

June 22, 2005

### Externally Referenced Drawings (XREF)

MSCAD2005 treats an xref as a type of block with some important differences. When you insert a drawing as a block, it is stored in the drawing and is not updated if the original drawing changes. When you attach a drawing as an xref, you link that referenced drawing to the current drawing; any changes to the referenced drawing are displayed in the current drawing when it is re-opened. A drawing can be attached as an xref to multiple drawings at the same time. Conversely, multiple drawings can be attached as external references to a single drawing. Xrefs must be model space objects. They can be attached at any scale, location, and rotation.

Typically, an Xref is used when you need to constantly see the changes in another drawing, inside your drawing.

Example: you are working in Drawing A and a co-worker is working in Drawing B. You need to see Drawing B inside your Drawing A as you work. If you were to insert the drawing as a block, then Drawing B would be inside Drawing A but it would be a snapshot at the instant you inserted it and would not update as Drawing B is changed. If you use Xref, instead of insert, then Drawing B is inserted to Drawing A *but* a link remains to Drawing B at all times. So when you open Drawing A at a later date, the current status of Drawing B will automatically be loaded and displayed in Drawing A.

When Drawing A is finalized, you then Bind Drawing B into Drawing A so it will no longer update. After all, you can't have a finished drawing change after it is finalized. This way you can also send the completed Drawing A to a client, if required, and they do not have to contend with xrefs.

While Drawing B is still an Xref – Drawing A is not as large as Drawing A and Drawing B combined being there is only a link to Drawing B and not a copy of it in Drawing A. Once you Bind Drawing B to Drawing A – Drawing A will now have all of the entities contained in it (as well as layers, etc.) from Drawing B, so the size will be about the same as the two drawings added together.

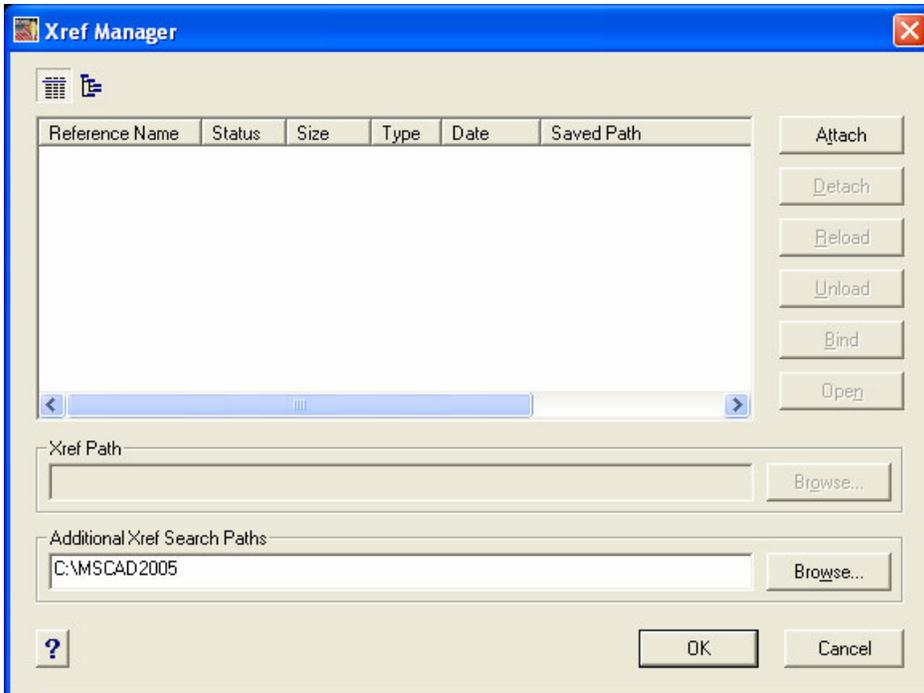
**Q)** How do I bring a drawing in as an Xref?

**A)** In MSCAD2005, go to the Draw menu -> Xref Manager (or type in XRM at the command line).

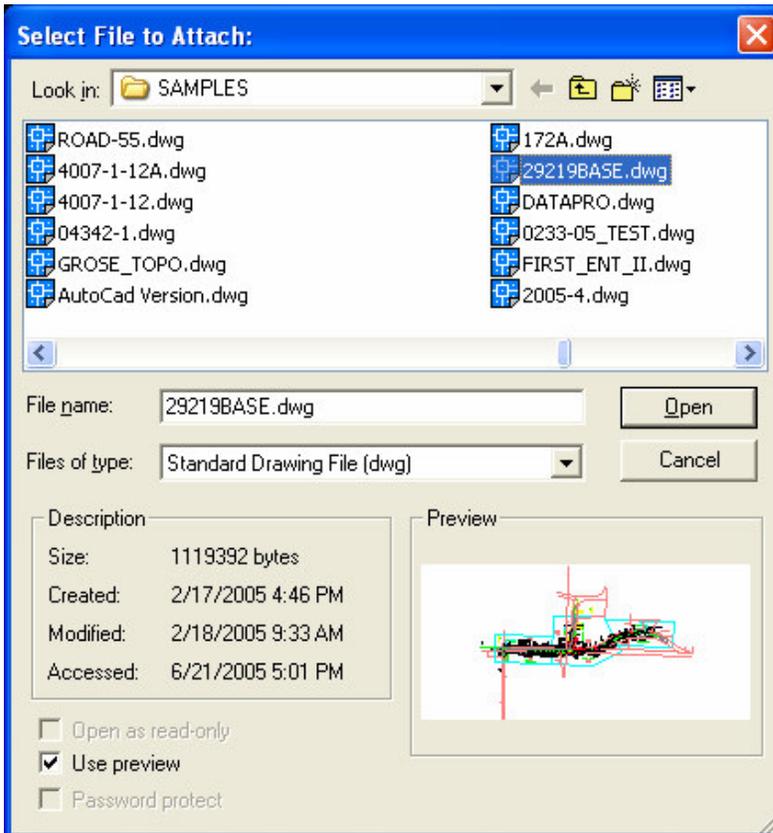
That will bring up the following dialog box:

(if you type in XREF then the command is run on the command line without dialogs.)

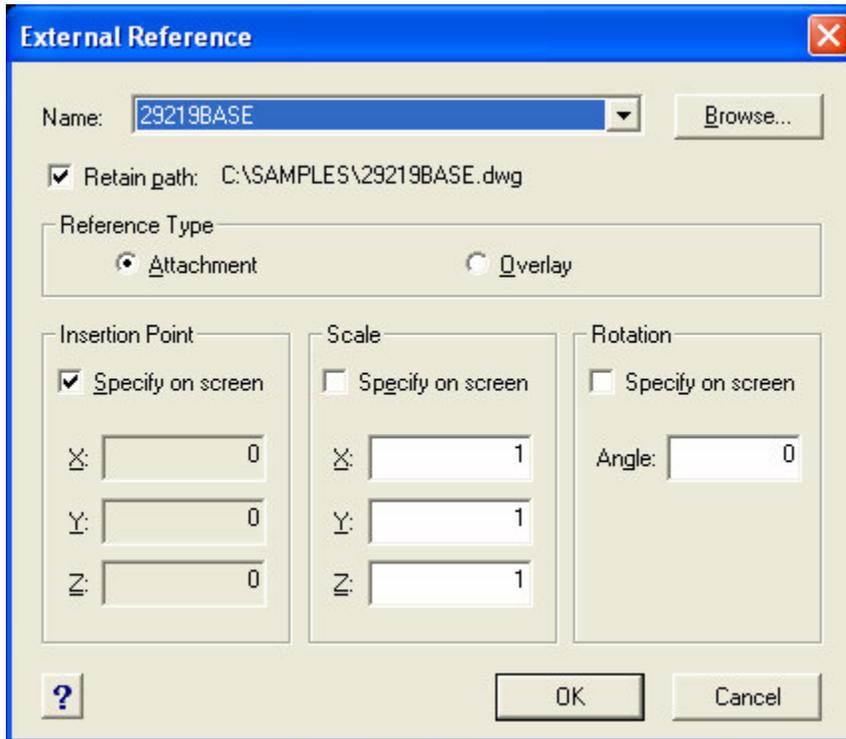
External References:? To list/Bind/Insert/Detach/Path/Reload/Unload/Overlay/<Attach>:



To insert another drawing into your current drawing as an xref, pick on the Attach button.



This allows you to go to the location on your hard drive and select the drawing you need to xref. Pick on Open and fill in the fields as required.



**Name:** Displays the external reference to attach, or select one from the list.

**Browse:** Click to locate and select a different drawing to attach.

**Retain Path:** Select to save the folder location of the referenced drawing. If not selected, the referenced drawing must be located in the same folder as the current drawing.

**Reference Type:** Choose *Attachment* to link a drawing, including any of its own external references. Any nested references contained in the file also appear in the current drawing.

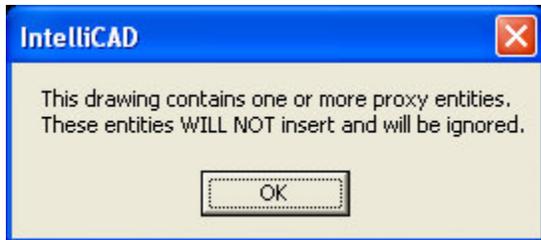
Choose *Overlay* to link a drawing without any of its own nested external references. When a drawing that contains overlaid external references is itself attached or overlaid as an external reference in another drawing, the overlays do not appear as part of the external reference.

**Insertion Point:** Choose to specify the insertion point in the drawing, or enter x-, y-, and z-coordinates. Choose Specify on Screen to choose the insertion point in the drawing after you click OK.

**Scale:** Choose to specify the scale in the drawing, or enter x-, y-, and z-scale factors. Choose Specify on Screen to choose the scale in the drawing after you click OK.

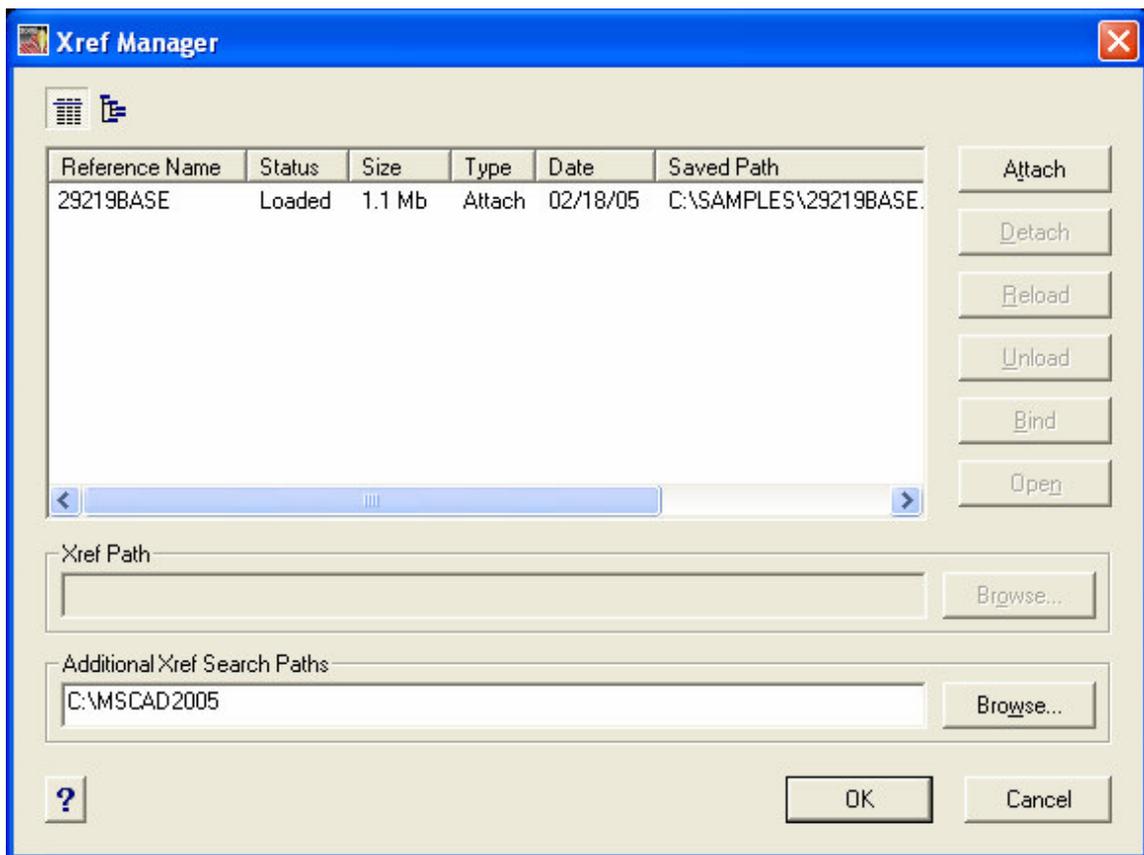
**Rotation:** Choose to specify the rotation angle in the drawing, or enter a rotation angle. Choose Specify on Screen to choose the rotation angle in the drawing after you click OK.

If the drawing you xref in has proxy entities you will get this dialog:



Pick on OK to continue.

Once you have picked the location in your drawing for the xref, the dialog shows:



**List View:**  Click to display external references in a detailed list.

**Tree View:**  Click to display external references in a hierarchical tree.

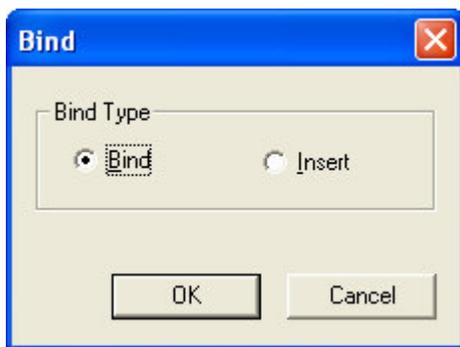
**Attach:** Click to link a drawing as an external reference. Opens the External Reference dialog box.

**Detach:** Click to remove the external reference and all of its elements, including layers and linetypes, from the drawing.

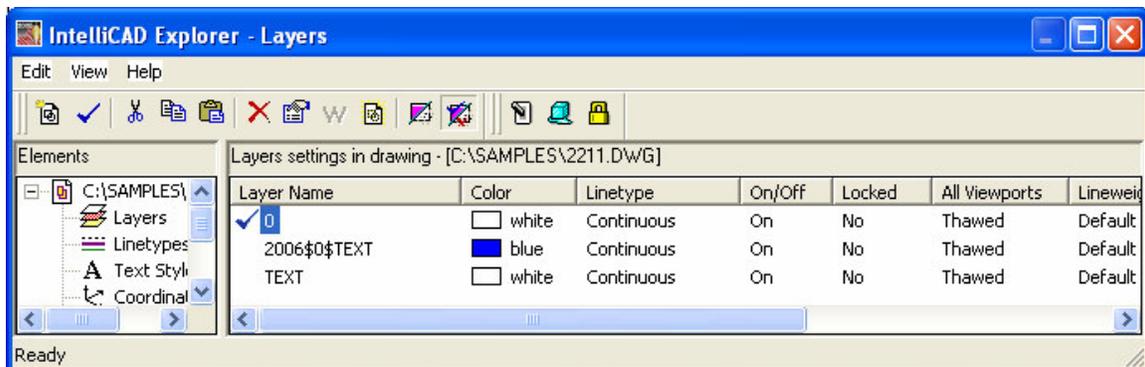
**Reload:** Click to update the current drawing with any changes made to the selected external reference.

**Unload:** Click to remove the external reference from the current drawing, but keep elements and path information for easy reloading.

**Bind:** Click to make the selected external reference a permanent part of the drawing, which is the same as inserting a separate drawing as a block. In the dialog box that displays, choose Bind or Insert.



Choosing *Bind* creates a unique name for each named entity, such as a layer or block, that is located in the external reference. For example, a layer named TEXT in the external reference will be named Xrefname\$0\$TEXT in the current drawing. If the current drawing already has a layer or block with the same name, the name is changed incrementally, for example, Xrefname\$1\$TEXT (where Xrefname is the name of the drawing that was xref'ed in – in the dialog below the xref drawing name was 2006).



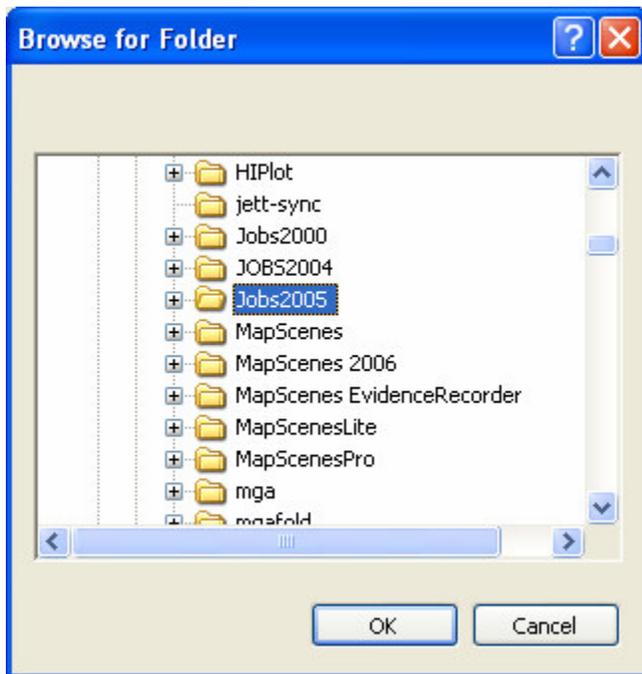
Choosing *Insert* does not change the names of any named entities in the external reference. For example, a layer named Electric in the external reference will have the

same name, Electric, in the current drawing. If the current drawing has a layer or block with the same name, the named entity in the external reference takes on the properties of the named entity in the current drawing.

**Open:** Click to open the source drawing for the external reference.

**Xref Path:** Type or click Browse to specify the external reference location.

**Additional Xref Search Paths:** Type or click Browse to specify other directories where external references may be located.



Separate multiple paths with a semicolon. MSCAD2005 searches the directories in the order in which they are listed. You can add as many different paths as required.



We hope this helps give an overview of the xref capability of MSCAD2005.

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