Additional COGO Input Options

Have you ever needed to enter in a whole range of data, and find that one of the measurements was in a different set of units or was a slope distance?

COGO in MSCAD can now handle these situations.

You start COGO and enter in the From Point and the Bearing (or Azimuth) – then you are asked for the Distance. This is where the change is found.

Example 1:
Let's assume that we are working in Feet:

> COGO
Inverse:Pt..Pt/Curve Inverse:Pt..Pt..Pt
Enter From Point: <1>35
Options: +/- or Pt..Pt+-Angle
Enter Quadrant Bearing like QDD.MMSS:<>: 190.
-->Bearing used = N90°00'00"E
Options: C#=-*/sin/cos/tan... or Pt..Pt(+-*/) a Distance
Enter the Distance: <>:**100m**
-->Distance used = 328.083990

We typed in **100m** for the distance, which means you had a measurement of 100 meters. COGO will automatically convert this to feet (**100m** = 100/0.3048 = 328.083990 feet) and use the scaled distance to set the new point. You can type in **100M** or **100m** and it will do the same thing.

Example 2:
Let's assume that we are working in Meters:

> COGO
Inverse:Pt..Pt/Curve Inverse:Pt..Pt..Pt
Enter From Point: <1>35
Options: +/- or Pt..Pt+-Angle
Enter Quadrant Bearing like QDD.MMSS:<>: 190.
-->Bearing used = N90°00'00"E
Options: C#=-*/sin/cos/tan... or Pt..Pt(+-*/) a Distance
Enter the Distance: <>:**100F**
-->Distance used = 30.480000

We typed in **100F** for the distance, which means you had a measurement of 100 feet. COGO will automatically convert this to meters (**100f** = 100*0.3048 = 30.48 meters) and use the scaled distance to set the new point. You can type in **100F** or **100f** and it will do the same thing.

Other Distance entry options include:

When the units are set to Feet:

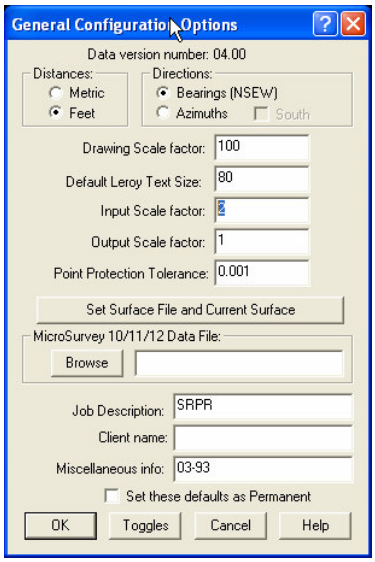
g or G to enter in a distance on a grade.
e.g., **20g6.2** = 20*(cos(atan(6.2/100))) = 19.961670 feet

c or C to enter a distance using chains (66 feet = 1 chain)
e.g., **25c** = 25 chains = 25*66 = 1650 feet

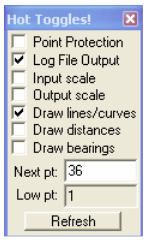
l or L to enter in a distance using links (0.66 feet = 1 link)
e.g., **25L** = 25 links = 25*0.66 = 16.5 feet

i or I: to enter in a distance using inches
e.g., **25i** = 25 inches = 25/12 = 2.083333 feet

s or S to force the input scale factor to be used with the distance (applies input scale factor even if the toggle is OFF). From the MsTools menu -> MicroSurvey Job Defaults. The Input Scale Factor is set (in this example it is set to 2).



Checking the Hot Toggles, the Input Scale Factor is NOT currently on.



e.g., **25s** = 25 times the Input Scale Factor (forced on) = 25*2 = 50 feet.

When the units are set to Meters:

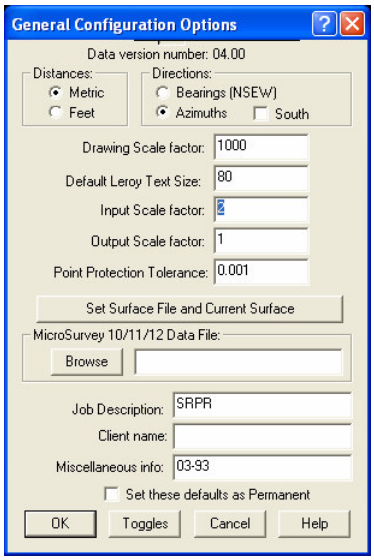
g or G to enter in a distance on a grade.
e.g., **20g6.2** = 20*(cos(atan(6.2/100))) = 19.961670 meters

c or C to enter a distance using chains (66 feet = 1 chain)
e.g., **25c** = 25 chains = (25*66) *0.3048 = 502.920000 meters

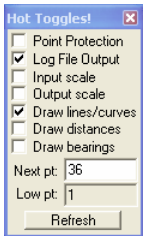
l or L to enter in a distance using links (0.66 feet = 1 link)
e.g., **25L** = 25 links = (25*0.66) *0.3048 = 5.029200 meters

i or I: to enter in a distance using inches
e.g., **25i** = 25 inches = (25/12)*0.3048 = 0.635000 meters

s or S to force the input scale factor to be used with the distance (applies input scale factor even if the toggle is OFF). From the MsTools menu -> MicroSurvey Job Defaults. The Input Scale Factor is set (in this example it is set to 2).



Checking the Hot Toggles, the Input Scale Factor is NOT currently on.



e.g., **25s** is 25 times the Input Scale Factor (forced on) = 25*2 = 50 meters.

NOTE: Using the **F** or **f** when in units of feet will have no effect. Using the **M** or **m** when in units of meters will have no effect.

You can use more than 1 of these characters in an entry – *but make sure the entry makes sense!* For example the following are legitimate options:

(Meters)
25fg14 = (25*0.3048)* (cos(atan(14/100))) = 7.546404 meters

25fs = (25*0.3048)* Input Scale Factor (forced on) = 15.240000 meters (using the same Input Scale Factor from above of 2)

(Feet)
25mg14 = (25/0.3048)* (cos(atan(14/100)) = 81.228818 feet

25ms = (25/0.3048)* Input Scale Factor (forced on) = 164.041995 feet (using the same Input Scale Factor from above of 2)

Calculator strings entered as distances, take these characters too, for example:

C(15+100g100) = 15+(100*(cos(atan(100/100)))) = 85.710678

c(25f*4) when the drawing is in meters = (25*0.3048)*4 = 30.48 meters

c(25F*4i) when the drawing is in meters = (25*0.3048)*((4/12)*0.3048) = 0.774192 meters

C(5C+6.5L+22i) when the drawing is in feet = (5*66)+(6.5*0.66)+(22/12) = 336.123333 feet

c(7C-5F+30iS) when the drawing is in meters = (((7*66)-(5*0.3048)+(30/12*2))*0.3048) = 140.817600 meters (using the same Input Scale Factor from above of 2, forced on)

Anytime you are prompted for a Distance in COGO, you can enter in any value, with an appropriate character or calculator string, and you will get the calculated distance desired.

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