WITNESS 'Power with Ease' Release Notes

Basics

Vous pouvez lire ces notes en français dans la section 'Qu'est-ce qu'il y a de nouveau dans la version?' de l'Aide-en-Ligne de WITNESS.

Sie können diese Anmerkungen auf Deutsch unter 'Neuerungen in diesem Release' in der Witness Online-Hilfe lesen.

Included

The release of 'Power with Ease' includes:

- The new 'Getting Started' guide

- The new Quick 3D capability

- The new 2D and 3D shapes library

Getting Started Guide

The **'Getting Started' guide** is available via a link during install and within the installation package. It aims to be a self explanatory document that takes users through installation, licensing and building a first simple model. The guide also documents any known limitations of this release.

Quick3D

Quick3D is a new command under the **Model** menu that will produce a 3D animation of the WITNESS model without any further interaction with the user. To achieve this automatic generation you need to use the new Designer Elements. The automatic generation uses a preconfigured mapping between the 2D shapes and the 3D geometries. You can modify the mapping at any time. This is described later in this document under the heading **Quick3D advanced features**.

The VR module continues to be a WITNESS option that provides the additional capabilities to:

- Build worlds
- Create Fly-Throughs
- Add your own shapes

Thinking behind Quick3D

Users tell us they value the ability of WITNESS to address a wide range of simulation problems and some of these models or parts of these models, do benefit from 3D visualization and animation.

However; speaking to users with experience of using 3D only simulation modeling approaches, they tell us working totally in 3D becomes clumsy as the complexity of the model increases, requiring increasing energy to organize and check the 3D orientation.

The WITNESS layout window enables users to focus on quickly building a valid simulation model. Quick3D has been developed to enable users to rapidly have a 3D animation of those parts of the model they wish to see animated. It's both quick and simply, 2D shapes used whilst developing the model are, with a click, mapped to complex 3D shapes for visualization. For users with WITNESS VR, Quick 3D models can be easily paced within prebuilt 3D models of factories or buildings. It is easy, for example, to introduce and visualize various production layout simulations into a common factory building.

Quick3D Existing Models

Quick3D is designed to use the new Designer Elements and so is ideal for users starting a new model. Quick3D can be applied to existing models; however results may be not what you expect as there is unlikely to be the correct mapping between your old 2D and the new 3D shapes. To correct the mapping, see the section Overriding the 2D > 3D mapping.

Steps from 2D to Quick3D

On starting up WITNESS you will see new tabs on the **Designer Elements** Window (**More Parts**, **More Buffers** and **More Machines**).

1. Use the elements from **More Parts**, **More Buffers** and **More Machines** to create a 2D representation of your simulation within the Layout Window.
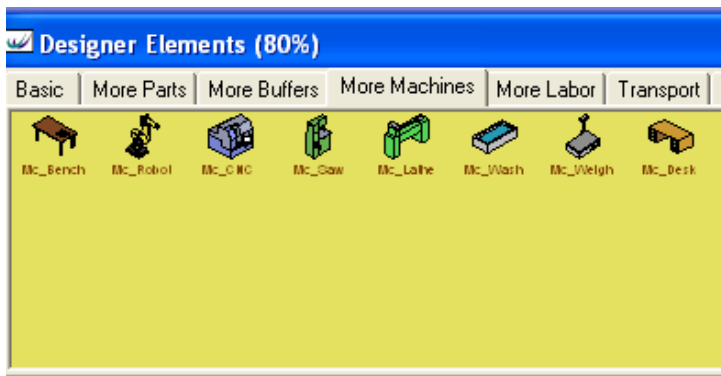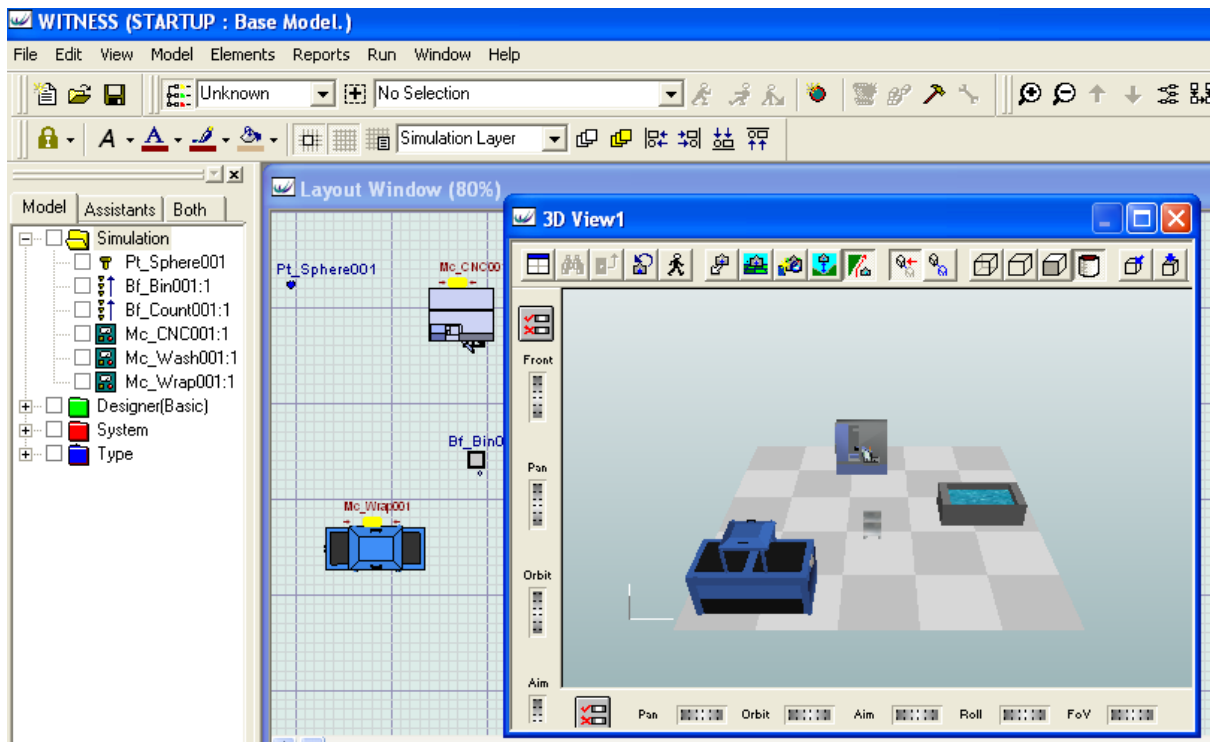

These Designer Elements whilst shown in isometric appear in plan view when laid on to the Layout Window.
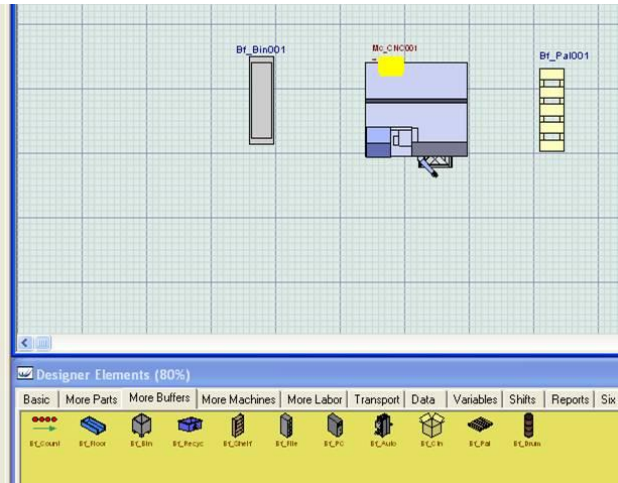
2. Select the **Quick3D** command within the Model menu – a 3D model will be automatically built and displayed in a new 3D window.
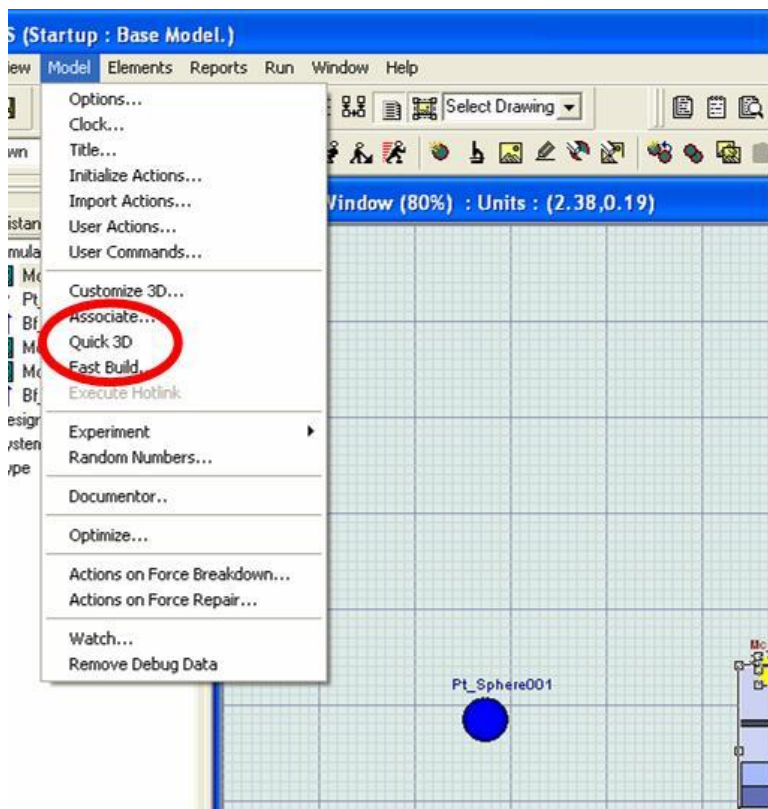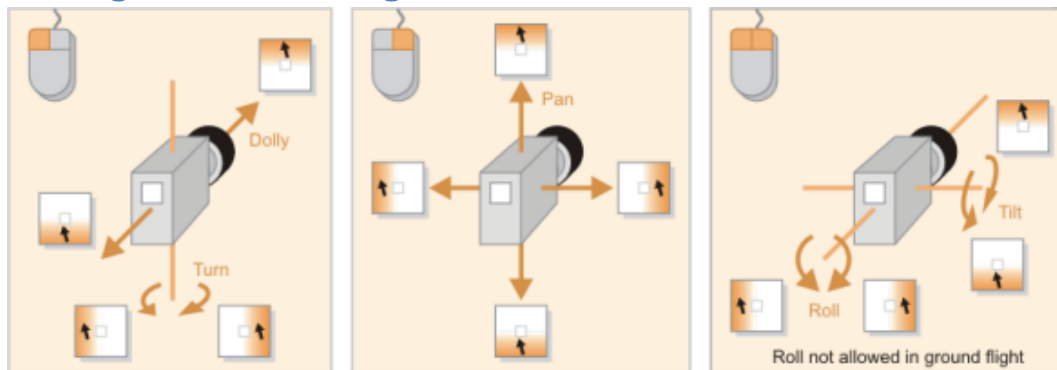

3. Simply run your simulation model and the 3D model will animate.

The 3D window can be dragged and stretched to achieve the size of view you require. Mouse over the buttons on the top toolbar for standard display options; the wheel buttons enable you to zoom, rotate and pan.
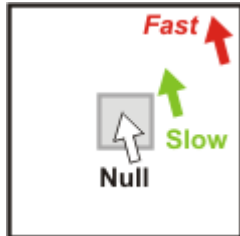
Navigation

Free flight and Ground Flight

Camera Speed

There are two ways to control camera speed:

- Hold down the Ctrl or Shift key while pressing a mouse button:

- Click near the center of the view to move slowly, or near the edge of the view to move quickly:

Camera angles

A set of four new buttons have been added to the top right of the frame of the VR window. These four buttons allow you to change the orientation to four different default camera settings.
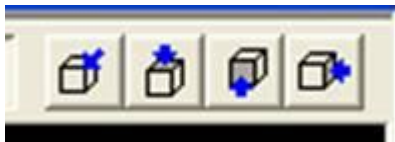
The four buttons are as follows.

- Perspective-The perspective button restores the camera to its original position. This is equivalent of pressing the Reset Camera button.

- Plan view-The plan view button will modify the camera settings to produce a plan view (XZ) of the current view. The view will fill the whole of the window.

- Front view-The front view button will modify the camera settings to produce a front view (XY) of the current view. The view will fill the whole of the window.

- Side view -The side view button will modify the camera settings to produce a side view (YZ) of the current view. The view will fill the whole of the window.

The navigation buttons are grayed out when a camera has been selected and the simulation is running.

The other tool bar buttons perform the follow actions.

Button	Actions
	3D Window Options – allows further options
	Fit To View – Select an element in 3D and press to centre in the view
	Execute Hotlink – Advanced facility
	Restore Default Camera – set camera back to the starting position
	Walk Mode – Control 3D walk mode – this is separate to 2D walk mode
	Fly Camera – control flying using the mouse rather than the wheels
	Toggle Ground Flight Mode – keeps the camera steady as you fly around
	Toggle Solid Camera – this prevents you from flying through objects
	Toggle Terrain Camera – makes the camera hug the landscape when flying
	Toggle Sliding Camera – makes the camera slide along objects that it collides with
	Top Level Instances – selects the entire combined shape when it is selected in 3D
	Instances – selects the individual components of a shape in 3D
	Wireframe – shows the edges of 3D objects
	Hidden Line – shows as wireframe with hidden lines invisible
	Flat Shade – shows solid objects with simple shading
	Smooth Shade – shows full effect 3D shapes

Quick3D is that simple. The rest of the document is for those who want to modify the standard settings and have more control over the results.

Quick3D advanced features

Contents

Rules when linking the 2D to the 3D

With the inclusion of **Quick3D,** the primary mechanism for 3D geometry association is a link between 2D icon and 3D geometry specified via the picture gallery icon properties. The new method is as follows:

- The WITNESS icon structure is extended to include information of the 3D Geometry that the icon is to be linked to.
- The 3D Geometry stored in the icon structure is a 128 characters long name.
- A new context menu option (**3D Properties**) is added to the context menu (mouse right click) of the **Picture Gallery**. When selected, it will display a dialog that allows the user to specify **3D Mapping** information.
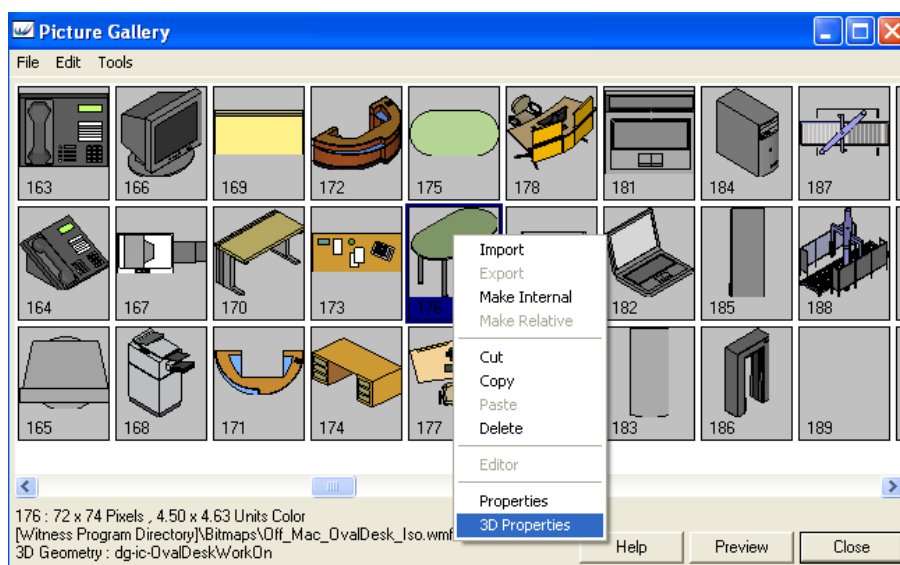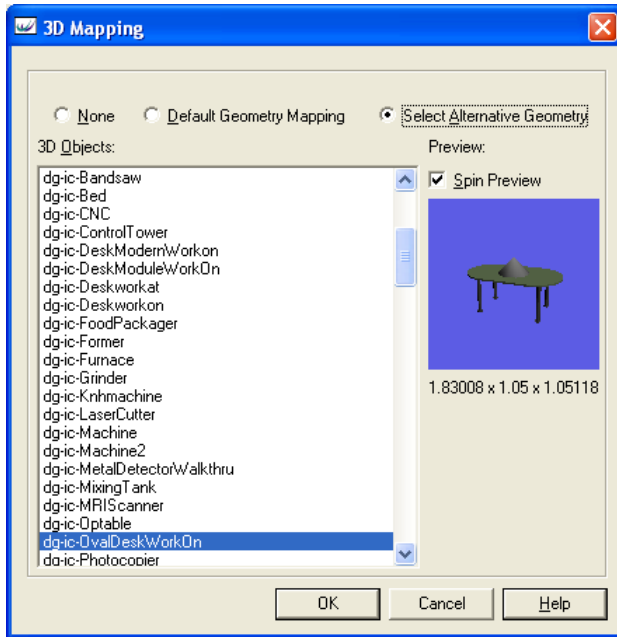
Overriding the 2D → 3D geometry mapping

Each icon in the picture gallery is mapped to a 3D equivalent geometry in a Realibase file. This is considered the **Default Geometry Mapping**. An override facility is provided at the **Display Icon** dialog for certain display types to allow a different 3D mapping to be specified for that element in the model.
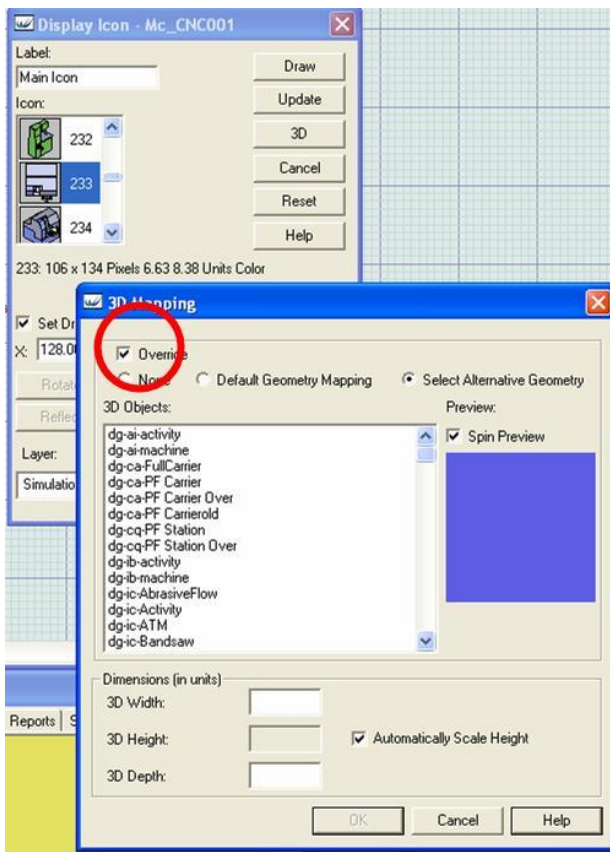
The **3D** button opens the **3D Mapping** window for the display icon for the selected machine with the following options:

- The **Default Geometry Mapping** radio button is selected when the user does not want to specify a different geometry and the usual 2D to 3D linkage rules should be followed.

- The **None** radio button is selected when the user does not want any linkage to a 3D shape and the 2D to 3D rules should not be applied. This will allow unwanted machines (e.g. machines 'hidden' to the far right of the virtual screen) to be excluded. Also see the *Hint* below.

- If the **Select Alternative Geometry** radio button is selected then the list box selection will specify the geometry to use for the 3D representation.

When overriding an icon display item, this dialog includes an additional **Override** check box that indicates that the original picture gallery 3D mapping information should be overridden. This allows certain element types, which are generally not displayed as an icon, to be associated with 3D geometry. For example: queue displays for buffers and machine input/output buffers that previously didn't have an associated icon display.

Hint : Elements often have more than one display in a 2D model. For example a machine frequently has two icons; the first is a picture representation of what the machine looks like, the second is a simple box to show the status color of the machine. Quick 3D will produce its machine display from the first icon it finds. To ensure that the 'picture' icon is used, it is safest to override the 3D option for the status icon to 'None'.

3D buttons can be found on the following display dialogs:

- Queues (part/entity, machine input/output, idle labor/resource, off shift labor/resource, carrier, track)
- Styles (part/entity, vehicle, labor/resource & carriers)
- Icon

The mapping follows the following rules:

- The 3D Geometry mapping information is persisted in .MOD, .SIM, .LST and .WXML files.
- If the geometry name specified in the 2D to 3D mapping cannot be found in the default Realibase, either because it no longer exists or a different Realibase file is selected, then the **Default Geometry Mapping** linkage rules are applied.
- The existing **Fast Build** (available if the user has the Full VR Module) is extended to include the 3D geometry specified from the 2D icon information.
- In a 2D WITNESS view, a user can change the icon of a part by issuing the ICON = command in an action statement. This will now automatically propagate through to the 3D view. It selects the geometry associated with the icon. If the geometry does not exist in the Realibase, then a run time error is generated.
- If the default Realibase cannot be loaded, possibly because of an invalid path, the user should expect the following behavior:
    - If the **Select Alternative Geometry** option is selected, then this option is disabled and the list will only display the name of this geometry. In this situation the list and the OK button are disabled.

o The user may select either the **None** or **Default Geometry Mapping** option. If either of these becomes selected then the OK button is enabled.

NOTE: Previously if users wanted to change the shape of a part in the 3D view (the equivalent of doing ICON = in 2D) they should insert a VRPART action. Now the VRPART call will happen automatically so if they currently call VRPART before the ICON = then they may not get the geometry that they were expecting.

Further refinements via Customize 3D dialog

The **Customize 3D** dialog (under Model in main menu) enables further control over the animation.
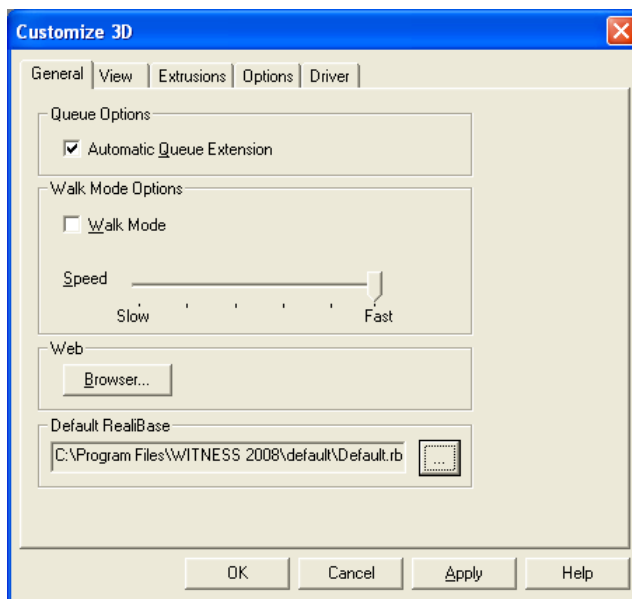
The **General tab** on the **Customize 3D** dialog has an extra field added to it to enable the user to select the **Default Realibase**. Users with the full VR Module (described as Full mode) are able to change this field by using a file selector; in **Quick 3D** mode this field will not be editable. The default Realibase setting is persisted to and from the registry. The installation program is modified so that the registry entry for the default Realibase is created at installation time.

The default Realibase registry key will also be used in the **Full** mode. When the **Fast Build** menu option is selected and the user is required to load a .RBS file, the file selector will point to the Realibase specified in the registry key. The file selected by the user to perform the **Fast Build** is written out to the registry, so that the last Realibase file they used for the **Fast Build** is remembered.

The **General tab** of the **Customize 3D** dialog contains the default setting for VR **Walk mode**. Previously, if this were changed while viewing a VR window, the settings in the registry (and hence the Customize 3D dialog) are reset. Now any change made in VR viewing is not changed in the default settings in Customize 3D. In other words, any new Quick 3D build will revert to the defaults from Customize 3D.

When Witness is installed for the first time, it will have the registry setting made to turn VR **Walk mode** on at a middle setting of VR walk speed.

When the **Customize 3D** dialog is loaded, it will use the registry value for the walk mode and walk speed. This is saved to the local values if OK is pressed.
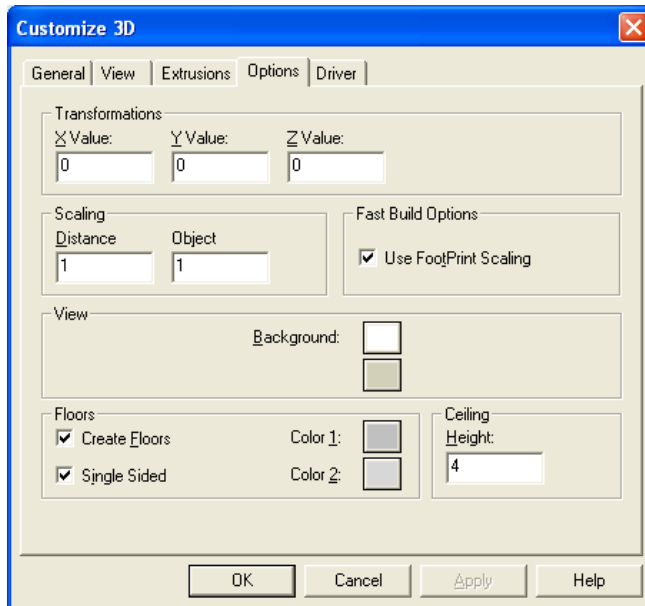
The **Options tab** provides an addition field **Use Footprint Scaling** allowing **Full** mode users to switch off the new way of scaling the Geometry by the icons footprint. This is located in a new group called **Fast Build Options**.
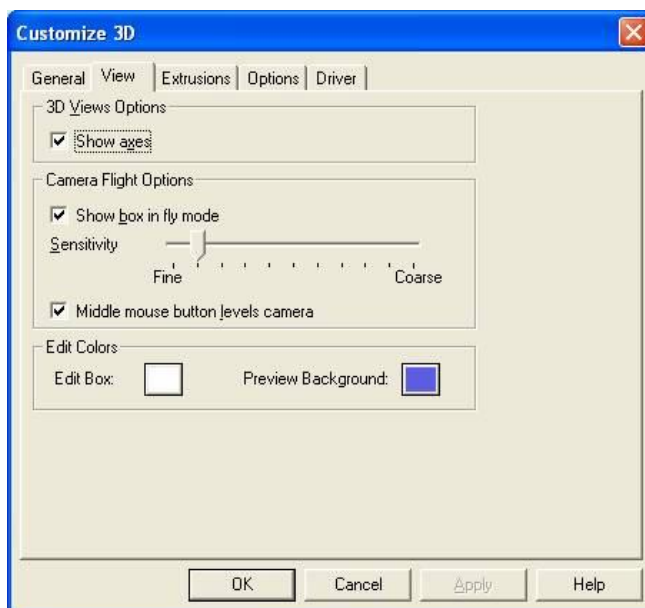
The **View** tab view provides the ability to edit colors via an Edit Box color and Preview Background color.

Scale the footprint (dimensions) of a 3D Geometry

The principal for scaling is the 2D layout defines the scale of the layout in two dimensions; the 3D layout is generated by scaling the 3D shape in the same proportions. When creating the 2D and 3D shapes in the model, the rule used in most cases was that 16 WITNESS pixels represent one meter and one 3D modeling unit in the Realibase represents one meter. This helps to ensure that the scaling works out sensibly. There are some exceptions to this; for example a ship scaled in this way would fill the entire WITNESS screen.

The scaling on the 2D icon is applied to the 3D geometry during the 3D model build process.

- The 2D X scaling is then applied to X direction in the 3D space. This can be explicitly overridden using the **3D Mapping** dialog.

- The 2D Y scaling in the 2D plane is applied to the Z direction in 3D space. This can be explicitly overridden using the **3D Mapping** dialog.

- The 3D height (or 3D Y) is either approximated, not scaled or a specific value can be used. This depends on the configuration specified on the 3D override options for a WITNESS display item, using the **3D Mapping** dialog.

  The **3D Height** component has a checkbox that allows height to be automatically calculated when checked. This calculation is based on the average scale of the other two dimensions. This gives an identical factor if the X and Z were the same value; it gives a reasonable value if the other two scale factors are different.

  If this is not checked, then the height of the 3D display will always be the same as the original height of the geometry.

  Finally a specific value, in modeling units, can be specified.

The areas of greatest doubt in the scaling process are items such as parts/entities and labor/resources that do not have a fixed display, and indeed can vary in different locations in the 2D display.
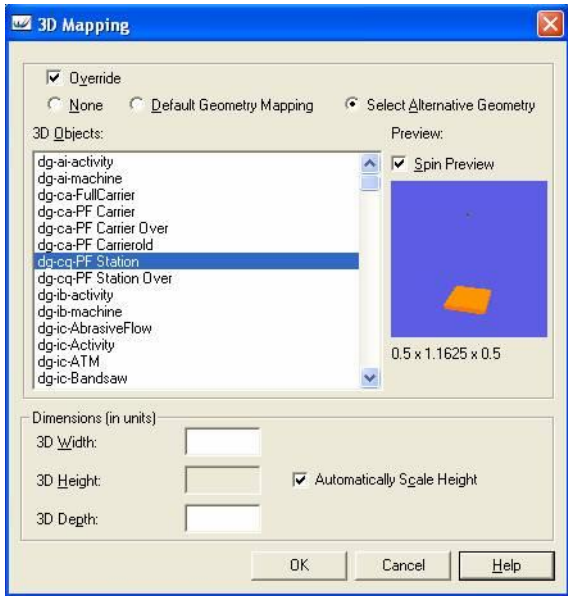
If the user deselects **Automatically Scale Height,** a similar option appears to scale **3D Height**.
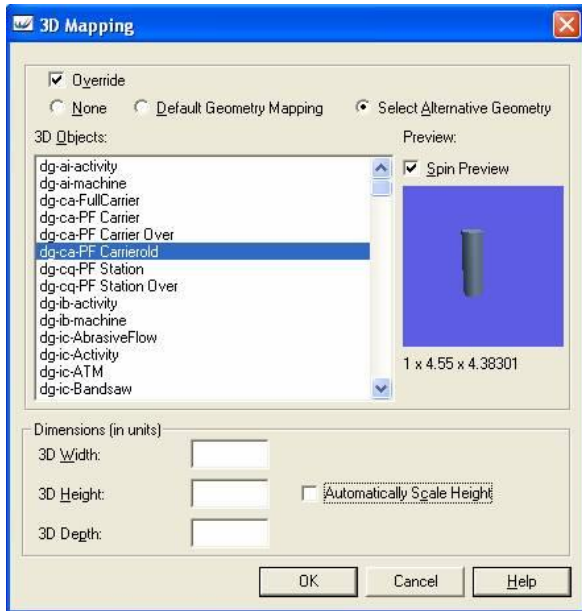
Rules for Part/Entity scaling

A part/entity may be sized in two different ways in the 3D view:

1. If the **Scale using size attributes** is selected on the part/entity style display, the 3D representation will have its dimensions set according to the attributes; one unit of length, width or height in WITNESS will convert to one 3D unit in the 3D view.
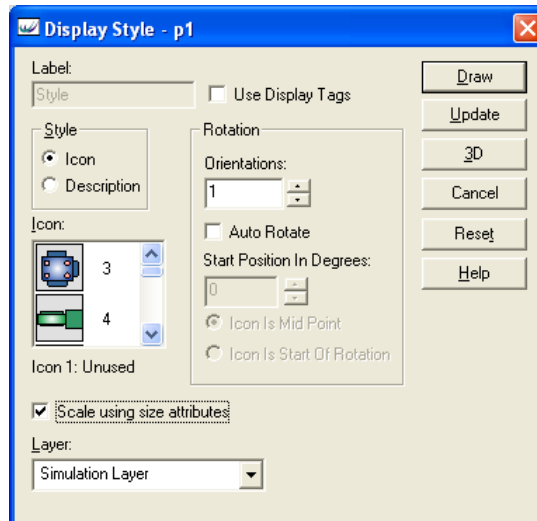
2. If the **Scale using size attributes** is not selected, then the size of the part in 2D is taken from the part style display if this is present. If required, the 3D height is scaled in average proportion to the 3D X and 3D Z.

3. If the **Scale using size attributes** is not selected and a style for the part is not displayed, then the original size of the 3D shape is used.

Rules for Labor/Resource scaling

If a style is displayed for the labor/resource, then this is used for scaling the size in 3D. If not, then the original size of the 3D shape is used.

Turn off Scaling

Fastbuild users that do not wish to used 2D footprint scaling can disable it by un-checking the **Use FootPrint Scaling** option on the Customize 3D | Options dialog.
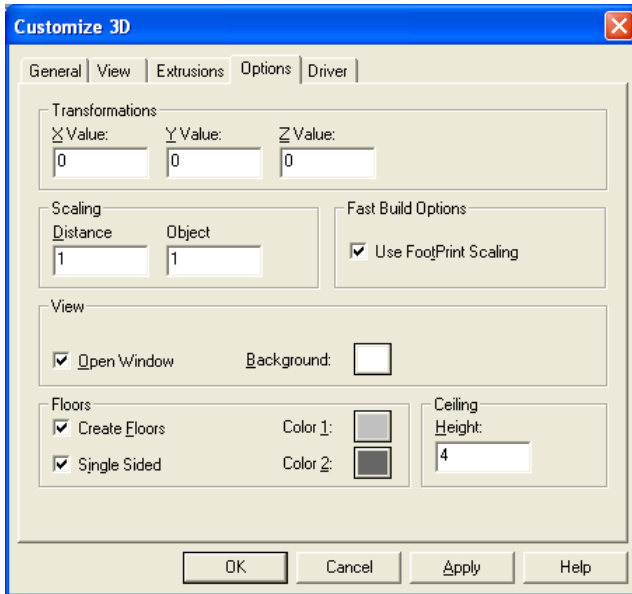
WITNESS plug-ins

WITNESS supports a number of plug-ins such as XML, Virtual Reality & Scenario Manager etc. These plug-ins extend WITNESS functionality by adding new extensions in a separate component. Plug-ins are loaded at start up and receive events as a simulation model executes.

However, is not always necessary for all plug-ins to be "Active" and listening for broadcast messages from WITNESS. In previously versions this may have had a performance impact on the simulation run speed and the only way a user can eliminate this is to un-register the plug-in.

WITNESS plug-ins may now be loaded/unloaded in a similar way to Microsoft Office plug-ins. This can be done using the Help | Plugin Information menu option.
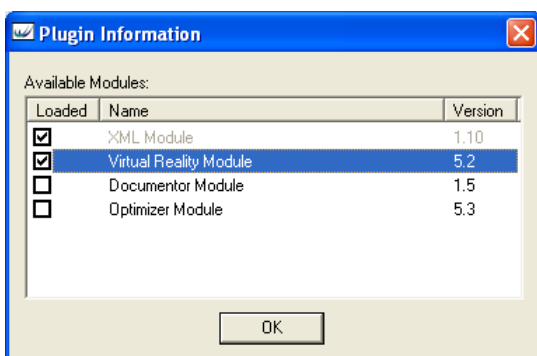
VR HELP

The VR help is available directly from within WITNESS, and appears as context sensitive help from within the 3D window.

Overview of Quick3D calculation steps

Quick3D works in the following way:

- The default Realibase specified on the **General tab** on the **Customize 3D dialog** is loaded and provides all of the 3D geometries. If the default Realibase can not be found, an error message is displayed and the **Quick3D** process is terminated.
- The settings for the object transformations is read from the registry and can be modified by the user if required by changing their values in the **Options tab** of the **Customize 3D dialog**.
- Unlike the standard VR **Fast Build**, partial model builds are not allowed i.e. all elements in the model get built.
- The associations of 2D to 3D objects will use the same rules as for the VR **Fast Build**.
- Once the **Quick3D** is complete, a 3D window called **Quick3D View** is opened containing the 3D representation.

WITNESS will load the default .RBS (Realibase) file when a new model is created; when WITNESS is loaded and before a model is loaded. The default .RBS file will also be loaded each time the user selects the **Quick 3D** menu option. The following items require a Realibase to be loaded in order to show the 3D representation:
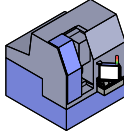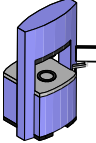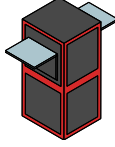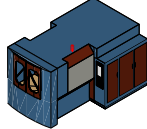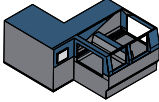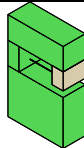
- Picture gallery
- Override 3D display dialog
- Customize 3D dialog
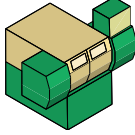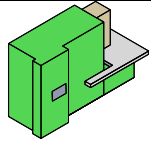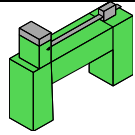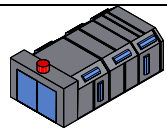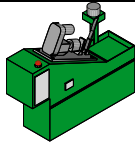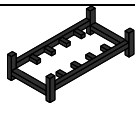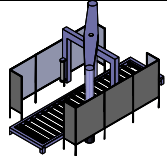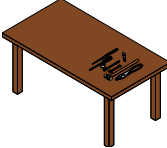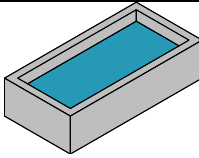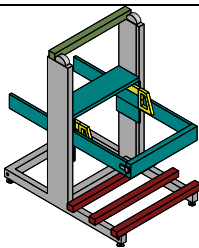
The existing **CloseRealibase** menu option will close the .RBS/.MBS files. If the user decides to close the Realibase and proceeds to open the picture gallery, the 3D mapping dialog will open the default .RBS file. For VR users running the **Fastbuild** option the following dialog will be displayed (unless the user has explicitly selected the Close Realibase option).
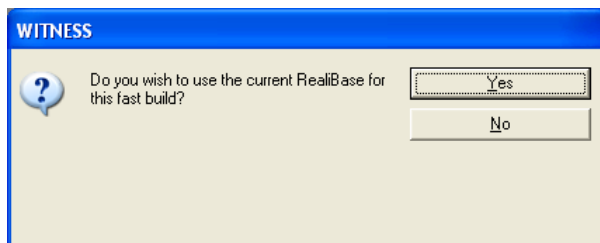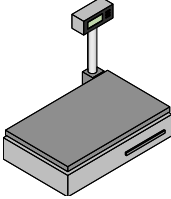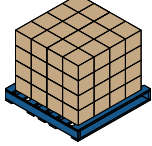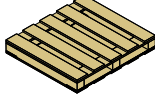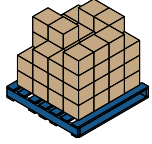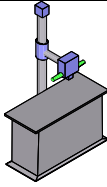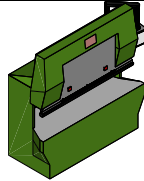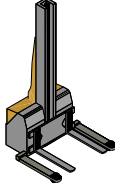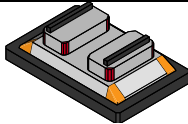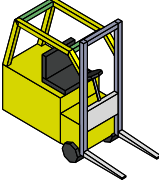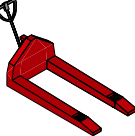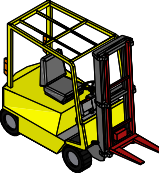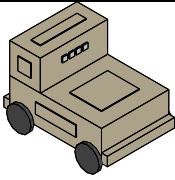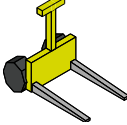
New 3D shapes

The aim of the Quick 3D is to give a reasonable representation quickly, to this end a number of new 3D shapes have been added to the default Realibase. The list below includes the new shapes and some old ones; they all have a 3D shape in the default Realibase, and equivalent .jpg files in the Bitmaps folder (a plan view version and an isometric one).
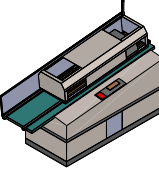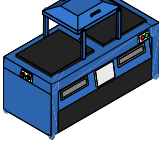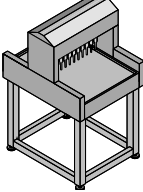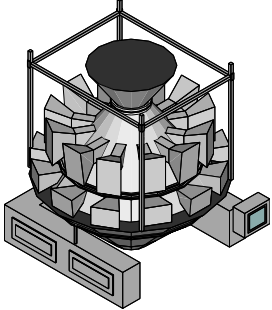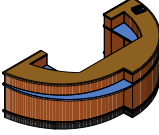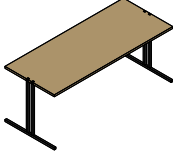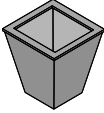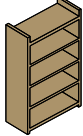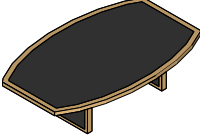
Category	Element	2D File Names	3D Shape (Realibase Name)	View	Description
Engineering	Machine	Eng_Mac_Bandsaw_Pln Eng_Mac_Bandsaw_Iso	dg-ic-BandSaw		BandSaw
Engineering	Machine	Eng_Mac_CNC_Pln Eng_Mac_CNC_Iso	dg-ic-CNC		CNC
Engineering	Machine	Eng_Mac_AbrasiveFlow_Pln Eng_Mac_AbrasiveFlow_Iso	dg-ic-AbrasiveFlow		Abrasive
Engineering	Machine	Eng_Mac_Grinder_Pln Eng_Mac_Grinder_Iso	dg-ic-Grinder		Grinding Machine
Engineering	Machine	Eng_Mac_KNHmachine_Pln Eng_Mac_KNHmachine_Iso	dg-ic-KNHmachine		KNH
Engineering	Machine	Eng_Mac_LaserCutter_Pln Eng_Mac_LaserCutter_Iso	Dg-ic-LaserCutter		Laser Cutter
Engineering	Machine	Eng_Mac_Robotarm_Pln Eng_Mac_Robotarm_Iso	dg-ic-Robotarm		Robot Arm
Engineering	Machine	Eng_Mac_SimpleBandSaw_Pln Eng_Mac_SimpleBandSaw_Iso	dg-ic-Simplebandsaw		Simple Bandsaw
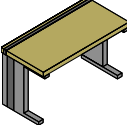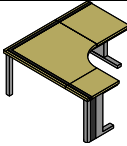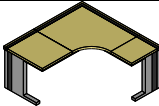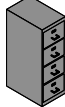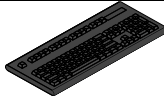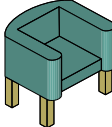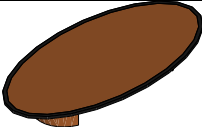
Engineering	Machine	Eng_Mac_SimpleCNC_Pln Eng_Mac_SimpleCNC_Iso	dg-ic-SimpleCNC		Simple CNC
Engineering	Machine	Eng_Mac_SimpleTurretPress_Pln Eng_Mac_SimpleTurretPress_Iso	dg-ic-SimpleTurretPress		Simple Turret Press
Engineering	Machine	Eng_Mac_SimpleLathe_Pln Eng_Mac_SimpleLathe_Iso	dg-ic-SimpleLathe		Simplelathe
Engineering	Machine	Eng_Mac_Spraybooth_Pln Eng_Mac_Spraybooth_Iso	dg-ic-Spraybooth		SprayBooth
Engineering	Machine	Eng_Mac_TappingMachine_Pln Eng_Mac_TappingMachine_Iso	dg-ic-TappingMachine		Tapping Machine
Engineering	Part	Eng_Pt_Clamp_Pln Eng_Pt_Clamp_Iso	dg-pt-Clamp		Clamp
Manufacturing	Machine	Man_Mac_Wrapper_Pln Man_Mac_Wrapper_Iso	dg-ic-Wrapper		Wrapping Machine
Manufacturing	Machine	Man_Mac_Workstation_Pln Man_Mac_Workstation_Iso	Dg-ic-Workstation		Operator Workstation
Manufacturing	Machine	Man_Mac_Washer_Pln Man_Mac_Washer_Iso	dg-ic-Washer		Washer
Manufacturing	Machine	Man_Mac_Palletiser_Pln Man_Mac_Palletiser_Iso	dg-ic-Palletiser		Palletiser
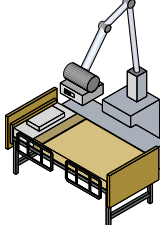
Manufacturing	Machine	Man_Mac_Scales_Pln Man_Mac_Scales_Iso	dg-ic-Scales		Scales
Manufacturing	Part	Man_Pt_Carton_Pln Man_Pt_Carton_Iso	dg-pt-Carton		Box
Manufacturing	Part	Man_Pt_Carton2_Pln Man_Pt_Carton2_Iso	dg-pt-Carton2		Carton Closed
Manufacturing	Part	Man_Pt_Carton3_Pln Man_Pt_Carton3_Iso	dg-pt-Carton3		Carton Open
Manufacturing	Part	Man_Pt_FullPallet_Pln Man_Pt_FullPallet_Iso	dg-pt-FullPallet		Full Pallet
Manufacturing	Part	Man_Pt_Pallet_Pln Man_Pt_Pallet_Iso	dg-pt-Pallet		Pallet
Manufacturing	Part	Man_Pt_HalfPalletLoad_Pln Man_Pt_HalfPalletLoad_Iso	dg-pt-halfpalletload		Half Full Pallet
Manufacturing	Machine	Man_Mac_Scanner_Pln Man_Mac_Scanner_Iso	Dg-ic-Scanner		Scanner
Manufacturing	Machine	Man_Mac_Press_Pln Man_Mac_Press_Iso	dg-ic-Press		Machine Press
Manufacturing	Vehicle	Man_Vh_Forklift_Pln Man_Vh_Forklift_Iso	dg-vh-Forklift		Hand Reach Truck
Manufacturing	Vehicle	Man_Vh_AGV_Pln Man_Vh_AGV_Iso	dg-vh-Vehicle		AGV
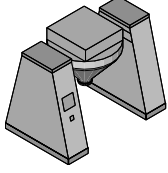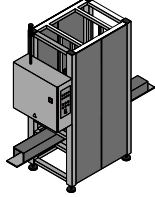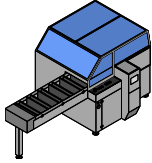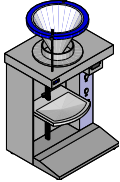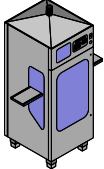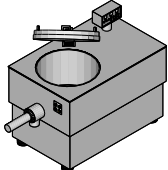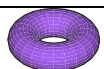
Manufacturing	Vehicle	Man_Vh_SimpleForklift_Pln Man_Vh_SimpleForklift_Iso	dg-vh-SimpleForklift		Simple Forklift
Manufacturing	Vehicle	Man_Vh_PalletTruck_Pln Man_Vh_PalletTruck_Iso	dg-vh-PalletTruck		Pallet Truck
Manufacturing	Vehicle	Man_Vh_ReachTruck_Pln Man_Vh_ReachTruck_Iso	dg-vh-ReachTruck		Sit on Forklift
Manufacturing	Vehicle	Man_Vh_MiniTruck_Pln Man_Vh_MiniTruck_Iso	dg-vh-MiniTruck		Mini Truck
Manufacturing	Vehicle	Man_Vh_SimplePalTruck_Pln Man_Vh_SimplePalTruck_Iso	dg-vh-SimplePalTruck		Simple Pallet Truck
Manufacturing	Vehicle	Man_Vh_SimpleVehicle_Pln Man_Vh_SimpleVehicle_Iso	dg-vh-Vehiclesimple		Simple Vehicle
Electronics	Machine	Elec_Mac_SurfaceMount_Pln Elec_Mac_SurfaceMount_Iso	dg-ic-SurfaceMount		Surface Mount
Food & Drink	Machine	F&D_Mac_FoodPackager_Pln F&D_Mac_FoodPackager_Iso	dg-ic-FoodPackager		Food Packager
Food & Drink	Machine	F&D_Mac_Depositor_Pln F&D_Mac_Depositor_Iso	dg-ic-Depositor		Depositor
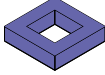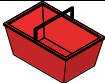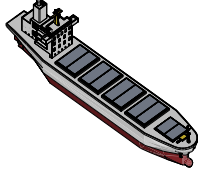
Food & Drink	Machine	F&D_Mac_CoolingTunnel_Pln F&D_Mac_CoolingTunnel_Iso	dg-ic-CoolingTunnel		Cooling Tunnel
Food & Drink	Machine	F&D_Mac_MultiHeadWeigher_Pln F&D_Mac_MultiHeadWeigher_Iso	dg-ic-MultiHeadWeigher		Multi-head weigher
Oil & Gas	Part	O&G_Pt_LNGShip_Pln O&G_Pt_LNGShip_Iso	dg-pt-LNGShip		LNG Ship
Oil & Gas	Part	O&G_Pt_OilDrum_Pln O&G_Pt_OilDrum_Iso	dg-pt-OilDrum		Oil Drum
Airport	Machine	Air_Mac_ControlTower_Pln Air_Mac_ControlTower_Iso	dg-ic-ControlTower		Control Tower
Airport	Machine	Air_Mac_MetalDetector_Pln Air_Mac_MetalDetector_Iso	dg-ic-MetalDetectorWalkthru		Metal Detector
Airport	Part	Air_Pt_Airliner_Pln Air_Pt_Airliner_Iso	dg-pt-airliner		Airliner
Office	Machine	Off_Mac_Photocopier_Pln Off_Mac_Photocopier_Iso	dg-ic-Photocopier		Photocopier
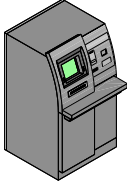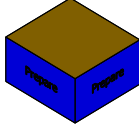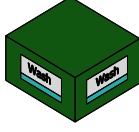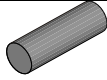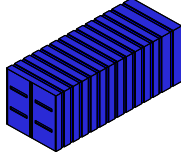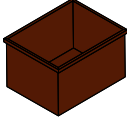
Office	Machine	Off_Mac_ReceptionDesk_Pln Off_Mac_ReceptionDesk_Iso	dg-ic-Reception		Reception Desk
Office	Part	Off_Pt_Letter_Pln Off_Pt_Letter_Iso	dg-pt-Letter		Letter
Office	Machine	Off_Mac_RectangularDesk_Pln Off_Mac_RectangularDesk_Iso	dg-ic-DeskModernWorkon		Rectangular Desk
Office	Machine	Off_Mac_OvalDesk_Pln Off_Mac_OvalDesk_Iso	dg-ic-OvalDeskWorkOn		Oval Desk
Office	Part	Off_Pt_Phone_Pln Off_Pt_Phone_Iso	dg-pt-Phone		Phone
Office	Machine	Off_Mac_DeskwithPC_Pln Off_Mac_DeskwithPC_Iso	dg-ic-DeskModuleWorkOn		Desk with PC
Office	Buffer	Off_Buf_Bin_Pln Off_Buf_Bin_Iso	dg-pq-bin		Bin
Office	Buffer	Off_Buf_Bookshelf_Pln Off_Buf_Bookshelf_Iso	dg-pq-Buffer		Bookshelf
Office	Machine	Off_Mac_ComfyChair_Pln Off_Mac_ComfyChair_Iso	dg-ic-ComfyChair		Comfy Chair
Office	Machine	Off_Mac_ConferenceTable_Pln Off_Mac_ConferenceTable_Iso	dg-ic-ConferenceTable		Conference Table
Office	Machine	Off_Mac_DeskPrinter_Pln Off_Mac_DeskPrinter_Iso	dg-ic-DeskPrinter		Desk Printer
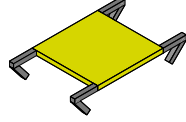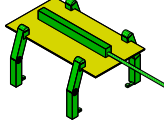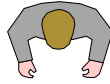
Office	Machine	Off_Mac_OfficeDesk_Pln Off_Mac_OfficeDesk_Iso	dg-ic-OfficeDesk		Desk
Office	Machine	Off_Mac_DeskLeftCurve_Pln Off_Mac_DeskLeftCurve_Iso	dg-ic-DeskLeftCurve		Desk Left Curve
Office	Machine	Off_Mac_DeskRightCurve_Pln Off_Mac_DeskRightCurve_Iso	dg-ic-DeskRightCurve		Desk Right Curve
Office	Machine	Off_Mac_FaxMachine_Pln Off_Mac_FaxMachine_Iso	dg-ic-FaxMachine		Fax Machine
Office	Buffer	Off_Buf_FilingCabinet_Pln Off_Buf_FilingCabinet_Iso	dg-pq-FilingCabinet		Filing Cabinet
Office	Part	Off_Pt_FlatScreen_Pln Off_Pt_FlatScreen_Iso	dg-pt-FlatScreen		Flat Screen
Office	Part	Off_Pt_Keyboard_Pln Off_Pt_Keyboard_Iso	dg-pt-Keyboard		Keyboard
Office	Part	Off_Pt_Laptop_Pln Off_Pt_Laptop_Iso	dg-pt-Laptop		Laptop
Office	Machine	Off_Mac_LobbyChair_Pln Off_Mac_LobbyChair_Iso	dg-ic-LobbyChair		Lobby Chair
Office	Machine	Off_Mac_MeetingTable_Pln Off_Mac_MeetingTable_Iso	dg-ic-MeetingTable		Meeting Table
Office	Machine	Off_Mac_OfficeChair_Pln Off_Mac_OfficeChair_Iso	dg-ic-OfficeChair		Office Chair
Office	Part	Off_Pt_OfficePhone_Pln Off_Pt_OfficePhone_Iso	dg-pt-OfficePhone		Office Phone

Office	Part	Off_Pt_PC_Pln Off_Pt_PC_Iso	dg-pt-PC		PC
Office	Part	Off_Pt_PCMonitor_Pln Off_Pt_PCMonitor_Iso	dg-pt-PCMonitor		PC Monitor
Office	Buffer	Off_Buf_RecyclingBin_Pln Off_Buf_RecyclingBin_Iso	dg-pq-RecyclingBin		Recycling Bin
Office	Part	Off_Pt_WaterDispenser_Pln Off_Pt_WaterDispenser_Iso	dg-pt-WaterDispenser		Water Dispenser
Hospital	Machine	Hos_Mac_MRIScanner_Pln Hos_Mac_MRIScanner_Iso	dg-ic-MRIScanner		MRI
Hospital	Machine	Hos_Mac_OpTable_Pln Hos_Mac_OpTable_Iso	dg-ic-Optable		Op Table
Hospital	Machine	Hos_Mac_Bed_Pln Hos_Mac_Bed_Iso	dg-ic-Bed		Hospital Bed
Hospital	Machine	Hos_Mac_XRay_Pln Hos_Mac_XRay_Iso	dg-ic-XRay		X-Ray Machine
Hospital	Vehicle	Hos_Pt_Ambulance_Pln Hos_Pt_Ambulance_Iso	dg-pt-Ambulance		Ambulance

Police	Part	Pol_Pt_USAPoliceCar_Pln Pol_Pt_USAPoliceCar_Iso	dg_pt-USPoliceCar		Police Car USA
Pharmaceutical	Machine	Pha_Mac_Blender_Pln Pha_Mac_Blender_Iso	dg-ic-Blender		Blender
Pharmaceutical	Machine	Pha_Mac_Buffer_Pln Pha_Mac_Buffer_Iso	dg-ic-Buffer		Buffer
Pharmaceutical	Machine	Pha_Mac_Cartoner_Pln Pha_Mac_Cartoner_Iso	dg-ic-Cartoner		Cartoner
Pharmaceutical	Machine	Pha_Mac_Counter_Pln Pha_Mac_Counter_Iso	dg-ic-Counter		Counter
Pharmaceutical	Machine	Pha_Mac_Checkweigher_Pln Pha_Mac_Checkweigher_Iso	dg-ic-Checkweigher		Checkweigher
Pharmaceutical	Machine	Pha_Mac_Granulator_Pln Pha_Mac_Granulator_Iso	dg-ic-Granulator		Granulator
General	Part	Gen_Pt_Pyramid_Pln Gen_Pt_Pyramid_Iso	dg-pt-Pyramid		Pyramid
General	Part	Gen_Pt_Sphere_Pln Gen_Pt_Sphere_Iso	dg-pt-Sphere		Sphere
General	Part	Gen_Pt_Torus_Pln Gen_Pt_Torus_Iso	dg-pt-Torus		Torus

General	Part	Gen_Pt_Square_Pln Gen_Pt_Square_Iso	dg-pt-Square		Square
General	Part	Gen_Pt_Cube_Pln Gen_Pt_Cube_Iso	dg-pt-Cube		Cube
General	Part	Gen_Pt_Cone_Pln Gen_Pt_Cone_Iso	dg-pt-Cone		Cone
General	Part	Gen_Pt_Cylinder_Pln Gen_Pt_Cylinder_Iso	dg-pt-Cylinder		Cylinder
General	Part	Gen_Pt_Triangle_Pln Gen_Pt_Triangle_Iso	dg-pt-Triangle		Triangle
General	Part	Gen_Pt_FlatbedTruck_Pln Gen_Pt_FlatbedTruck_Iso	dg-pt-FlatbedTruck		Flatbed Truck
General	Part	Gen_Pt_Basket_Pln Gen_Pt_Basket_Iso	dg-pt-Basket		Basket
General	Part	Gen_Pt_Trolley_Pln Gen_Pt_Trolley_Iso	dg-pt-Trolley		Trolley
General	Part	Gen_Pt_Lorry_Pln Gen_Pt_Lorry_Iso	dg-pt-Lorry		Lorry
General	Part	Gen_Pt_Van_Pln Gen_Pt_Van_Iso	dg-pt-Van		Van
General	Part	Gen_Pt_Helicopter_Pln Gen_Pt_Helicopter_Iso	dg-pt-Helicopter		Helicopter
General	Part	Gen_Pt_Ship_Pln Gen_Pt_Ship_Iso	dg-pt-Ship		Ship

General	Buffer	Gen_Buf_FloorSpace_Pln Gen_Buf_FloorSpace_Iso	dg-pq-FloorSpace		Floor Space
General	Machine	Gen_Mac_ATM_Pln Gen_Mac_ATM_Iso	dg-ic-ATM		ATM
Manufacturing	Buffer	Man_Buf_MetalBin_Pln Man_Buf_MetalBin_Iso	dg-pt-MetalBin		Metal Bin
Manufacturing	Machine	Man_Mac_Furnace_Pln Man_Mac_Furnace_Iso	dg-ic-Furnace		Furnace
Manufacturing	Machine	Man_Mac_Prepare_Pln Man_Mac_Prepare_Iso	dg-ic-Prepare		Prepare
General	Machine	Gen_Mac_Wash_Pln Gen_Mac_Wash_Iso	dg-ic-Wash		Wash
Manufacturing	Part	Man_Pt_SteelRoll_Pln Man_Pt_SteelRoll_Iso	dg-pt-steelroll		Steel Roll
Manufacturing	Part	Man_Pt_Bar_Pln Man_Pt_Bar_Iso	dg-pt-Bar		Bar
Manufacturing	Part	Man_Pt_Container_Pln Man_Pt_Container_Iso	dg-pt-Container		Container
Manufacturing	Part	Man_Pt_ToteBox_Pln Man_Pt_ToteBox_Iso	dg-pt-totebox		Tote Box
Manufacturing	Part	Man_Pt_Shell_Pln Man_Pt_Shell_Iso	dg-pt-Shell		Tank Shell

General	Carrier	Gen_Car_PFCarrier_Pln Gen_Car_PFCarrier_Iso	dg-ca-PF Carrier		PF Carrier
General	Carrier	Gen_Car_FullCarrier_Pln Gen_Car_FullCarrier_Iso	dg-ca-FullCarrier		Full Carrier
General	Labour	Gen_Lab_PersonGrey_Pln	dg-lb-ManinSuit		Man in Suit
General	Labour	Gen_Lab_PersonPink_Pln	dg-lb-LadyinSuit		Lady in Suit
General	Labour	Gen_Lab_PersonGreen_Pln	dg-lb-Operator		Operator

Quick 3D menu behavior

The **Quick 3D** menu option will always appear below the 'Associate' menu option, see below for the display logic.

- If the VR Module is running in **Full** mode then the **Fast Build** menu option is enabled below the Quick3D menu option. If running in Quick 3D mode then the **Fast Build** menu option is disabled.
- If the VR Module is running in **Full** mode then the "Associate…" menu option is enabled. If running in **Quick 3D** mode only (not eligible for the full VR module), then the "Associate…" menu option is disabled.
- If running in **Quick 3D** mode only, then the RBS filter options will not be added to the WITNESS file open and save dialogs.
- In the **Quick 3D** mode, if the user loads a WITNESS model that has an associated MBS/SBS file (VR Save file), then the MBS or SBS file will not be loaded.
- In the **Quick 3D** mode the user will not be allowed to save any 3D views that they have created in either MBS or SBS format.