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#   Name : XrefManager.rb
#
# Description :
#   Tools - 'Add Xref Component', 'Add Xref DWG/DXF'****,
#           "Make Into Xref, 'Xref Settings'**** and 'Manage Xrefs'
#           added to Plugins menu under 'Xrefs Tools...'
#           **** = Currently on PCs only.
#           On PCs it requires 'win32ole.so' in the Plugins folder (v3.0+).
#
# Author : TIG (c) 11/2005
#
# Usage :
#   Add Xref Component:
#
#   A file-browser dialog asks you to select a '.skp' file to
#   insert into the model as an "Xref Component".*** If you Cancel
#   the browser or the file is not a '.skp' or you try to insert
#   the model back into itself you will get an error dialog and it
#   exits without adding anything. You pick one and OK and it is
#   added and is placed where you want in the model.
#   The added Xref Component is also given two new "XrefManager"
#   entity attributes, which also identify it as an Xref Component
#   for future Xref Manager use, named:
#   "FilePath" i.e. path to the original skp file.
#   "FileAge"  i.e. date the original skp file was last modified.
#
#   The Add is easily Undo-able.
#
#   ***An 'External (Xref) Reference' means that if you insert a
#   component from a file and then change the original file, you
#   can then use the Xref Manager or Xref Settings to Refresh it.
#
#   Add Xref DWG/DXF:
#
#   This Tool is available on 'Windows Platform' only
#   - sorry 'Apple Mac' users !
#   A dialog asks you to confirm the DWG/DXF Import settings:
#   - Merge co-planar Faces          - default = No
#   - Orient Faces Consistently      - default = Yes
#   - Units - Inches, Feet, Millimeters, Centimeters and Meters
#     [the default is your model's units, BUT you might be working
#     in millimeters but importing a dwg that's in meters, so
#     think about this bit...]
#   - Preserve Drawing Origin        - fixed at = Yes
#   (but you can Move it later...)
#   Usually taking the defaults is recommended...
#   Additionally at the end is a setting called "Timer"
#   - default is 5 - see below      for more details****...
#   A file-browser dialog then asks you to select a '.dwg/dxf' file
#   to insert into the model as an "Xref DWG/DXF Component".
#   If you Cancel or it's not a '.dwg/dxf' then you will get an
#   error dialog and it exits without adding anything. Normally
#   you'll pick a suitable file and select OK. It then briefly and
#   automatically opens the Import dialog and sets the dwg/dxf's
#   path/name and it also opens the Options dialog and sets it as
#   you have selected... NOTE: DO NOTHING WHILE THIS RUNS
#   - no key strokes, mouse clicks etc or else you might affect the
#   processing. The Import Progress bar displays whilst the file
#   is processed. There is then a DWG/DXF Import Report dialog
#   displayed. It will auto-close after a few seconds, or you OK
#   it to continue...
#   The selected file is added to the model as an Imported DWG/DXF
#   Xref Component named as the dwg/dxf file

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# - e.g. "SitePlan.dwg". It's placed at the equivalent to the
# dwg/dxf's X,Y,Z in the model; you can always Move it later, BUT
# keeping Xrefs aligned is often critical.
# ****"Timer" option setting - an explanation:
# There has to be a built in delay to allow the Import to finish
# completely before trying to add attributes etc, this is usually
# a matter of seconds - the time before the Import Report dialog
# is auto-closed and the special Xref Attributes are added to the
# component. A "Timer" default of 5 should suit most PCs and
# dwg/dxf imports: however if you have a fast PC or if you use
# simple, but large, dwg/dxf files that Import relatively
# quickly, i.e they are perhaps taking perhaps too long for the
# Report to auto-close - then you can always reduce the Timer by
# a little to speed this up. Conversely if your PC is slow
# or if you use dwg/dxf files that are very complex and that take
# longer to Import you might get errors messages - such as, 'Do
# you really want to stop the Import...' and Xref components that
# don't have the "Xref[...]" prefix in their description and that
# don't get listed in the Xref Manager dialog because their
# Attributes are not set up: in that case increase the Timer
# setting a little and see if that helps, and then 'Refresh' any
# 'faulty' Xref DWG/DXF with the new setting...
# If you consistently get problems needing either excessively
# long or short Timer settings then please give feed-back as it
# might be fixable in the code itself...
# Remember a 6Mb DWG might take 6 minutes to import - be patient,
# Assuming the Timer is just right then the added Xref DWG/DXF
# Component will be given the new "XrefManager" entity
# Attributes, named:
# "FilePath" i.e. path to the original skp file.
# "FileAge" i.e. date the original skp file was last modified.
# Additionally an Xref DWG/DXF Component gets attributes to cover
# the earlier selected Import settings:
# "Merge"(yes/no), "Orient"(yes/no), and "Units"(ins/ft/mm/cm/m).
# Remember that its initial origin is always set as the
# dwg/dxf's origin by default. These additional attributes are
# 'fixed' for that Xref Component - if you want to change
# (e.g. you got the units wrong) then you'll have to Refresh it
# with the Xref Manager and re-do the settings...
#
# The Add is easily Undo-able.
#
# Make Into Xref:
#
# Select any component in the model. Select the 'Make Into Xref'
# Tool. That component is made into an Xref Component. If there
# is no selection or the selected item is not a component then
# there are error dialogs. If the component is 'internal'** -
# then a dialog suggests you do the following - select the
# component in the Component Browser, Right-click and pick
# Save-As. It is now saved externally and it can then made into
# an Xref with this Tool... Using this Tool on an existing Xref
# Component will update its File-path and Last-modified
# Attributes to the external file's current settings*.
# This Tool is also useful for fixing Xrefs that have problems
# Refreshing etc because the Component Browser's 'Delete'
# function has been used and/or it's been manually 'Reloaded'
# from the Browser - losing some Xref Attributes in the process,
# or ones that have been made into ordinary components with
# 'Bind' and you'd like them back as Xrefs - *depending on its
# state the confirming dialog will say ..XXX 'made into'.. or
# 're-created as an'.. Xref Component...
# **NOTE if you run this on an Xref DWG/DXF Component it is also
# 'internal', so you are warned what it is, and it than exits

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# without doing anything - if you really want to save it as an  
# external component you can still do so manually...

### # **Xref Setting:**

# This Tool is available on 'Windows Platform' only  
# - sorry 'Apple Mac' users !  
# It opens a dialog which lets you set the type of Xref Checking  
# that runs when you first open a model containing Xref  
# Components - you can choose two options if the chosen setting  
# is 'Open Xref Manager If Needed' and it finds anything that  
# needs fixing then it opens 'Xref Manager' (see below).  
# Note than changes done initially at startup are NOT  
# subsequently undo-able. If it is set to 'Do Nothing' then  
# there is no initial checking.

### # **Xref Manager:**

# This allows you to manage Xref Components. If there are no  
# Xref Components to manage then an error dialog tells you and it  
# exits. Otherwise a dialog lists each Xref Component by its  
# type (.SKP:/.DWG:/.DXF:), name and its Status... e.g.  
# .SKP: Building- i.e. it's all OK - path confirmed,  
# loaded and up-to-date.  
# .SKP: Building-2 [ Un-Pathed ] i.e. remembered file path no longer  
# exists.  
# .SKP: Building-3 [ Un-Loaded ] i.e. component not in the model but  
# still in comp-browser.  
# .SKP: Building-4 [ Superseded ] i.e. original skp file has been  
# changed recently.

# Any DWG/DXF Xrefs are also included in the Manager list at the  
# end and are prefixed to suit, e.g.  
# .DWG: SitePlan [ ... ] i.e. a dwg of the site...  
# .DXF: Building-9 [ ... ] i.e. a dxf of building-9...

# They can be 'OK'd' (Un-Changed), 'Deleted' or 'Bound', note  
# that on PCs only they can also be 'Refreshed' and 'Re-pathed'  
# in a similar way as SKPs - however on non-PCs they will be auto-  
# re-set to be 'Un-Changed [PC ONLY]'...

# Note: any Xref Component can also have a combined Status  
# - e.g. Un-Loaded + Superseded.

# Each Xref Component listed has a drop-down to its right giving  
# a choice of Actions - these are defaulted to suit the present  
# Status and the likely Fix (1 of first 3) thus:

# "OK..." i.e. leaves Xref Component unchanged.  
# "Refresh" i.e. refreshes Xref Component from the original  
# file - you do not need to refresh unless its  
# Status is shown as 'Superseded'.  
# "Re-Path" i.e. resets the path of the original file - you do  
# not normally need to Re-Path, unless you have  
# moved or renamed the original file and its  
# Status is shown as 'Un-Pathed', however you  
# might want to change a placed Xref for another file.  
# "Bind" i.e. removes the "XrefManager" attributes and makes  
# the Xref Component into an ordinary component.  
# You can undo this with 'Make Into Xref' which  
# will convert the component back into an Xref one.

# "Delete" i.e. deletes any Xref Component instances in the  
# model - please use 'Delete' with care !  
#  
# On picking the OK button each listed Xref Component is  
# processed with the selected Action thus:  
#  
# 'Refresh' means the Xref Component is updated from a file. The  
# old version in the comp-browser is renamed as  
# '#Xref-Scrap[#nn]' and becomes an ordinary unused component  
# that will be removed from the model data-base if you select the  
# Auto-Purge-Unused option (PC only), or when you next pick  
# 'Purge Unused' on the compo-browser dialog fly-out (a dialog  
# asks / reminds you of this). If you picked 'Refresh' but the  
# file is shown as Un-Pathed then 'Re-Path' will run as set out  
# in the paragraph below, asking you to re-define the file-path.  
#  
# 'Re-Path' runs a file-browser dialog that asks you to select a  
# '.skp' file to reinsert into the model as the Xref Component.  
# If you Cancel the browser or the file is not a '.skp' or you  
# try to insert the model back into itself you will get an error  
# dialog and it exits without processing that Xref Component -  
# also any remaining on the list are also NOT processed  
# - you will need to re-run the tool. Otherwise Re-path is  
# similar to Refresh in the way '#Xref-Scrap[#nn]' is made...  
#  
# 'Bind' removes the "XrefManager" attributes and make the Xref  
# Component into an ordinary loaded component. You can undo  
# 'Bind' by using the 'Make Into Xref' Tool...  
#  
# 'Delete' erases the Xref Component Instances in the model.  
# The version in the compo-browser is renamed as  
# '#Xref-Scrap[#nn]' and becomes an unloaded ordinary component;  
# it will be removed from the model data-base if you select the  
# Auto-Purge-Unused option (PC only), or when you next pick  
# 'Purge Unused' on the compo-browser dialog fly-out (a dialog  
# asks / reminds you of this). Use Xref 'Delete' with care !  
#  
# Note: DWG/DXF Xrefs can only be Added or Refreshed/Repathed on  
# a PC, so if the model is subsequently opened on a Mac system  
# and Xref Manager is invoked then the options are limited for  
# that type of Xref - see above...  
#  
# It is recommended that you Refresh only ONE DWG/DXF at a time,  
# otherwise it can take a long time and sometimes errors might  
# occur with multiple refreshings (multiple SKP's are OK).  
#  
# If you cancel out of a Re-Path during an Xref Manager session  
# it might not all complete successfully and an error dialog  
# warns you.  
# At the end of processing the Xrefs that were listed then a  
# report dialog is displayed showing what was done.  
# (Note: A currently known, but unidentified, bug sometimes means  
# that to close this dialog more than one click on 'OK' might be  
# required ! )  
#  
# All Actions Undo - depending on the list and action then more  
# than one Undo might be needed.  
#  
# **Notes:**  
#  
# Do NOT manually 'Reload' an Xref Component from the Component  
# Browser or Context-Menu - it'll lose its Xref Attributes (the  
# same result as 'Bind'). But you can use the 'Make Into Xref'  
# tool to convert it back into an Xref Component...

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#
# From v2.3 on PCs only AND Mac using SUp v6
# 'old' Xref Components will be removed
# from the model data-base if you select the Auto-Purge-Unused
# option, or when you next pick 'Purge Unused' on the compo-
# browser dialog fly-out (a closing dialog asks / reminds you of
# this). Do NOT use the Component Browser 'Delete' option to
# remove former Xrefs - this might cause the current Xref to fail
# to Refresh properly. You will need to Reload it from the
# Component Browser and use the 'Make Into Xref' tool to convert
# it back into an Xref Component...
#
# Type : Tool
#
# Version :
# 1.0 26/11/05 First issue.
# 1.1 27/11/05 Error with mpath = "" if unsaved now trapped.
# 1.2 28/11/05 Error with menu call typo fixed.
# 1.3 03/12/05 Xref Class added ( for TBD ! ).
# 1.4 10/12/05 'Add Xref' dialog now has [0,0,0] placement
# clue in title-bar. 'Refresh/Repath/Delete'
# reminders now only one per dialog session.
# 'Xref Settings' Tool added to allow settings
# for Xref.check which runs at model open, if
# needed suggests use 'Xref Manager'. 'Make Into
# Xref' Tool added. Xref Component description
# now prefixed with 'XREF: '.
# 1.5 12/12/05 Name of script corrected to 'XrefManager.rb'
# - doh ;-}
# 1.6 20/12/05 Start_operation glitch trapped for Mac users.
# 1.7 21/12/05 Mac friendliness improved ? Undos improved.
# 1.8 21/12/05pm Mac friendliness re-improved ?
# 1.8a 21/12/05pm Mac version = cut-down - no setting/check
# (limited issue)...
# 1.9 21/12/05pm Forced refresh/repath improved. Setting/Check
# reinstated (at end). Xref.make improved.
# 2.0 22/12/05 Xref.check waits for model info to load then
# runs Xref.manager. Report after Xref.manager
# layout improved.
# 2.1 22/12/05 Mac cannot now use Xref.setting/check option
# - saves failures.
# 2.2 22/12/05 Platform checking improved.
# 2.3 25/01/06 Automatic Purge-Unused (PC only) added.
# 3.0 06/02/06 Add Xref id split into Component(SKP) & DWG/DXF
# (PC only). Xref Manager now identifies
# SKP/DWG/DXF Xrefs separately, currently some
# actions for these are only available on PC.
# 3.1 08/02/06 Timer default etc and dwg management adjusted
# following beta testing.
# 3.2 27/02/06 Timer issues resolved.
# 3.3 10/05/06 Version fix for extra import types, Naming of
# dxf and DXF etc allowed.
# 3.4 12/05/06 Typos corrected etc.
# 3.5 10/06/06 Manager Message glitch fixed if only skp's.
# 3.6 11/06/06 More Manager glitches fixed.
# 4.0 13/01/07 Updated to work with SUp v6.
# 4.1 14.01.07 Trapped for empty model not making a component of
# its first imported DWG/DXF.
# 4.2 15/01/07 PC AND Mac Auto-Purge All now available if SUp 6.
# Glitch with multiple Manager report dialogs fixed.
# 5.0 05/03/08 Glitch with Make Xref fixed.
# 5.1 07/03/08 Menu error fixed (sorry !).
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