Using Spreadsheets, Selection Sets, and COGO Controls

TRIMBLE BUSINESS CENTER TUTORIAL

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About this tutorial

In this tutorial, you will view spreadsheets, create a selection set, and work with COGO controls.

Note: If you need additional help at any time you are using the software, press **F1** to display the online help.

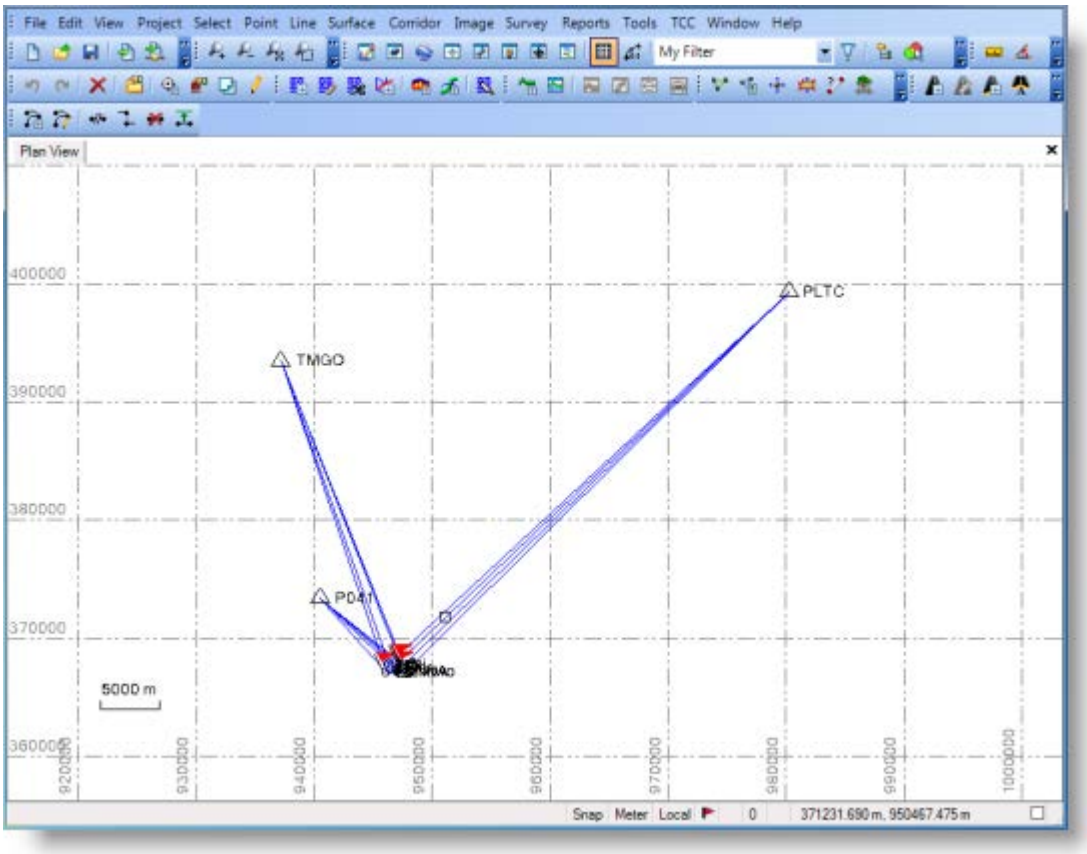
Step 1. Open the project

For this tutorial, you will use the project file *Using Spreadsheets.vce*. GNSS, total station, and level data has already been imported into the project, and GNSS baselines have been processed.

1. On the **Trimble Business Center** menu bar, select **File > Open Project**. Or, click the **Open Project** icon on the toolbar.
2. In the **Open File** dialog, browse to ***C:\Trimble Tutorials\TBC\Projects\ Using Spreadsheets.vce*** and click **Open**.

   If you installed the tutorial to a location other than the default location shown here, browse to that location.

The project opens in the **Trimble Business Center** window.



Note: This figure shows the **Plan View** with a white background. Your background may be black. If you want to change it to white, select **Tools > Options** and select **Background color: White** in the **Options** dialog.

The project file is read-only. You can perform the tutorial steps without saving the project file. However, if you are interrupted while performing the tutorial, you can save it by selecting **File > Save Project As** and saving it to ***..\My Documents\Trimble Business Center***, which is the typical location for storing project files on your computer. Then, you can re-open the project to continue the tutorial at a later time.

You are now ready to explore some of **Trimble Business Center's** features.

Step 2. View spreadsheets

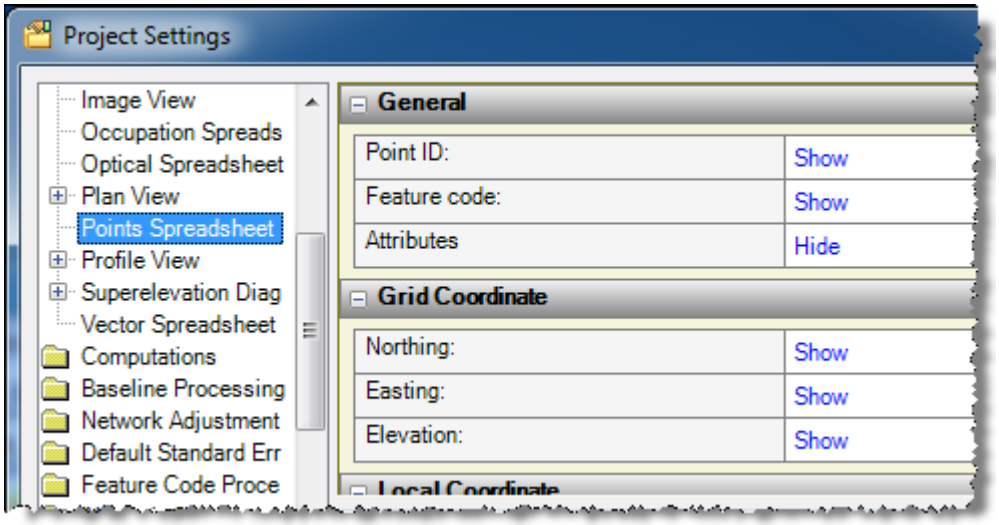
In this step, you will view two spreadsheets available in **Trimble Business Center:**

- **Occupation Spreadsheet**
- **Point Spreadsheet**

You can customize what is displayed in spreadsheets and how it is displayed, as shown in the following steps.

1. Select **Project > Project Settings**. Or, click the **Project Settings** icon on the toolbar.
2. In the navigation (left) pane in the **Project Settings** dialog, select **View > Points Spreadsheet**.

   A list of the names of columns available for the **Points** spreadsheet display in the table. Each column name is followed by an indicator of whether the column should be included in the spreadsheet.



   You can click on any of the **Show/Hide** indicators to change the selection.

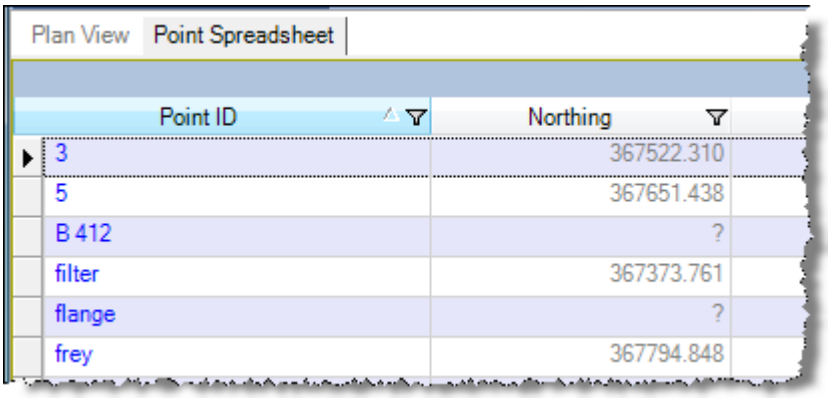
   In the navigation (left) pane in the **Project Settings** dialog, you can select other spreadsheets in the **View** menu to view and change the **Show/Hide** column settings for them as well. For this tutorial, there is no need to make changes.

3. Click **Cancel** to close the **Project Settings** dialog.

   Next you will see how to customize a spreadsheet by sorting the rows in it.

4. Select **View > New Points Spreadsheet**. Or, click the **New Points Spreadsheet** icon on the toolbar.

   The **Point Spreadsheet** displays.



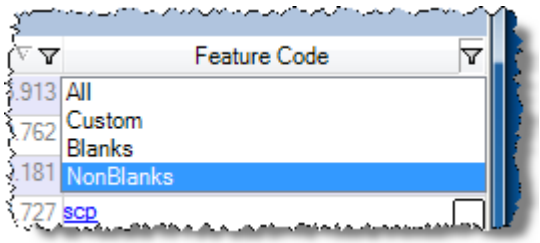
   You can sort the rows in the spreadsheet based on the column heading you select. By default, the rows are sorted in ascending alphabetical order based on the **Point ID**.

5. Click the **Elevation** column heading to sort the rows based on the ascending and descending elevation of the points.

   Note that the **Sort** icon indicates whether the sort is in ascending (the arrow points up) or descending (the arrow points down) order.

   You can filter the displayed rows by clicking the filter icon for a column and selecting the appropriate filter. The default filter is **All.**

6. Click the **Feature Code** filter icon and select **NonBlanks** in the context menu.



   Only points with feature codes assigned are displayed in the spreadsheet.

   You can further customize your spreadsheet as follows:

   - Resize the width of any column by placing the cursor on the column border in the heading row and dragging it left or right.
   - Move a column to a new location using "drag-and-drop."
   - Move the spreadsheet tab to a new location. Simply click on the tab label and drag it downward off the tab bar before releasing. Then select a location option in the context menu.

     Try selecting **New Vertical Tab Group** to display the tab vertically in the window.

     Use the same procedure to move the tab back.

   Any content displayed in blue in the spreadsheet can be edited. For example, you can type in a new **Point ID,** or you can edit a **Feature Code** directly in the column or by clicking to display the **Feature Code Editor** dialog.

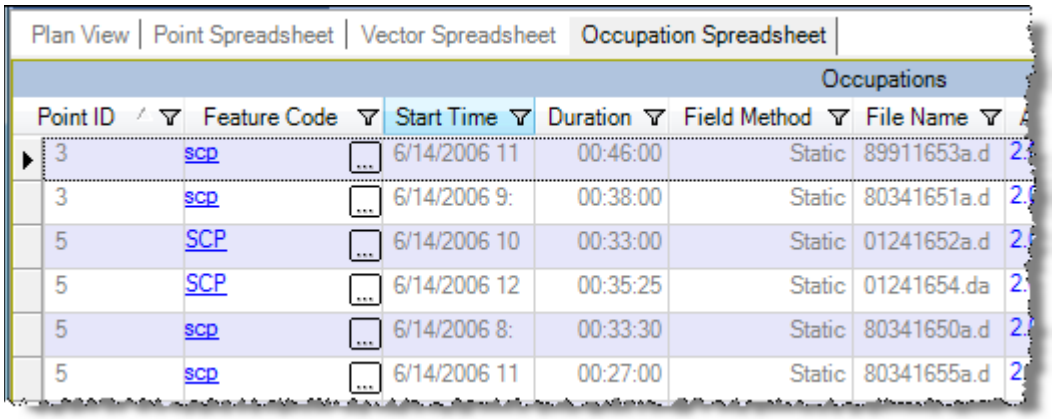
   You can copy rows from a spreadsheet into a Microsoft Excel spreadsheet. Just select the rows you want to copy, press **Ctrl+C** to copy, select a cell in the Excel spreadsheet, and press **Ctrl+V** to paste. Although the header row cannot be selected, it is always copied and pasted into the spreadsheet along with the rows you select.

   You can display the **Properties** pane for any point by selecting the row, right-clicking, and selecting **Properties** in the context menu.

   Custom filters allow you to select the criteria for filtering data displayed in a spreadsheet. In the following example, you will select to view only the points that did not use the *R8 GNSS/SPS88x Internal* antenna type.

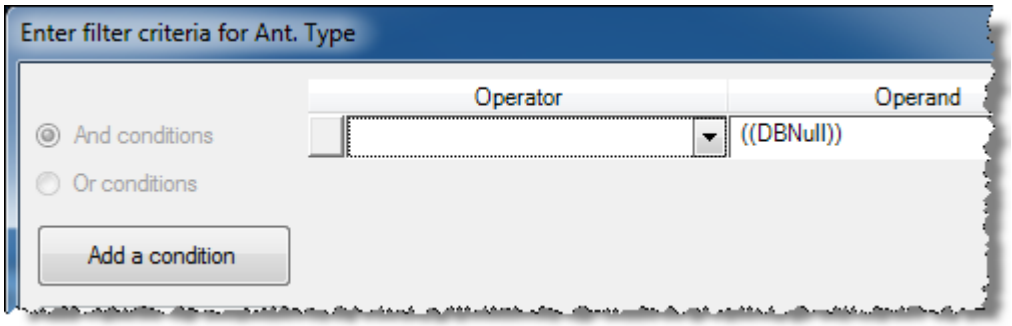
7. Select **View > New Occupation Spreadsheet**. Or, click the **New Occupation Spreadsheet** icon on the toolbar.

The **Occupation Spreadsheet** displays.



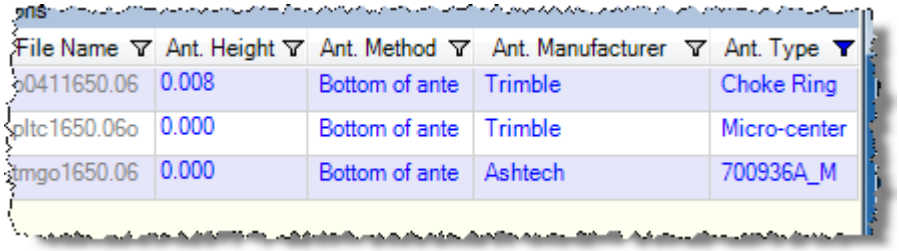
8. Click the **Ant. Type** filter icon and select **Custom** in the context menu.

   The **Enter filter criteria for Ant. Type** dialog displays.



9. In the **Operator** drop-down list, select *Does not equal to*.
10. In the **Operand** drop-down list, select *R8 GNSS/SPS88x Internal.* Then click **OK**.

    The spreadsheet refreshes based on your custom filter. Only points that did not use the *R8 GNSS/SPS88x Internal* antenna type display.



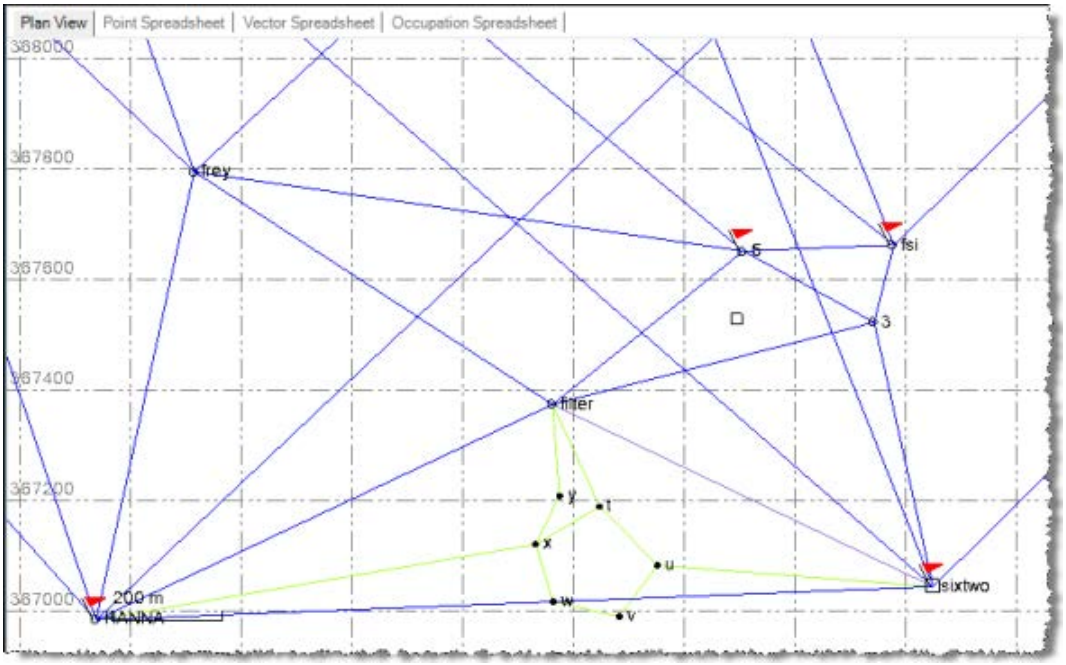
You are done looking at spreadsheets. Next, you will take a look at how to create and use selection sets.

Step 3. Create a selection set

If you need to select the same objects over and over, it can be frustrating to manually make your selections and it is easy to make mistakes. Instead, you can use the **Selection Explorer** to create reusable selection sets.

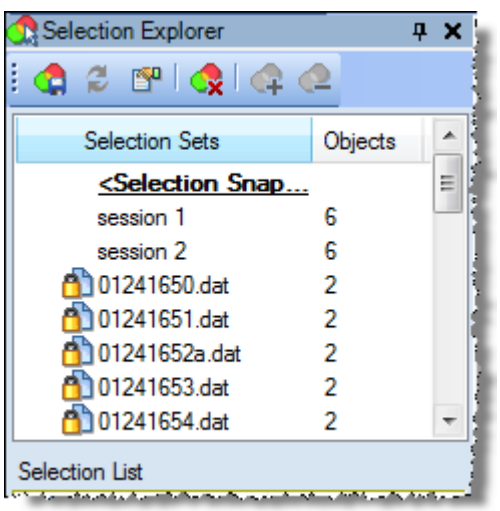
1. Click the **Plan View**.

2. Use the **Zoom In** toolbar icon to enlarge the view as shown here. Or, click on the **Plan View** and use your mouse wheel to zoom in. Press the mouse wheel and move the mouse to center the points.



3. Select **View > Selection Explorer**. Or, click the **Selection Explorer** icon on the toolbar.

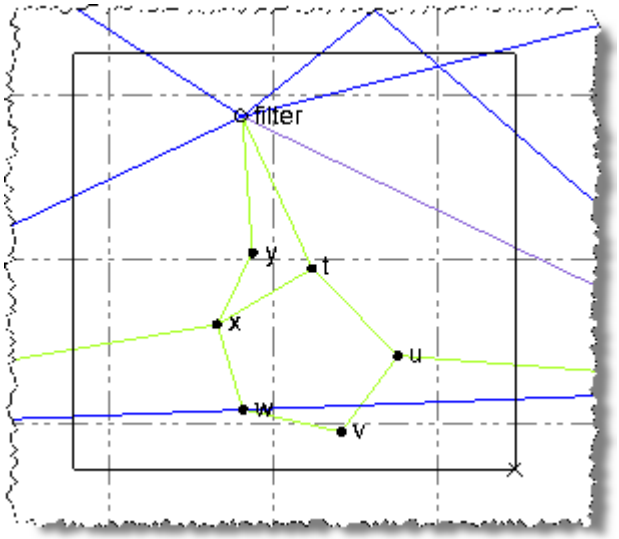
   The **Selection Explorer** pane displays.



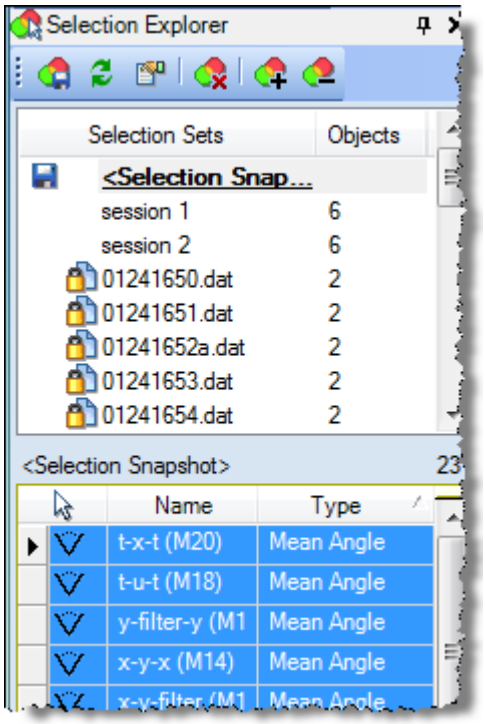
   The **Selection Explorer** contains two lists:

   - The **Selection Sets** list in the top half of the pane.
   - The object list in the bottom half of the pane, which shows the objects you selected in the **Plan View** or that are contained in the selected selection set(s).

4. In the **Plan View,** use your cursor to draw a selection box around the group of objects you want to include in your selection set, as shown here.

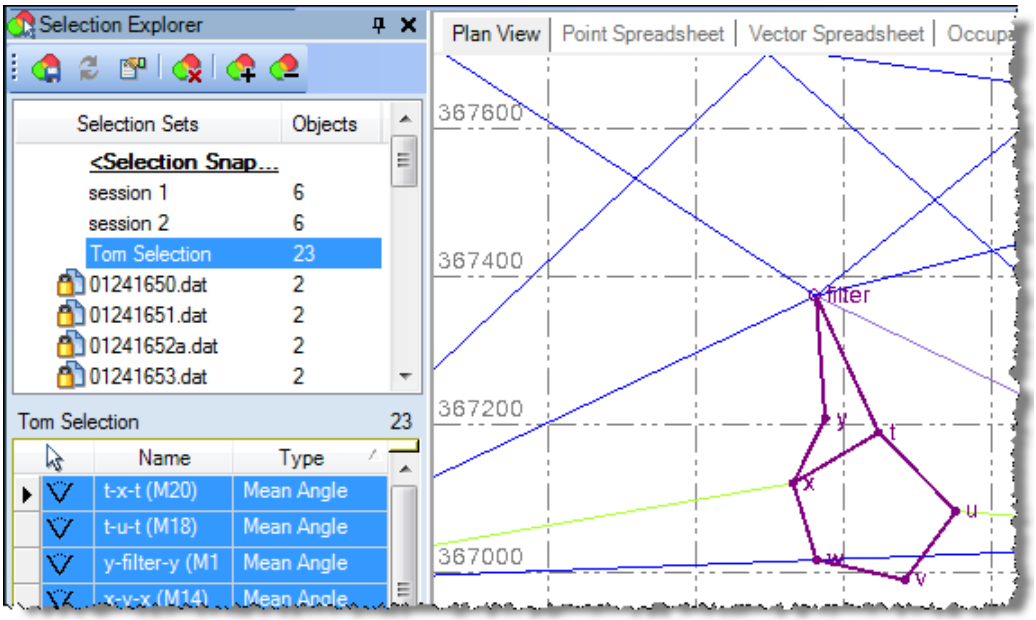


Your selections display in the **Selection Explorer** in the **<Selection Snapshot>** objects list.



5. On the **Selection Explorer** toolbar, click the **Save the selection list as** icon .
6. In the **Save <Selection Snapshot> As** dialog, enter a name for your selection set: *YourName Selection.* Then click **OK**.

Your new selection set is added to the **Selection Sets** list. To view the objects contained in your selection set, simply select the set in the **Selection Sets** list.



You can view properties for any object in the selection set by selecting it in the list, right-clicking, and selecting **Properties** in the context menu. To select multiple objects, use **Ctrl + click** or **Shift + click**. Selecting multiple objects can be particularly useful if you want to specify a property (for example, a feature code) for all of them at the same time.

To select the objects in multiple selection sets, press the **Ctrl** key and make your selections in the **Selection Sets** list.

You can use the other icons on the **Selection Explorer** toolbar to view properties for selected objects, remove selection sets, and add or remove objects in selection sets. For instructions, see the online Help.

7. Close the **Selection Explorer** pane.

You are done working with selection sets. Next, you will take a look at some useful COGO controls.

Step 4. Work with COGO controls

COGO (COordinate GeOmetry) controls are the boxes in various commands that help you calculate angles, bearings, coordinates, distances, elevations, and offsets in your project. They enable you to enter data in a variety of ways, including:

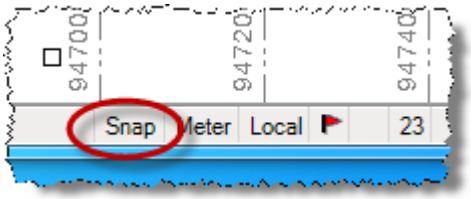
- Typing values and point IDs in the box
- Picking points in graphic views
- Right-clicking in graphic views and selecting additional snap and COGO options from the context menu

COGO controls provide this flexibility so that you have many ways in which you can enter data within a single command, rather than forcing you to work through multiple commands.

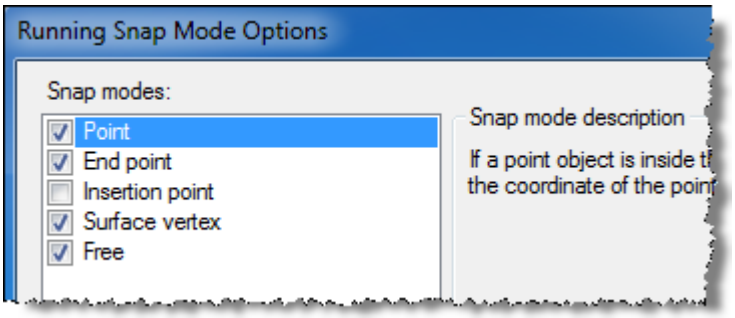
COGO snap commands use geometric calculations to help you specify coordinates more easily and accurately. Snap commands can calculate a snap point by using existing geometry or by using parameters that you enter. Snap commands are available any time you are required to enter a coordinate. Simply right-click to see the options.

In the following procedure, you will create four new points in your project (*1*, *2*, *6*, and *7*) using the various COGO controls and snap commands available in **Trimble Business Center**. However, before you create new points, you should verify that snap mode options are set correctly.

1. Click the **Snap** button on the status bar in the bottom of the **Trimble Business Center** window.



The **Running Snap Mode Options** dialog displays.

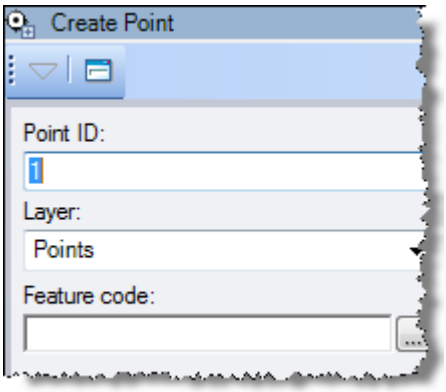


This dialog allows you to specify snap mode options. The description for each option is displayed in the dialog.

In this procedure you will be using snap commands to select points. To ensure you are selecting a point and not a coordinate near a point, you will deselect the **Free** mode. However, because this selection is a system setting and is not project-specific, you will reselect **Free** when you are done with this procedure.

2. In the **Running Snap Mode Options** dialog, do the following:
   a. Verify the **Point** mode option is selected.
   b. Deselect the **Free** mode option.
   c. Click **OK.**
3. Create point *1* as follows:
   a. Select **Point > Create Point**.

The **Create Point** pane displays.

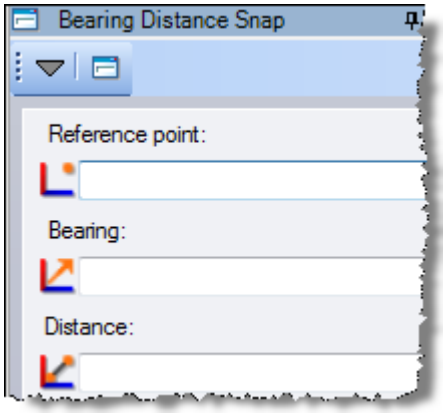


b. Ensure the **Point ID** field displays *1*, the **Feature code** field is blank, and the **Coordinate type** field is displays *Grid*.

c. Right-click in the **Northing** field.

d. In the context menu, select **Bearing Distance Snap**.

The **Bearing Distance Snap** pane displays. These controls enable you to calculate a point based on a beginning point, a bearing, and a distance. The zero (0) bearing is north; bearings use grid azimuths measured clockwise.



e. Click in the **Reference Point** field, then click on point *5* in the **Plan View**.

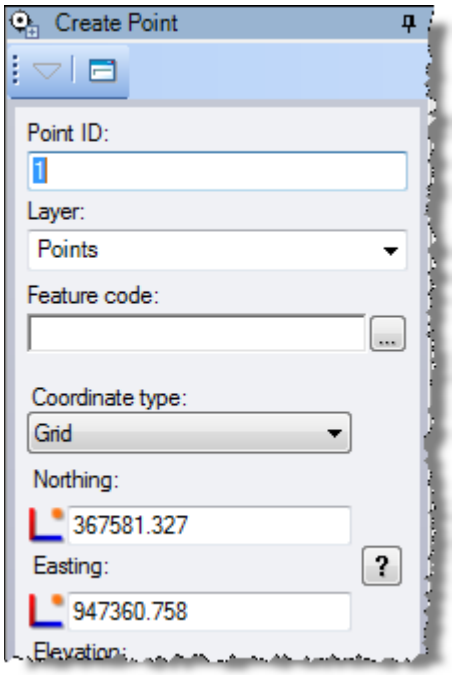
The coordinate for point *5* displays in the field. As an alternative, you could just type *5* in the field.

f. In the **Bearing** field, enter *S37 44 56E* (or Azimuth field = *142 15 04*).

g. In the **Distance** field, enter *290.91sft.* Then click **OK.**

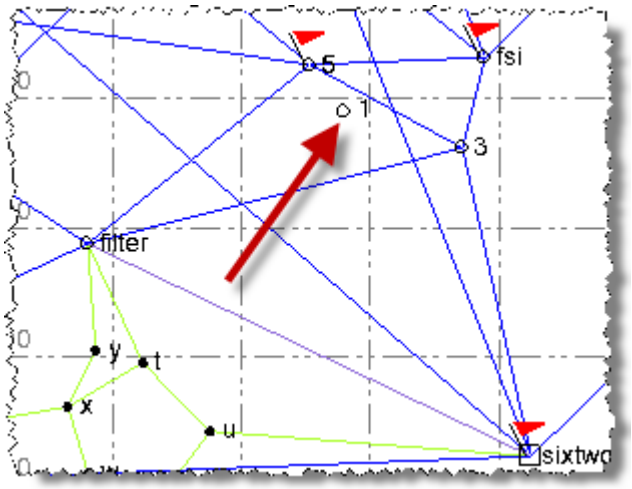
Note that the value specifies the distance unit *sft.* This is required if a value you want to enter uses a distance unit that is different than the unit specified in the **Project Settings** dialog.

The coordinates for the new point *1* display in the **Create Point** pane.



h. Click the **Add** button.

The new point *1* displays in the **Plan View**. The **Create Point** pane has been cleared so you can create another new point.



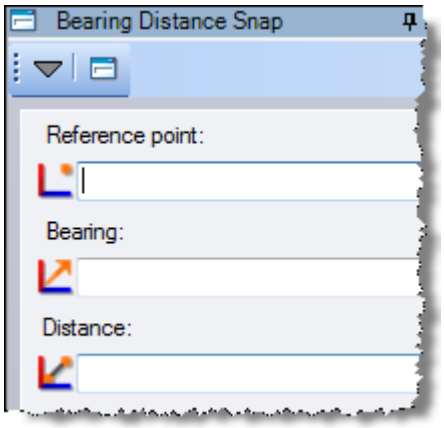
4. Create point *2* as follows:

   a. In the **Create Point** pane, ensure the **Point ID** field displays *2*.

   b. Right-click in the **Northing** field.

   c. In the context menu, select **Bearing Distance Snap**.

The **Bearing Distance Snap** pane displays.



d. In the **Reference Point** field, enter *3*.

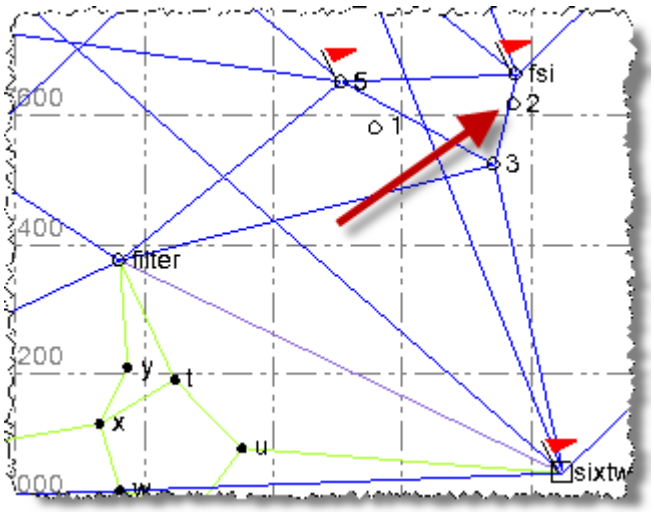
e. In the **Bearing** field, enter *N18 05 08E*.

f. In the **Distance** field, enter *322.91sft.* Then click **OK.**

The coordinates for the new point *2* display in the **Create Point** pane.

g. Click the **Add** button.

The new point *2* is displayed in the **Plan View**.



You are now ready to create a new point *6*, which will be located midway between points *1* and *2*.

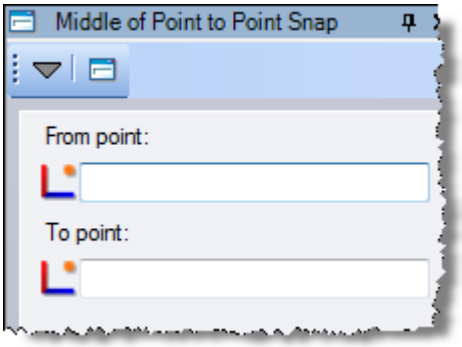
5. Create point *6* as follows:

a. In the **Create Point** pane, enter *6* in the **Point ID** field.

b. Right-click in the **Northing** field.

c. In the context menu, select **Middle of Point to Point Snap**.

The **Middle of Point to Point Snap** pane displays. These controls allow you to calculate a location midway between two points.



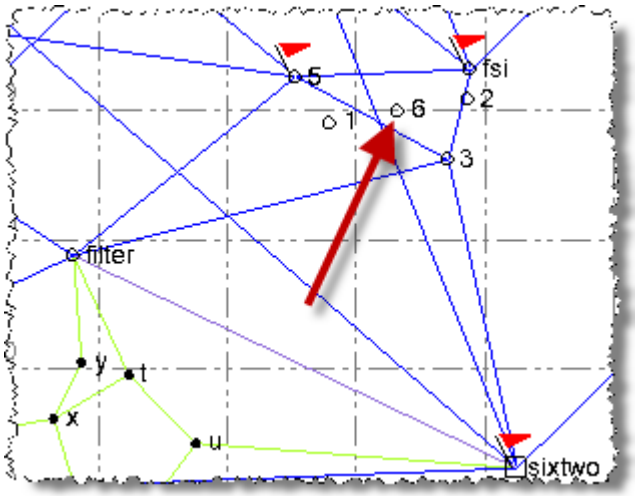
d. In the **From point** field, enter *1*.

e. In the **To point** field, enter *2*. Then click **OK.**

The coordinates for the new point *6* display in the **Create Point** pane.

f. Click the **Add** button.

The new point *6* is displayed in the **Plan View**.



You are now ready to create a new point *7*.

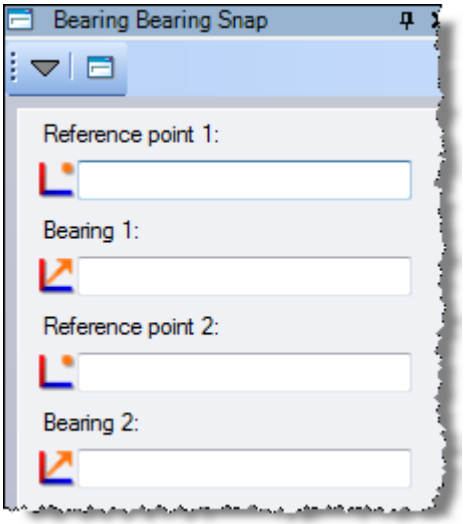
6. Create point *7* as follows:

a. In the **Create Point** pane, ensure *7* displays in the **Point ID** field.

b. Right-click in the **Northing** field.

c. In the context menu, select **Bearing Bearing Snap**.

The **Bearing Bearing Snap** pane displays. These controls allow you to calculate the intersection of two bearings defined by a first point and second point.

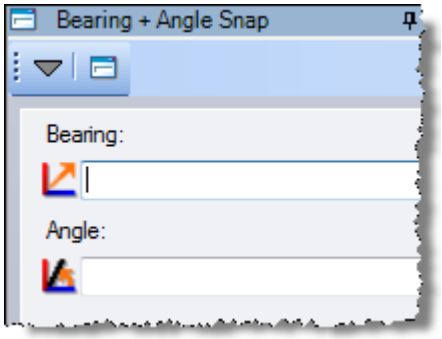


d. In the **Reference point 1** field, enter *5*.

e. Right-click in the **Bearing 1** field.

f. In the context menu, select **Bearing + Angle Snap**.

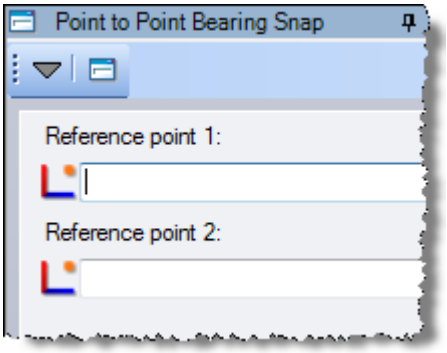
The **Bearing + Angle Snap** pane displays. These controls allow you to calculate a bearing by adding an angle to a given bearing.



g. Right-click in the **Bearing** field.

h. In the context menu, select **Point to Point Bearing Snap**.

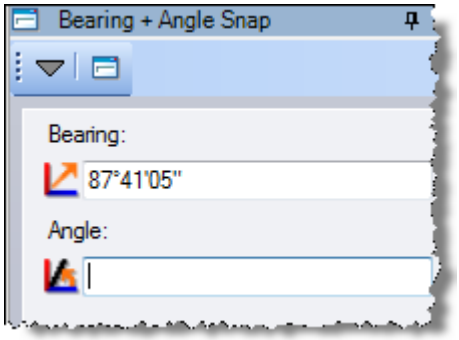
The **Point to Point Bearing Snap** pane displays. These controls allow you to compute the bearing from one point to another point.



i. In the **Reference point 1** field, enter *5*

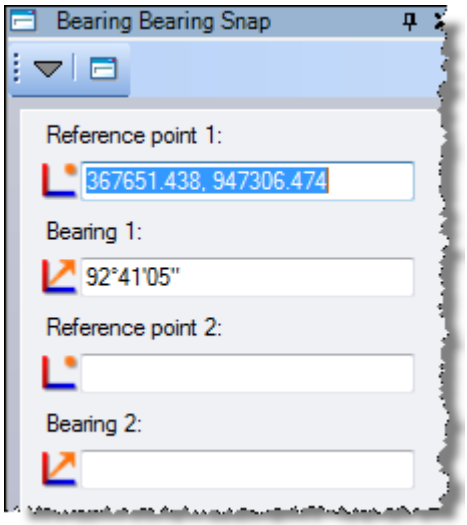
j. In the **Reference point 2** field, enter *fsi*. Then click **OK**.

The **Bearing + Angle Snap** pane displays showing the new **Bearing 1**.



k. In the **Angle** field, enter *5* (for 5 degrees). Then click **OK**.

The **Bearing Bearing Snap** pane displays.

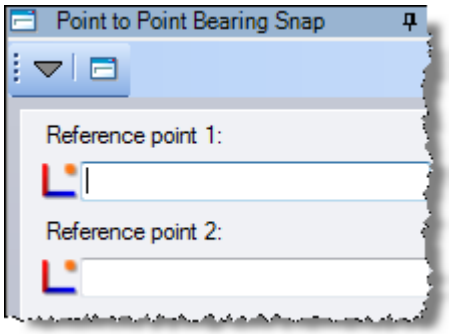


l. In the **Reference point 2** field, enter *3*.

m. Right-click in the **Bearing 2** field.

n. In the context menu, select **Point to Point Bearing Snap**.

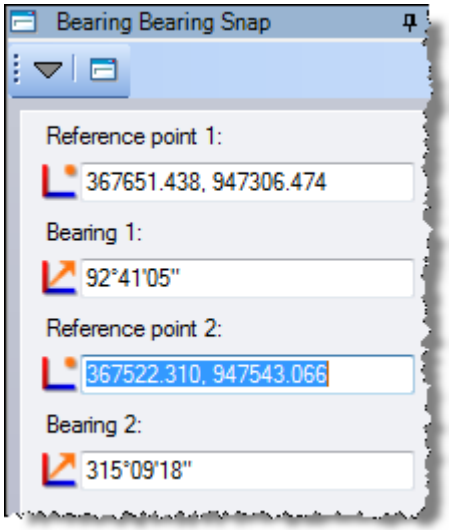
The **Point to Point Bearing Snap** pane displays.



o. In the **Reference point 1** field, enter *3.*

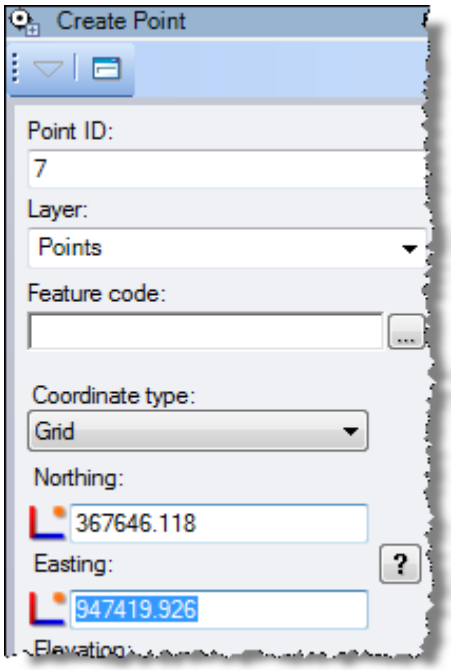
p. In the **Reference point 2** field, enter *6.* Then click **OK**.

The **Bearing Bearing Snap** pane displays showing the new **Bearing 2**.



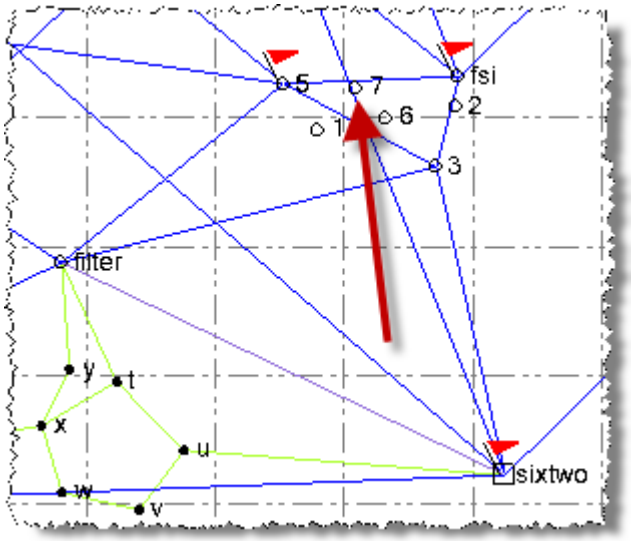
q. Click **OK**.

The coordinates for the new point *7* display in the **Create Point** pane.



r. Click the **Add** button.

The new point *7* displays in the **Plan View**.



You can now reselect the **Free** snap mode option in case you need it turned on for other projects.

7. Reselect the **Free** snap mode option as follows:

   a. Click the **Snap** button on the status bar in the bottom of the **Trimble Business Center** window.

   b. In the **Running Snap Mode Options** dialog, select **Free**.

   c. Click **OK**.

You are done working with COGO controls. Feel free at this time to continue exploring the **Trimble Business Center** software. Press **F1** at any time to view the associated online Help.

8. When you are done exploring, select **File > Close Project** .

   The **Save Changes** dialog displays. If you saved the project to a new location or with a new name, you can click **Yes**. Otherwise, click **No**.