

Calibrating the X and Y scales

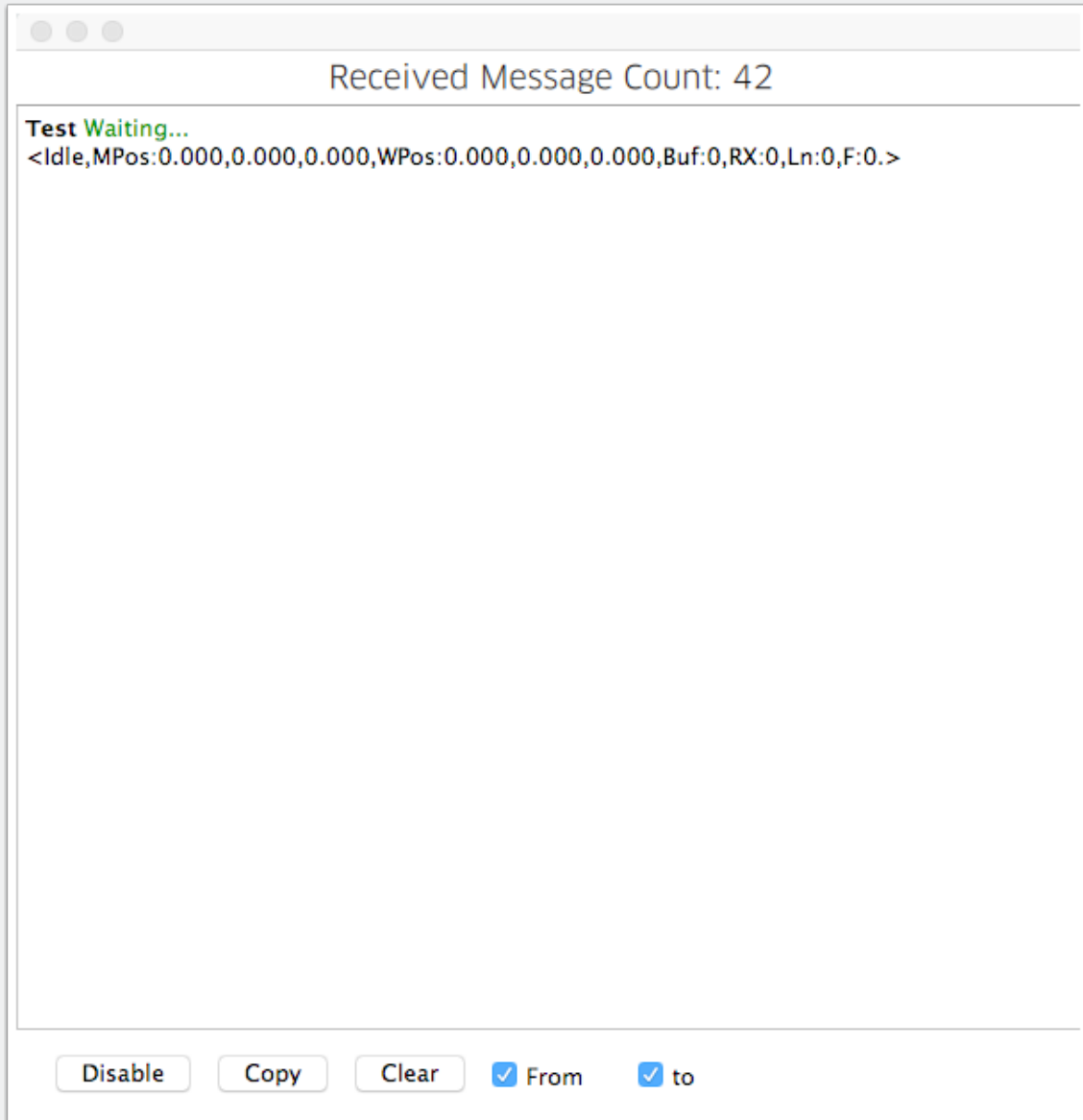
This document will walk you through the process of changing the scale for the X and Y axis drives.

Open Log window

Start Carbide Motion and connect to your Nomad

Press **L** to open a log window

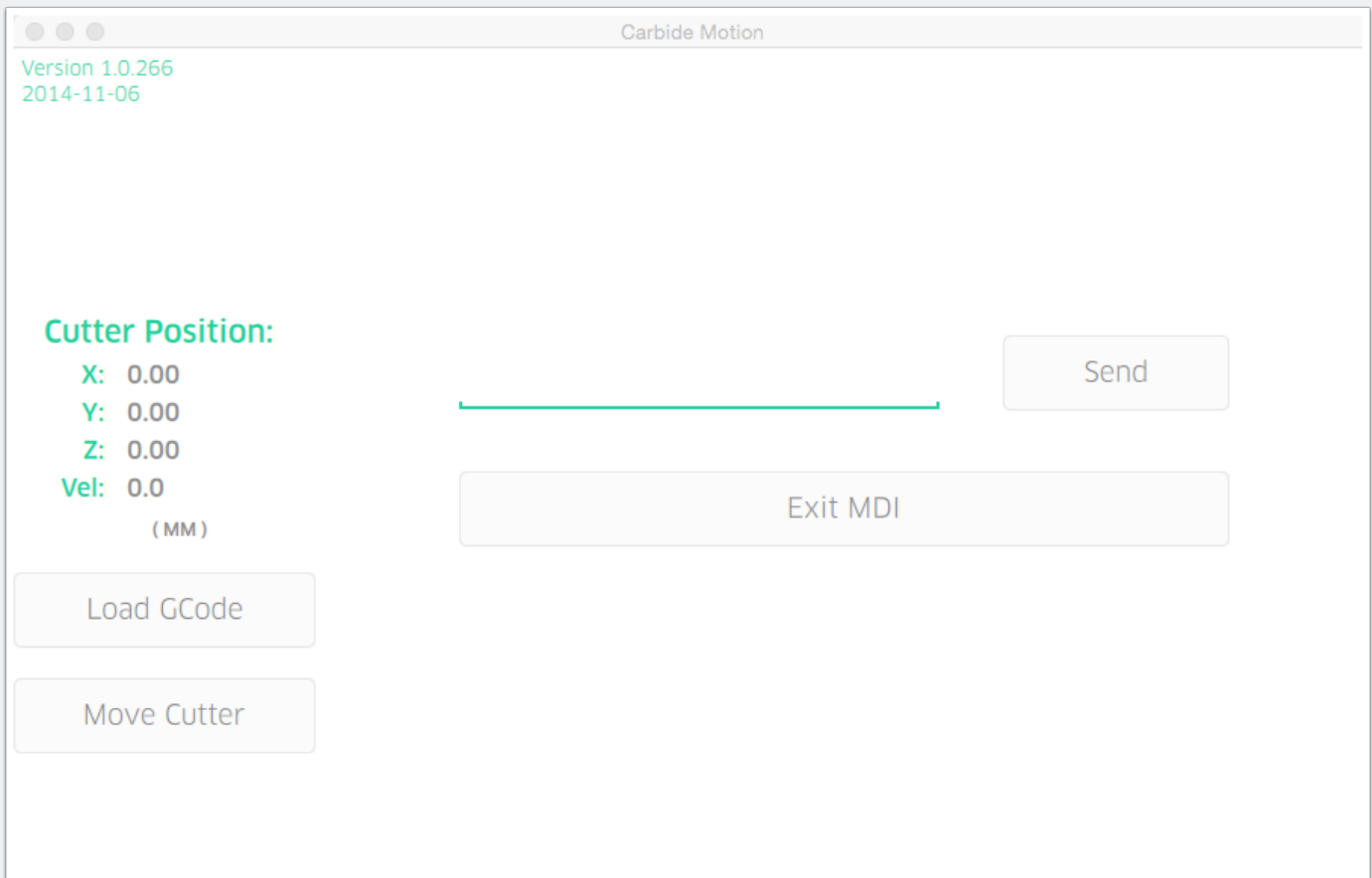
Calibrating the X and Y scales



Calibrating the X and Y scales

Enter MDI mode

Press **M** to go to the MDI mode. This will open the window below that allows you to communicate directly with the Nomad controller



Read the current configuration

In the MDI window shown above, type **\$\$** and then click **send**.

Calibrating the X and Y scales

The log window will dump a bunch of data from the machine but the two lines we're looking for at \$100 and \$101. These are the number of steps per MM on the X and Y axis. By default, they're 88.889

Making the steps per MM bigger will make parts come out smaller.

Making the steps per mm smaller will make parts come out larger.

Calibrating the X and Y scales

```
Received Message Count: 388
$0=10 (step pulse, usec)
$1=255 (step idle delay, msec)
$2=0 (step port invert mask:00000000)
$3=3 (dir port invert mask:00000011)
$4=0 (step enable invert, bool)
$5=0 (limit pins invert, bool)
$6=0 (probe pin invert, bool)
$10=255 (status report mask:11111111)
$11=0.020 (junction deviation, mm)
$12=0.010 (arc tolerance, mm)
$13=0 (report inches, bool)
$20=0 (soft limits, bool)
$21=1 (hard limits, bool)
$22=1 (homing cycle, bool)
$23=0 (homing dir invert mask:00000000)
$24=100.000 (homing feed, mm/min)
$25=1000.000 (homing seek, mm/min)
$26=25 (homing debounce, msec)
$27=5.000 (homing pull-off, mm)
$100=88.889 (x, step/mm)
$101=88.889 (y, step/mm)
$102=200.000 (z, step/mm)
$110=2600.000 (x max rate, mm/min)
$111=2600.000 (y max rate, mm/min)
$112=1270.000 (z max rate, mm/min)
$120=270.000 (x accel, mm/sec^2)
$121=270.000 (y accel, mm/sec^2)
$122=270.000 (z accel, mm/sec^2)
$130=250.000 (x max travel, mm)
$131=250.000 (y max travel, mm)
$132=100.000 (z max travel, mm)
ok
```

Disable Copy Clear From to

Calculate the new step values

We need to do a little math to find the new values:

Calibrating the X and Y scales

If your parts are 1% too big, the new value would be $\text{CURRENT_VALUE} \times .99$

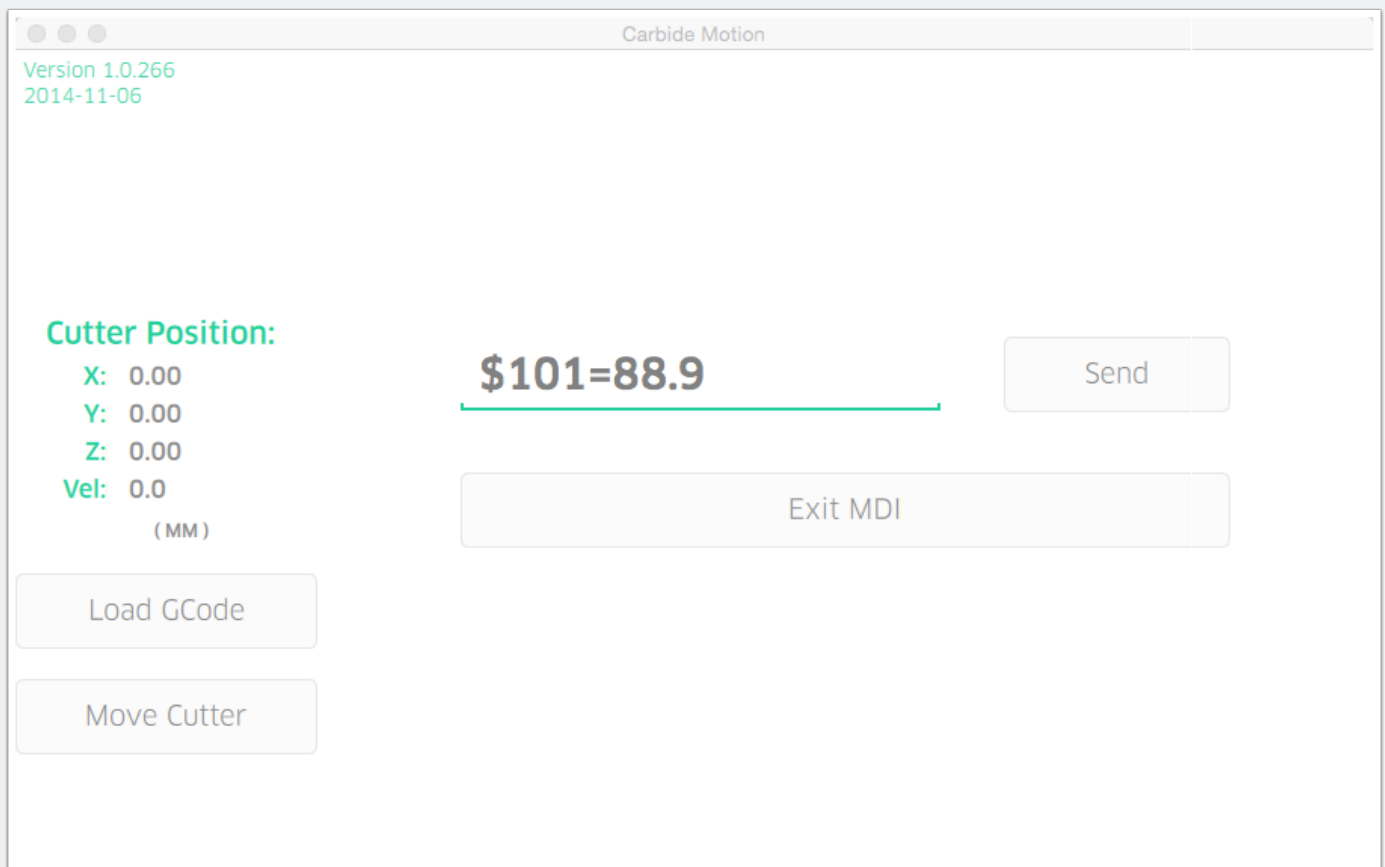
If your parts are 1% too small, the new value would be $\text{CURRENT_VALUE} \times 1.01$

You can change the percentages as necessary

Save the new values

For the X value, enter **\$100=NEW_VALUE** and click **Send**

For the Y value, enter **\$101=NEW_VALUE** and click **Send**



Calibrating the X and Y scales

Confirm that the values were saved

Enter \$\$ and click send

Verify in the log window that \$100 and \$101 match what you entered.

Restart Carbide Motion and do a test cut.