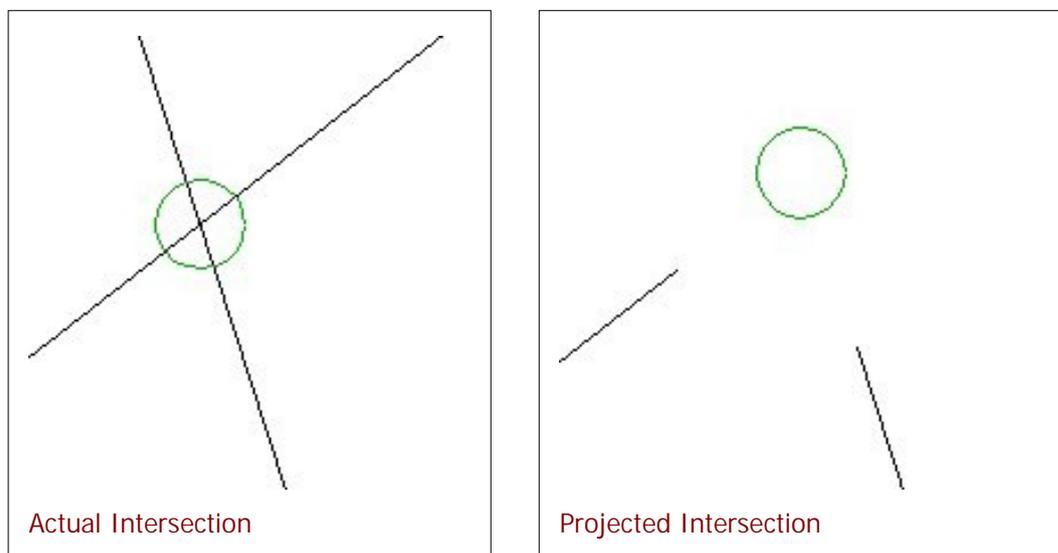


This question arose during a conversation with a MicroStation VBA experimenter: "How do I calculate the intersection of two lines? I want to calculate either an actual intersection or a projected intersection."

He also wants to mark the intersection point, by drawing a temporary circle at the point of actual or projected intersection. The diagrams below indicate what he anticipates:



The MicroStation VBA module `Intersect.mvba` (in ZIP archive `Intersect.zip`) implements his requirement. The apparently simple specification led me down some interesting by-ways in VBA, at one juncture colliding with MDL. Here is a brief explanation of the code ...

- 1 Implements `ILocateCommandEvents` to locate more than one element
- 2 Preserves the result of the first locate by saving the Element's ID
- 3 Shows different prompts, depending on the current locate state
- 4 Computes the actual intersection of two lines, and tells you when they don't intersect
- 5 Computes the projected intersection of two lines. That is, the actual lines don't intersect, but their projections may intersect beyond the extent of either of the lines
- 6 Uses MDL functions to help compute 5 and 6
- 7 Calculates the `LocateTolerance` radius for a given view to draw a temporary circle at the line's intersection point. Uses MDL functions to find the `LocateTolerance` in Master Units for a given View

If you want to try out this code, unzip the archive and copy `Intersect.mvba` to a folder where MicroStation can find it, for example

`C:\Program Files\Bentley\Workspace\Standards\VBA`. Start MicroStation and start the VBA Project Manager (from the Utilities|Macros menu). Click the Load Project button and browse to find `Intersect.mvba`. With the project loaded, open MicroStation's key in window and enter `VBA RUN Intersect1.Main`.

The VBA code prompts you to locate and accept two `LineElement` lines (no other element type is acceptable: `LineString` elements, for example, are rejected). It computes their intersection, displays an appropriate message in the status bar, and draws a temporary circle at the intersection point as shown above.