question How do I create a state plane coordinate system (or any coordinate system) in SKI-Pro/LGO and attach it to an existing project?

Background Coordinate Systems are used to convert WGS 1984 coordinates into “local” coordinates. The term “local” is used to describe any coordinate type other than WGS 1984 coordinates. For example, “local” coordinates could be UTM, state plane NAD83, NAD27, etc.

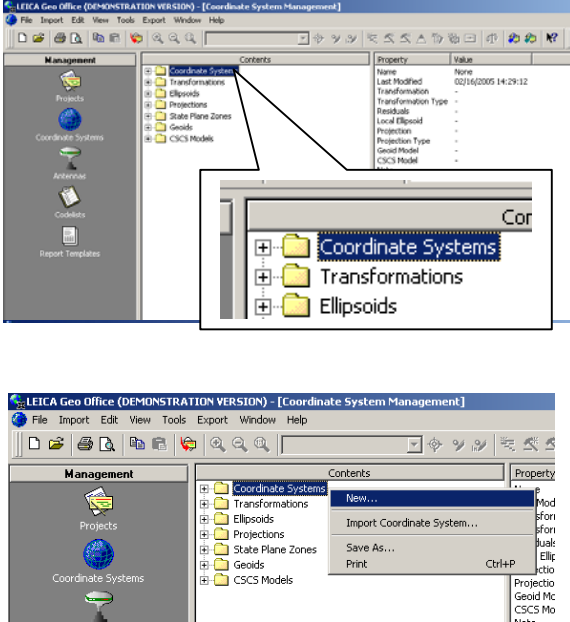
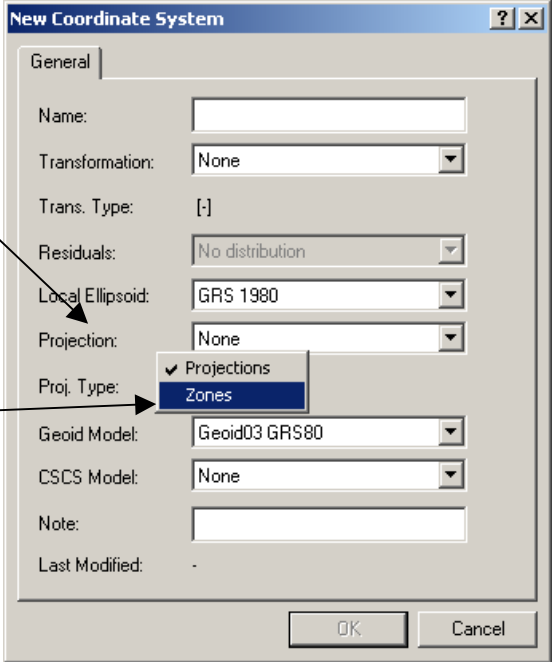
Coordinate systems may consist of transformations, a map projection (which includes state plane zones), an ellipsoid, and a geoid model (if you wish to have orthometric heights).

Answer Follow the steps below to create and then attach a state plane coordinate system to an existing project in LGO. In this example we will be creating a Georgia West NAD83 coordinate system.

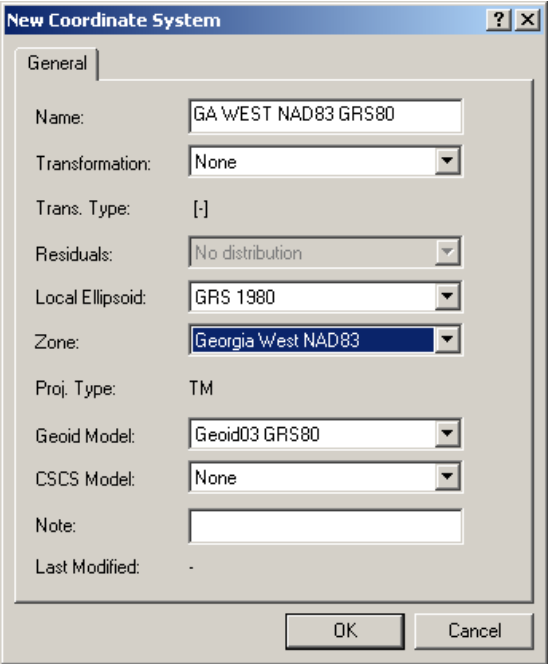
Note For the remainder of this document, we will use LGO and SKI-Pro interchangeably, that is both names will mean the same.

Step	Action	Display
1	<p>From the main menu of LGO:</p> <ul style="list-style-type: none">Click on the Coordinate Systems icon under the Management tab. <p>This takes you to the Coordinate Systems Management screen.</p>	

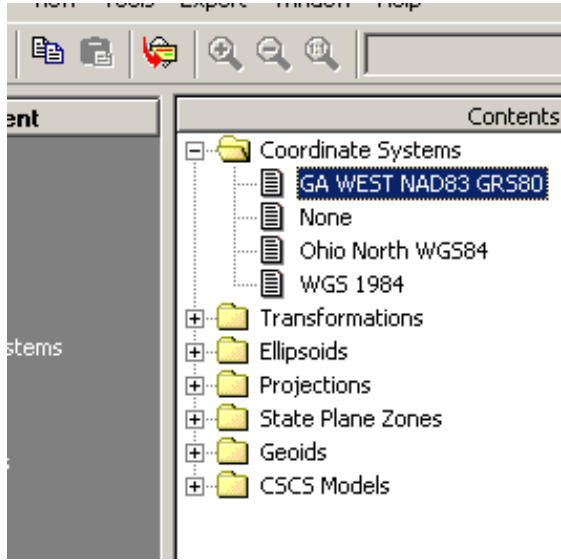
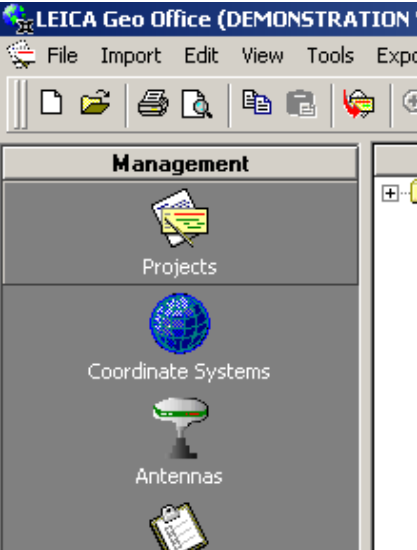
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Step	Action	Display
2	<p>In the Coordinate Systems Management screen:</p> <ul style="list-style-type: none"> Right-click on the Coordinate Systems folder. <p>This opens a pop-up window.</p> <ul style="list-style-type: none"> Select (left-click) on “New...”. <p>This opens the “New Coordinate System” dialogue box.</p>	 <p>The screenshot shows the 'Coordinate Systems Management' window. The 'Contents' pane on the left lists folders: Coordinate Systems, Transformations, Ellipsoids, Projections, State Plane Zones, Geoids, and CSCS Models. A context menu is open over 'Coordinate Systems', showing options like 'New...', 'Import Coordinate System...', 'Save As...', and 'Print'. A property table on the right shows details for the selected folder.</p>
3	<p>In the “New Coordinate System” dialogue box:</p> <ul style="list-style-type: none"> Look for the word “Zones here. <p>If it says “Projection” as it does on the image on the right, then we must change it to “Zones”. If it already says “Zones” then you need to do nothing in this step.</p> <ul style="list-style-type: none"> Right-click on top of the word “Projection” and select “Zones” from the pop-up box. <p>This will change the dialog box to enable us to access state plane zones.</p> <p>Note: You will only need to do this once. LGO’s default mode is “Projection”. Once you change this to “Zones”, it will remain “Zone”.</p> <p>This step is continued on the following page.</p>	 <p>The screenshot shows the 'New Coordinate System' dialog box with the 'General' tab selected. The 'Proj. Type' dropdown menu is open, showing 'Projections' and 'Zones' options. An arrow points from the text in the action column to the 'Zones' option in the dropdown.</p>

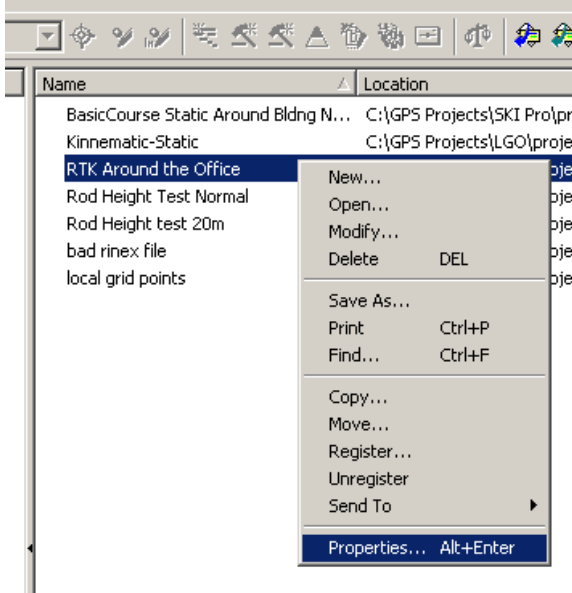
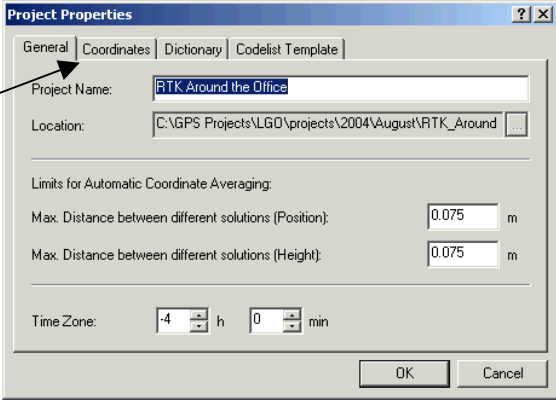
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Step	Action	Display
3	<p>Continuing in the “New Coordinate System” dialogue box:</p> <p>In this example we are creating a Georgia West NAD83 state plane coordinate system. The NAD83 state plane zones were created using the GRS 1980 ellipsoid. A Geoid03 geoid model will be attached to this coordinate system.</p> <ul style="list-style-type: none"> Fill in the appropriate fields. <p>Name: We recommend that you name the coordinate system a similar name as the state plane zone. In this example we are providing even more information in the name such as which ellipsoid was used.</p> <p>Transformation: Leave this as “None”.</p> <p>Local Ellipsoid: To be “geomatically” correct, the proper ellipsoid to use is GRS 1980. WGS 1984 has been recommended in the past and does work but to be absolutely correct, GRS 1980 should be used.</p> <p>Zone: Select your state plane zone from the pull-down menu’s list.</p> <p>Geoid Model: If you wish to work with orthometric heights, a geoid model is required. In this example a geoid model had already been created using Geoid03 with a GRS 1980 ellipsoid. Select a geoid model.</p> <p>See the <i>Additional Information</i> section at the end of this document to see where you can learn more about creating Geoid models.</p> <p>Important Note: The ellipsoid used in the geoid model MUST match the geoid model used in the coordinate system.</p> <ul style="list-style-type: none"> Press on the OK button when finished entering the fields. <p>This creates the state plane zone and closes the dialog box.</p>	

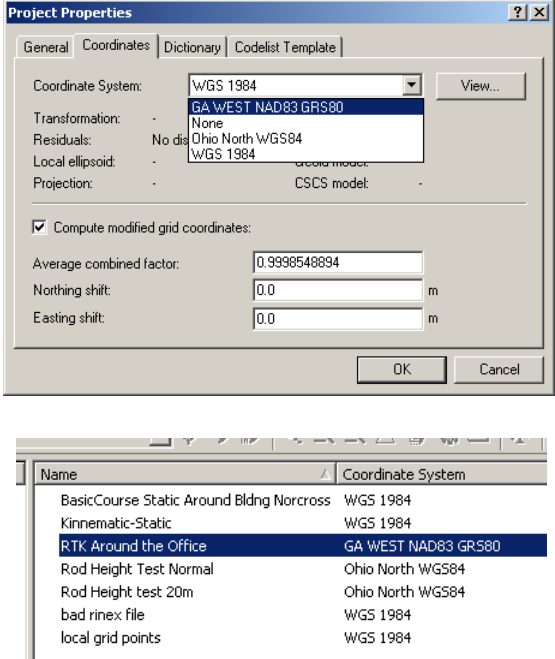
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Step	Action	Display
4	<p>Continuing in the Coordinate Management screen:</p> <p>We can now see the newly created coordinate system in the Coordinate Systems folder.</p> <p>Now we will attach this coordinate system to an existing project.</p>	
5	<p>From the Management tab view:</p> <ul style="list-style-type: none"> • Press on the “Projects” icon: <p>This takes you to the “Management Projects” screen.</p>	

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Step	Action	Display
6	<p>In the “Management Projects” screen:</p> <ul style="list-style-type: none"> • Right-click on the project that you wish to attach the newly created state plane coordinate system to. • Scroll down the pop-up box and click on “Properties”. <p>This takes you to the “Project Properties” dialog box.</p>	 <p>The screenshot shows a window titled 'Management Projects' with a toolbar at the top. Below the toolbar is a list of projects with columns for 'Name' and 'Location'. The project 'RTK Around the Office' is selected and highlighted in blue. A context menu is open over this project, listing various actions such as 'New...', 'Open...', 'Modify...', 'Delete', 'Save As...', 'Print', 'Find...', 'Copy...', 'Move...', 'Register...', 'Unregister', 'Send To', and 'Properties... Alt+Enter'. The 'Properties...' option is highlighted in blue.</p>
7	<p>In the “Project Properties” dialog box:</p> <ul style="list-style-type: none"> • Click on the “Coordinates” tab. <p>This takes you to the “Coordinates Tab” screen.</p>	 <p>The screenshot shows the 'Project Properties' dialog box with the 'Coordinates' tab selected. The 'Project Name' field contains 'RTK Around the Office'. The 'Location' field contains 'C:\GPS Projects\LGO\projects\2004\August\RTK_Around'. Below these fields are 'Limits for Automatic Coordinate Averaging' with two input fields set to '0.075 m'. At the bottom, the 'Time Zone' is set to '-4 h' and '0 min'. An arrow points from the 'Coordinates' tab label in the text to the 'Coordinates' tab in the dialog box.</p>

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Step	Action	Display																
8	<p>In the “Coordinates” tab screen:</p> <ul style="list-style-type: none"> Click on the down arrow besides the “Coordinate System” field. <p>This opens a pull-down menu that lists all coordinate systems existing in LGO.</p> <ul style="list-style-type: none"> Scroll down the list and select the newly created state plane zone. Press the “OK” button. <p>This attaches the coordinate system to the project. You can now see in Management Projects view that the project is now listed with the coordinate system attached.</p>	 <p>The screenshot shows the 'Project Properties' dialog box with the 'Coordinates' tab selected. The 'Coordinate System' dropdown is open, showing a list of options including 'GA WEST NAD83 GRS80'. Below the dialog, a table lists various coordinate systems available in the software.</p> <table border="1"> <thead> <tr> <th>Name</th> <th>Coordinate System</th> </tr> </thead> <tbody> <tr> <td>BasicCourse Static Around Bldg Norcross</td> <td>WGS 1984</td> </tr> <tr> <td>Kinematic-Static</td> <td>WGS 1984</td> </tr> <tr> <td>RTK Around the Office</td> <td>GA WEST NAD83 GRS80</td> </tr> <tr> <td>Rod Height Test Normal</td> <td>Ohio North WGS84</td> </tr> <tr> <td>Rod Height test: 20m</td> <td>Ohio North WGS84</td> </tr> <tr> <td>bad rinex: file</td> <td>WGS 1984</td> </tr> <tr> <td>local grid points</td> <td>WGS 1984</td> </tr> </tbody> </table>	Name	Coordinate System	BasicCourse Static Around Bldg Norcross	WGS 1984	Kinematic-Static	WGS 1984	RTK Around the Office	GA WEST NAD83 GRS80	Rod Height Test Normal	Ohio North WGS84	Rod Height test: 20m	Ohio North WGS84	bad rinex: file	WGS 1984	local grid points	WGS 1984
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Summary

You have just learned how to create a coordinate system using a state plane zone map projection and attach this coordinate system to an existing project.

Additional Information

To learn more about coordinate systems:

Go to the GPS System 500 Newsletters web page and read the following GPS Newsletters: Vol. 00, Numbers 07, 08, 09, 20, 21, 22, and 23.

For geoid models read GPS System 500 Newsletters Vol. 01, Numbers 19, 20, and 21.

To learn how to create a geoid model to use with a state plane zone follow this link: http://www.leicaadvantage.com/support/GPS1200/GPSfaqs/LGO_SKI_Pro_Questions/WhichEllipsoid.pdf.