# AutoCAD 2009 Configuration for MUS

NOTE: The following steps do not apply to AutoCAD 2006 or earlier versions.

These steps must be done before attempting to use MicroScribe Utility Software (MUS) with AutoCAD 2009. If they are not done, MicroScribe input will not be recognized.
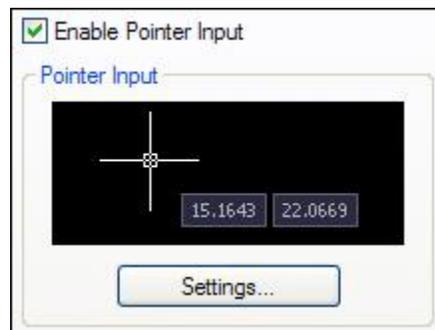
1. Once AutoCAD 2009 has been started, move the mouse pointer over the **Dynamic Input** icon located toward the lower-left of the screen and right-click the mouse button.
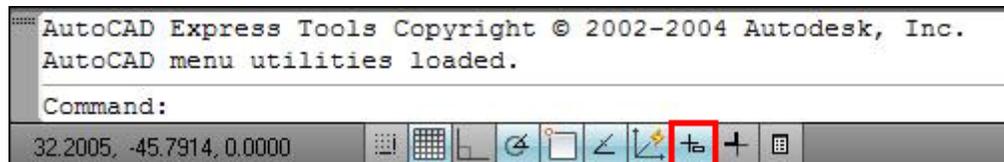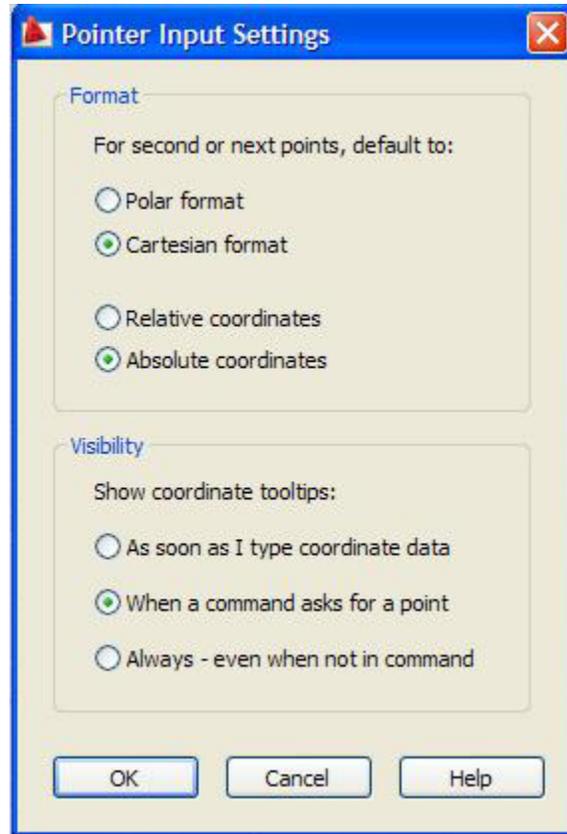

2. Choose **Settings**.

3. Make sure that **Enable Pointer Input** is checked and choose **Settings**.

4. In Pointer Input Settings, **Cartesian format** and **Absolute coordinates** MUST be selected.

5. Click **OK** to apply changes.

AutoCAD 2009 is now configured and ready to be used with the MicroScribe through MUS.

Immersion

Using AutoCAD 2009 with the MicroScribe

Inputting 3D Data

Configuring MicroScribe Utility Software (MUS)
MicroScribe Utility Software is a free utility from Immersion Corporation. It formats the XYZ data from the MicroScribe and emulates keyboard key presses to enter data into various programs able to accept keyboard data entry. The AutoCAD Format Strings in MicroScribe Utility Software will allow you to input 2D or 3D data with the MicroScribe. To obtain a copy of the software, e-mail Immersion at support@immersion.com.

To use MUS with AutoCAD in 3D:
1. Launch MicroScribe Utility Software.
2. Click on the **Format Strings** icon.
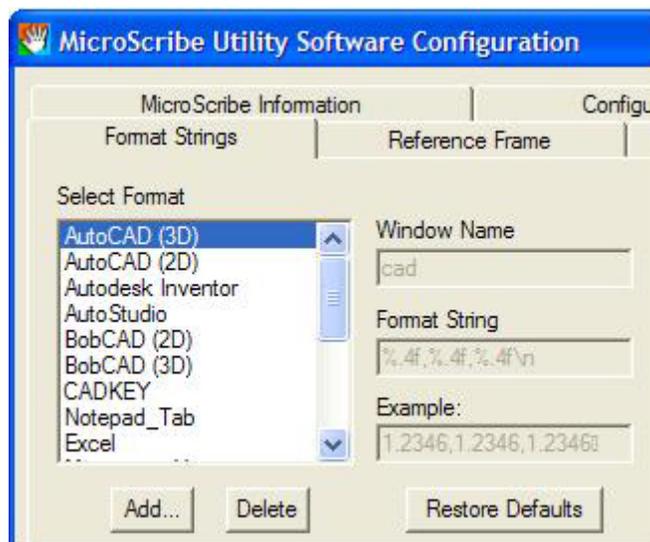
3. From the Select Format list choose *AutoCAD (3D)* Format String.
4. Verify that the format string is as follows: "%.4f,%.4f,%.4f\n" If it is not, follow instructions in the embedded MUS help file to change the format string to the one above.
5. Click OK.

6. Click on the **Reference Frame** icon.
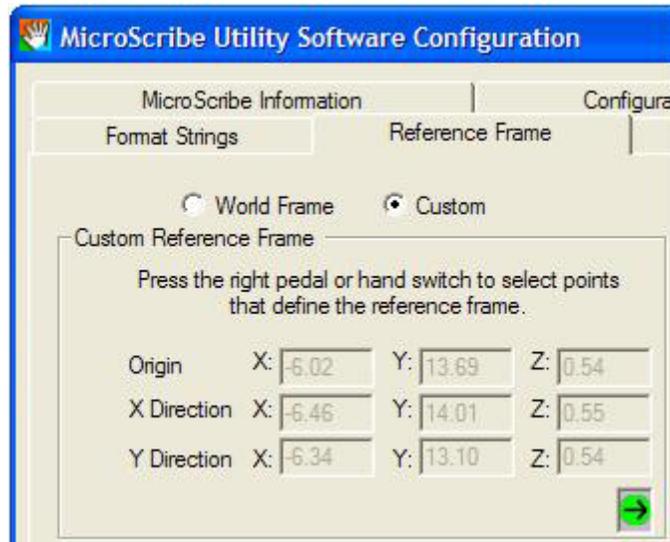
7. Select either the **World Frame** or **Custom Reference Frame** option.
   - **World Frame** uses the default reference frame the MicroScribe establishes on start up.
   - **Custom Reference Frame** allows the user to define where the origin and X- and Y-axes are in the physical workspace. For more information of this feature, see the help file in MUS.

Capturing 3D Data in AutoCAD

NOTE: Once a tool has been selected, the cursor MUST be moved anywhere in the active window to capture MicroScribe input.

To digitize a 3D Polyline **:**
1. From the **Draw** menu, select **3D Polyline** or type *3dpoly* at the command line.
2. Start digitizing the 3D polyline with the MicroScribe.
3. To connect the 3D polyline to another object use the mouse to close the polyline.

   Once the points have been plotted, pressing the Enter key will end the command.

To digitize a 3D Spline **:**
1. From the **Draw** menu, select **Spline** or type *spline* at the command line.
2. Start digitizing points with the MicroScribe to create the spline. When completed press the Enter key.
3. At the Specify start tangent prompt press Enter again, then at the Specify End tangent prompt, press the Enter key again to complete the spline and end the command.

   The line command can be used to digitize a simple 3 dimensional line (edge).

4

To digitize a 3D line **:**

1. From the **Draw** menu click on **Line** or type *line* at the command line.
2. Start digitizing points with the MicroScribe to create a line.
3. When finished, press the Enter or Escape keys to end the command.

Creating Circles

The circle command cannot be used with the MicroScribe while using the **AutoCAD (3D)** format string in MUS. This pertains to 3-Point, 2-Point, Ttr, and Center Radius circles. To digitize circles, the format string in MUS must be changed to **AutoCAD (2D)**. See the "Inputting 2D Data" section of this document for more information.

Creating 3D Surfaces

Using the Edge Surface Command you can create a 3D surface by selecting enclosed edges. These source edges must be connected in order for the command to work.

To make a 3D surface:

1. From the menu, select ➤ Draw ➤ Modeling ➤ Meshes ➤ Edge Mesh or type e*dgesurf* on the command line.
2. Choose the appropriate edges or curves to create the desired surface.

   NOTE: Using the **Edge Surface** command requires that you select exactly four edges or curves to create a 3D surface.

Using the Auto Plot Feature within MicroScribe Utility Software

This feature allows users to capture data at defined intervals of distance. It is ideal for uniformly spacing points along a curve. It works well with the spline, line, and polyline command. For more information on using this feature, refer to the help file in MUS.

Using the Scan Planes Feature within MicroScribe Utility Software

The **Scan Planes** feature allows users to create 2D cross section curves of 3D objects. The user defines a series of virtual planes. Then, each time the MicroScribe stylus passes through one of the planes, data is collected. For more information on this feature, refer to the help file in MUS.

Inputting 2D Data

Configuring MicroScribe Utility Software

MicroScribe Utility Software is a free utility from Immersion Corporation. It formats the XYZ data from the MicroScribe and emulates keyboard key presses to enter data into various programs able to accept keyboard data entry. The **AutoCAD (2D)** format string in MUS will allow you to input 2D data with the MicroScribe.

To use MUS in 2D:

1. Launch MicroScribe Utility Software.
2. Click on the **Format Strings** icon.
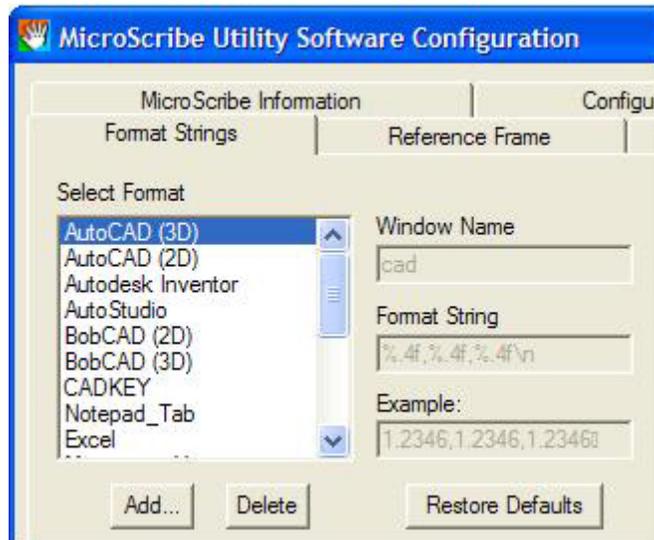
3. From the Select Format list choose *AutoCAD (2D)* Format String.
4. Verify that the format string is as follows:"%.4f,%.4f\n" If it is not, follow instructions in the embedded MUS help file to change the format string to the one above.
5. Click OK.
6. Click on the **Reference Frame** icon.
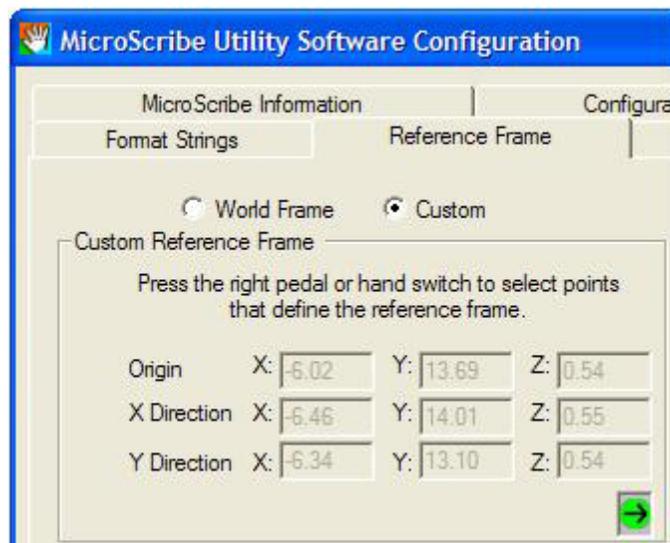
7. Select either the **World Frame** or **Custom** option.
   ▪ **World Frame** uses the default reference frame the MicroScribe establishes on start up.
   ▪ **Custom Reference Frame** allows the user to define where the origin and X- and Y-axes are in the physical workspace. For more information of this feature, see the help file in MUS.

Capturing 3D Data in AutoCAD

Creating Splines
Using the spline command with the MicroScribe creates an interpolated curve when plotting points with the MicroScribe. The curve will be completed once the points and the start tangent and end tangent have been entered. Pressing the Enter key at the "Enter start tangent" prompt and the "Enter end tangent" prompt will create the desired curve.

To digitize a 2D Spline **:**
1. From the **Draw** menu, select **Spline** or type *spline* at the command line.
2. Start digitizing points with the MicroScribe to create the spline. When completed press the Enter key.
3. At the Specify start tangent prompt press Enter again, then at the Specify End tangent prompt, press the Enter key again to complete the spline and end the command.

Creating Rectangles
The MicroScribe can be used to input the two opposing corners of a rectangle:
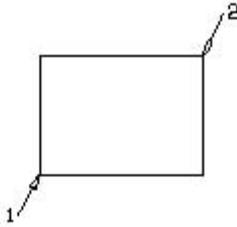

To create a 2D rectangle **:**
1. From the **Draw** menu, select **Rectangle** or type *rectangle* at the command prompt.
2. Digitize the first point (corner) with the MicroScribe, and then digitize the second point (opposite corner) to complete the rectangle.
3. (See figure above)

Creating Circles
Using the Circle command to input circles, requires you to first choose a circle type: 3-Point circle, 2-Point circle, Tangent tangent radius circle (ttr), or Center Radius circle.

You can use the MicroScribe to create a 3-point circle by placing three approximately evenly spaced points on the circle being digitized.
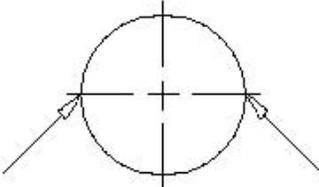
To create a 3-point circle **:**
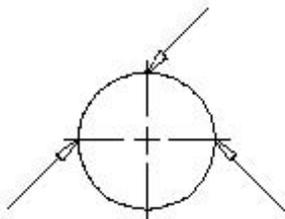
1. From the **Draw** menu choose **Circle ▶ 3-Point** or type *circle* from the command line.
2. From the circle specify… prompt enter *3P* and press the Enter key.
3. Digitize 3 points approximately evenly spaced on the circle (See figure above).

The 2-point circle is exactly like the 3-point circle with the exception that it requires only two points. It is important to take these points at the diameter so that the circle will have the same dimensions as the original.

To create a 2-point circle :

1. From the **Draw** menu choose **Circle ▶ 2-Point** or type *circle* at the command line.
2. From the circle specify… prompt enter *2P* and press the Enter key.
3. Digitize 2 points approximately at the diameter of the circle (See figure above).

The Center Radius circle command requires the center point and the radius of the circle for creation. Using the MicroScribe simplifies the placement and size of such a circle. This command requires you to place the tip of the stylus at the center, click the left button, then place the stylus at the radius of the circle and click the left button once more to complete the circle.

To create a Center Radius circle :
1. From the **Draw** menu choose **Circle ▶ Center, Radius** or type *circle* at the command line.
2. From the circle specify… prompt digitize the center point of the circle, and then digitize a point at the perimeter of the circle.

Creating Ellipses
Using the Ellipse command with the MicroScribe differs from its use with the mouse. To plot the ellipse with the mouse, AutoCAD asks for two axis endpoints and another axis or rotation point to create the ellipse.

An ellipse can be created with the MicroScribe by plotting three points: two along the edge of the ellipse near the center and one perpendicular to the first two, also along the edge of the ellipse.

You can also plot two points at the parabolic ends of the ellipse and one at the center edge to create the original ellipse.
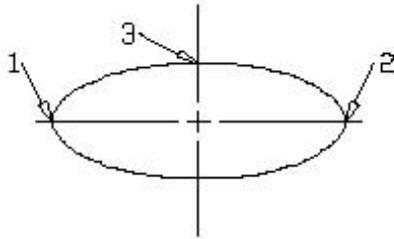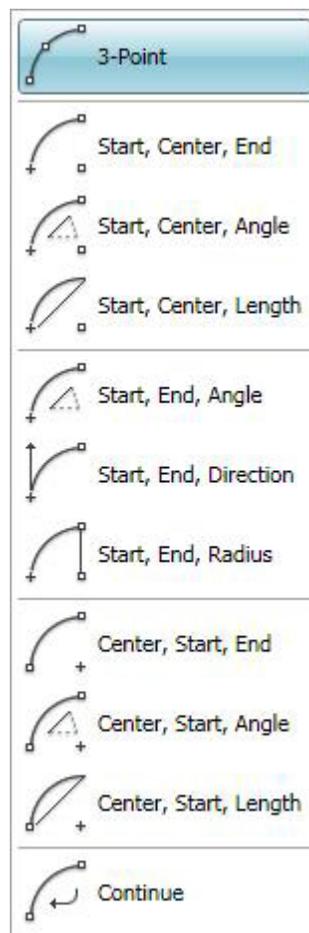
To create an ellipse **:**
1. From the **Draw** menu choose **Ellipse ► Axis, End** or type *ellipse* at the command line. (See figure above)
2. At the Specify axis endpoint of ellipse prompt, digitize a point at the parabolic end of the ellipse (point 1).
3. At the Specify other endpoint of axis prompt, digitize a point at the other parabolic end of the ellipse (point 2).
4. At the Specify distance to other axis or [Rotation] prompt, digitize a point at the edge but at the center of the ellipse, (point 3) to complete the ellipse.

Creating Arcs

To create an arc:
1. From the **Draw** menu choose **Arc,** and then select the desired type of arc (e.g.: Start, Center, End).

2. You can also type *arc* at the command line. This will automatically put you into the 3 point option .
3. At the prompt, digitize first point (according to type of Arc selected).
4. Continue to digitize points as prompted.
5. After the third point is digitized, the arc will be completed and the command will end.

Creating arcs from the ellipse command is similar to creating a standard ellipse.

To create an arc using the ellipse feature :
1. From the **Draw** menu choose **Ellipse ► Elliptical Arc** or type *ellipse* at the command line.
2. Type in *a* or *arc* at the Specify axis endpoint of ellipse or [Arc/center] prompt.
3. At the Specify axis endpoint of elliptical arc prompt digitize a point at the parabolic end of the ellipse (see step 2 in creating an ellipse above).
4. At the Specify other endpoint of axis prompt digitize a point at the other parabolic end of the ellipse. (See step 3 in creating an ellipse above).
5. At the Specify distance to other axis or [Rotation] prompt digitize a point at the edge but at the center of the ellipse to complete the ellipse. (See step 4 in creating an ellipse above).
6. At the Specify start angle or [Parameter] prompt digitize a point to define the starting point of the arc.
7. At the Specify end angle or [Parameter/Included angle] prompt digitize a point to define the end point of the arc.

Once the specified end angle (end point) has been digitized, and the arc will be complete.

Using the mouse in conjunction with the MicroScribe:
It is possible to use your mouse in conjunction with the MicroScribe during all AutoCAD commands. This is very helpful when you need to snap to exact points.

1. Type or use the menus to activate the desired AutoCAD command.
2. Use the mouse along with any snap feature to select a point.
3. You may then use the MicroScribe or the mouse interchangeably to select the remainder of the points.

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