Contents

Welcome to RealiStorm, **Datapath**'s RealiMation plug-in application for major design and CAD tools.   This release includes RealiStorm for 3DStudio Max, AutoCAD, and MicroStation.

RealiStorm brings real time flexibility to your design tools, and much much more with a doorway through to interactive design, real time prototyping, free and efficient distribution and idea sharing!

Getting Started

Using RealiStorm

Notes:
- If you have the full RealiStorm product, which comes as part of the **RealiMation Space Time Editor (STE): Designer Edition**, then you will be able to save your work to RealiMation format for further editing inside the STE.

- With the STE Designer Edition you get a whole host of amazing tools for scene creation, model manipulation and advanced texturing to create stunning worlds with motion and hotlinks!   So now you can build your model and then incorporate it into scenes (even with other models from colleagues) to build fly throughs, multimedia presentations or complete prototype visualsiations which your clients can explore freely and interactively.

- RealiMations can be distributed freely using **RealiView,** the real time interactive, freely distributable viewer for a variety of platforms - even the World Wide Web.   RealiView is fully Internet ready - and you can export to VRML 2 format from inside the STE!!

- Why not try out the 30 day demo version of the STE on this CD, and see why you should **upgrade**!

See Also
RealiStorm Desktop

What is RealiMation?

What is RealiMation?

RealiMation (TM) is the full developers suite of software designed by **Datapath** to ease the tasks of creating real time 3D Visualisation, Simulation, and Game (VSG) applications. These can run on a wide variety of hardware from low end PC's up to multiprocessor networked workstations (e.g. DEC Alpha), leaving the cost/performance tradeoff decision to the developer.

The complete RealiMation environment also includes the Space Time Editor (STE), a significant component of the development tools, and also a standalone Windows based application.

RealiMation is setting the new standards for Visualisation Simulation, Games and Multimedia development.

The **RealiMation Space Time Editor (STE)** is   a real time interactive 3D multimedia world and scenario creation and management tool.   Using Windows95 or WindowsNT (both 3.51 and 4), the RealiMation STE acts as a gathering point for 3D data, which you can then manipulate into a form suitable for high speed 3D display.   Richness can be added with motions, hotlinks, materials, articulation, textures, and much more.   It is a real time 3D visualisation and manipulation tool, where the primary output is the RealiBase, which describes all the shapes, views, textures, motion etc. within a 3D world.

The STE is *not*   a 3D modeller, rather it is designed to be used in conjunction with existing programs, as shown by its powerful import facilities.   The ability to import files from a wide variety of applications, such as VRML, DXF and 3DS, is one of RealiMation's strengths.   Uniquely, the 3D Studio filter understands and converts *frame based* animation to true *time based* movement.   In addition to these you can alsoimport text and other 2D profiles from Windows clipboard, then add depth to them to make realistic 3D models.

Not only that but by using RealiStorm, you can manipulate your drawings in an interactive 3D representation of your drawing and either save the changes back to the host application, or save the entire drawing out to RealiBase format for manipuating and editind inside the STE.

You can create some quite sophisticated models using standard geometry models, and then editing them to build up complex objects in the world.   Model hierarchy can then be built and adjusted as necessary with other objects either created or imported into the world.   Faces can be "tweaked" and adjusted for proper 3D functionality (for example, correct definitions of surface).

The final RealiBase can be then viewed with **RealiView** (a freely distributable viewer supplied with the STE) or it can be used as part of a specific application that has been created using the RealiMation high level API toolkit.

There are a number of other features within the STE which set it apart from anything else.   Its **renderer independence** is quite unique. Select the renderer to suit the application and / or and the target hardware ... even change renderers dynamically! **Time and Motion** -   *time* is understood by and is an integral part of RealiBases. *Motion* is also a central part of the data structure, and not simply added on as an afterthought. Additionally you can generate fixed time deltas for time lapse or slow motion effects in your scene.   **Advanced Texture Mapping** techniques are extremely advanced and very easy to use, and include control of mip-mapping, perspective correction, filtering

etc. Such features are rarely found even on expensive high end workstation software. Images can be brought in from a variety of popular formats including BMP, PCX, Targa, and JPEG.

Hotlinks allow you to attach external "things" to objects in a scene, e.g. other RealiBases, sound files, other applications, documents (e.g. word processor and CAD files), and even World Wide Web addresses. These "hotlinks" can be triggered when, for example, the user selects the 3D object, or flies the camera through it. The Internet plug-in fully understands hotlinks, adding more to the 3D experience than graphics. Very powerful multimedia presentations are easy to put together using just the STE, and they can even access the Web!

Possible application areas for the STE

There are many different opportunities for using the STE - some of those currently in use include:

3D multimedia, 3D on the Web, Vis Sim, game development / deployment, architectural walk-throughs and 3D art. Please note that this is by no means an exhaustive list.

In summary you can use RealiMation STE to ...

- Create your own virtual worlds for CAD walk-throughs, visualise your prototypes and send them to your clients, prospects or friends;
- Build your own interactive 3D VR Multimedia presentations or training..
- Make your own VR art ... and 3D screen savers for Windows95 and WindowsNT
- Entertain your family and create your own VR experiences.
- Create your own 3D web pages on the Internet.
- Launch other applications from inside 3D worlds - play sound and video files.
- Create 3D VR exploration stories for kids..!
- Output your RealiMations to AVI to integrate them into your video presentations.

The possibilities are endless ...

For more information on the RealiMation Development Tools, and the API we recommend that you check out the RealiMation STE help file, and also visit our Web site **http://www.realimation.com**
There is also an Adobe Acrobat file on your CD "An Introductory Guide to RealiMation" which you can print off and read for a more indepth technical overview of RealiMation.

What is RealiView?

RealiView is a freely distributable, platform independent viewer for RealiMations.   Once you have created your world, you can then distribute it to colleagues, clients or even friends for them to view on their own computers …

Where Can I Use RealiView?

RealiView is available on a variety of platforms, including Windows 95, WindowsNT (currently Intel and DEC Alpha only, although there are plans to support PowerPC in the near future), MSDOS, and Silicon Graphics workstations. Porting to other platforms is an ongoing process.

Like all RealiMation Applications, RealiView is renderer independent, so your customer does not need to have the same system - you can develop using RenderWare or OpenGL and he can view the same file on Direct3D or 3Dgx technology!!

What about the Web?

Latest versions of RealiView also include a plug-in for **Netscape Navigator** and **Microsoft Internet Explorer 3** to deliver real time 3D access to the World Wide Web. And the Internet plug-in is renderer independent too - so you can take advantage of accelerators with advanced texture mapping
options too!!

What about VRML?

While you can export to VRML 2 format, you do not need to - RealiMations are small, efficient, powerful and fast!

What about AVI?

RealiMations can also be recorded to '.AVI' format, for playback.   However, RealiView offers more flexibility by virtue of its compact data size and the ability to interact with the world.

For example, we created an AVI file of Newton's cradle - it ended up as a 17 Megabyte file - the corresponding RealiBase was just 17 Kilobytes!   Therefore RealiView is a more efficient and compact method of transferring concepts and ideas around!

RealiView is installed automatically during the RealiMation installation - it is also supplied in a separate directory on the CD.

Upgrade to RealiMation STE Designer Edition

If you are running a demonstration version of RealiStorm, then why not upgrade to the full version ...

What Do I Get if I Upgrade?

- A fully working version of RealiStorm to allow you to continue working in real time interactive 3D inside your favorite modeller!

- The File | Save As option is activated for saving your work to RealiBase

  - Send these files out to customers, clients and colleagues with RealiView
    Remember RealiMations are a convenient and efficient way to distribute data - not only are they smaller than AVI (and so more likely to fit on a floppy disk, but they are also INTERACTIVE.   Fly around them freely, using free or roving cameras to explore the scene in real time 3D whatever system you are using - whether Direct 3D, 3Dfx, RenderWare or OpenGL technology

  - Bring your models into **RealiMation STE: Designer Edition** where you can incorporate them into scenes with models from other sources to create a realistic 3D environment.

    - Add more cameras, more motion (and motion to cameras), behaviours to models, more intricate fly-throughs

    - Change your models with sophisticated materials and texture mapping to bring it all to life.

    - Distribute your work *freely* using RealiView (part of the package) on anlmost any PC, to clients, customers and colleagues, whether they are using Direct 3D, 3Dfx, RenderWare or OpenGL technology

    - Add the RealiMation to your Web site for others to visit.   RealiMations are fully featured complete with textures and motions and **RealiView** **is** *fully* **Internet Aware** as a plug-in for Netscape Navigator and Internet Explorer so anyone can see your designs, follow your pre determined path, or even fly around themselves if you add a roving camera to the scene.

    - You can even export the whole RealiMation fiile to VRML 2, and maybe write your own Java classes for smooth motion

Click here to view and print the Order Form

For more information about RealiMation, and to find out about the powerful RealiMation VSG Development Tools, why not visit our Web site at **http://www.realimation.com**.

RealiMation STE: Designer Edition Order Form

Please complete this form to purchase new and additional copies of RealiMationSTE (Space Time Editor) Designer Edition incorporating RealiStorm and either fax or mail to Datapath Ltd. at the address below.
Payment can be made to us by credit card or electronic funds (call for details)

Purchaser Details:

User Name:_____

Title: _____

Company: _____

Address: _____

_____

City: _____   Zip / Postal Code: _____

Country: _____

Phone Number: _____

Fax Number: _____

(please include all dialling codes)   e-mail address: _____

Other information

Where did you hear about RealiMation? _____

If this is a demo version, where did you source it? _____

Do you have any comments about RealiMation? _____

_____

Please rush me _____ copies of RealiMation STE Designer Edition (£995.00 / DM 2595.00 / $ 1495.00 each excl carriage and taxes)

Please debit my credit card

Please delete where appropriate   Visa / Mastercard

Card Number:_____   Expiry date: _____

Card Holder Name:_____

Card Holder Address (if different from above):_____

_____

_____

VAT Number: (EC Countries only) _____

Carriage is charged according to destination:
Within UK: £15   To Europe: appx. £ 30   To USA / ROW: appx. £ 45

All prices are exclusive of carriage, VAT and any local taxes.   Please be prepared to pay any local taxes when you purchase RealiMation.   NB: Credit card payments will be made at the £995.00 price (plus carriage and VAT).   Other currencies will be billed at the local equivalrnt rate to the UK currency, at credit card transaction rates.
Please note that the purchase of these products indicates acceptance of the

Datapath Licence Agreement.

CALLING ALL DEVELOPERS ..... *If you are interested in developing your own applications with the RealiMation VSG Development Tools, please call us now, for information and pricing. Remember the RealiMation STE is itself a RealiMation application   - the opportunities are endless!*
Contact us now on +44 (0) 1332 294441   or fax on +44 (0) 1332 290667 or e-mail on sales@realimation.com

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Datapath Limited

Datapath Limited is a world leading innovator in the field of computer graphics, combining state of the art expertise in both hardware and software design. The company maintains a tight, highly motivated team of specialist graphics engineers with over 100 man years of experience covering all areas of the computer graphics and displays industry.

With this extensive wealth of knowledge, Datapath's expertise in the field of computer graphics is recognised as being unsurpassed. Datapath has been designing and supplying graphics display systems to the world's largest and most demanding companies and institutions, since 1982, and has become one of the most respected and successful companies in the graphics industry.

The size of the company has been carefully controlled in order to maintain a sharp focus on leading edge graphics technology. By working closely with our partners (customers, suppliers and associated companies) and particularly by having involvement in both hardware and software areas, we achieve the benefits of scale and coordinated technological strength.

As new technology advances, so we take this on-board to improve the performance and features of our products to benefit our customers. With a continuous development programme, we pride ourselves on our support and responsive nature towards our customers and their changing needs.

Importantly, in addition to this, Datapath has experienced continuous profitability assuring success and continued growth in an advancing industry.

Datapath has a long and very successful history in the computer graphics industry. Founded in 1982, Datapath has been designing and supplying high performance, high quality graphics display systems to the world's largest and most demanding companies and institutions.

Background

Datapath was founded in 1982 by its three present directors, Brett Butcher, Steve De'Ath and Tony Jones, who had all worked together as electronics engineers at Rolls Royce. Initially established to offer consultancy and custom design services to industry, Datapath soon moved into the design of sophisticated graphics terminals capable of quality colour displays for use in CAD applications - the beginning of a long and successful future in the computer graphics industry.

Datapath's maxim of Excellence by Design is continually at the forefront of the company's work. High standards of quality are ensured through high levels of *independence*, *dependability* and *quality*.

INDEPENDENCE: Being wholly self owned, and thus self funded, underwrites Datapath's total independence from negative external influences

DEPENDABILITY: Datapath consistently achieves the highest levels of technical merit, with qualified, experienced staff at all stages of product development and manufacture.

QUALITY: The highest standards form an integral part of the production processes with strict quality control in all areas. All processes are controlled by Datapath at all stages from design, through development and manufacture to packaging and despatch. Datapath was awarded the prestigious BS5750 /ISO 9001/EN29001 Quality Award and the TickIT mark for software in August 1992, proving that a Datapath product is a quality product.

Power Groups

Datapath markets its product areas under the Power Group banners. These identify new areas of business using existing skills and expertise gained over years in the industry. Today's activities can be categorised into three main areas, which are outlined below.

Power Graphics

This banner covers Datapath's activities in the field of home branded graphics plug-in cards and

continues to exploit the superb wealth of knowledge expected from Datapath graphics products.   The main thrust of Power Graphics is core graphics card development, design, manufacture and support. Datapath products are intended to be specialised and to uniquely address niche market areas. In addition to the latest ranges of graphics accelerators Datapath has a strong history of extensive driver support in other, more vertical markets, e.g. CAD CAM.   Both AutoCAD and MicroStation have been supported by Datapath for the last decade along with many other CAD applications, which are now only associated with the Windows environment.   With all this experience Datapath is well positioned to advise on all aspects of graphics software applications and environments.

Power Software

Datapath's hardware activities have always involved software development.   Indeed the software team is the largest single group within the company.   Over the years, the type of software projects undertaken have evolved from writing terminal emulators (VTxx, Tektronix 4014 etc.) to CAD drivers (AutoCAD, MicroStation and as many as 30 others) to GUI drivers (Windows, X-Windows, NT ,'95 etc.) From time to time driver software has been licenced to other graphics card companies around the world.
From this background the software department has successfully designed standalone software products, such as *TWIN for Windows* and RealiMation.

TWIN for Windows is the world's leading multiple screen Windows display technology to offer users flexibility and productivity from their Windows operations.   Key market areas for this technology include financial institutions where live data can be displayed on one screen, and custom financial applications can be viewed simultaneously on the other, under one session of Windows, with complete freedom of movement between the two.

REALIMATION - Since 1990, when Datapath developed the Merlin (i860 RISC processor based 3D graphics board), the company has been involved in 3D software development.   This first manifested itself as a 3D Viewer for AutoCAD, then addressed the problems encountered in fulfilling a number of simulation projects (ATC, marine, low-cost flight simulation, artillery etc.) and has lead to the development of RealiMation, a unique Visual Simulation and Game development toolset.

And finally, *Power Projects* encompasses Datapath's extensive abilities and expertise in hardware and software integrated designs.   Several major projects and OEM contracts, including a number of Virtual Reality and Simulation projects, have already been undertaken under this banner and many more are on the way.

Power Projects offers the combined skills of the other aspects to deliver fully integrated project managed solutions, and can offer customers our expertise in hardware and software, bringing together individual components for specific tasks.

For example: the Belgian Air Force air traffic/pilot training simulator project was undertaken by Power Projects and used graphics accelerators from Power Graphics and REALIMATION from Power Software.

Additionally, components from external sources can also be managed.   For example: in a financial contract, Datapath supplies *TWINOrion-LCD* display controller and special *TWIN* screen display and digitiser software combined with LCD panels and specialist digitisers from other companies to produce a totally integrated project managed solution.

The Benefits

Datapath has a number of key areas of excellence that set is apart from others in the industry.

Datapath is a **European based** company, with all aspects of design development *and* complete manufacture carried out in Europe.   A long established history in the computer graphics industry is

borne out by a strong technical base and a comprehensive, technically lead product range.

The Datapath hardware product range is indeed extensive, from S-VGA Windows accelerators, through powerful 2D and 3D Windows and CAD accelerators on all bus architectures to the H2000 - an ultra high resolution   display controller capable of resolutions up to 2048 x 2048 - ideal for radar and simulation.

Technical Support: Complete computer controlled order processing and despatch systems ensure speedy processing of orders - efficient and accurate.   More than this, the same systems enable product tracking for on-going support.   With a direct technical support hot-line, manned by a highly specialised technical support team, support issues can be dealt with quickly and easily.

Additionally our Web Site and Bulletin Board Service operate 24 hours a day, 365 days a year, holding information and new product releases, as well as providing a communication path to our software engineering team when the offices are closed.

Datapath's strong customer base includes many of the world's recognised Blue Chip companies: BBC, British Telecom, British Gas, British Airways, Luftwaffe, Siemens.   Datapath also has a number of OEM customers for whom we have designed and implemented complete turnkey systems.   These include British Aerospace, Ferranti, Marconi, GEC, Hughes Rediffusion Simulation and the Belgian Air Force.

From the very first terminals to the most advances and powerful controllers Datapath has been dedicated to providing the maximum in graphics performance and quality efficiently and effectively With an ability to manage costs whilst maintaining technical integrity, Datapath is determined to continue to lead the field and the international marketplace.

In summary Datapath has a commitment to excellence - to provide complete customer service and support without compromise.

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Copyright Statement

Overview of RealiMation STE

Overview of RealiStorm

RealiStorm is the only real time solution for interactive 3D design work *inside* your favourite application!   A RealiMation application, RealiStorm uses "plug-in" technology to transfer drawing data seamlessly into RealiStorm. You can then interact with a fully rendered 3D scene, modifying and editing, and then pass back changes to your original host application.

There are currently three versions of RealiStorm: **RealiStorm for AutoCAD** , **RealiStorm for 3DStudio MAX** and **RealiStorm for MicroStation**.   While the RealiStorm interface is identical across them all, there are some application specific features which are documented in their own sections.

A special version of RealiStorm, which comes as part of the **RealiMation STE Designer Edition**, allows you to save the drawing as a RealiBase to bring alive inside the STE.   Your drawings and models can be integrated into a virtual world, with added textures, motions, behaviours and to an interactive real time 3D visualisation for previews, prototyping, multimedia presentations - even add it to a Web site for 3D on the Internet!!

Your designs can be distributed freely with RealiView, and RealiMations are compact and efficient - no need to create unwieldy AVI files simply create an interactive RealiBase and send out on a floppy disk - or over the Internet!

If you are using a demonstration version of RealiStorm, then although you cannot save out to RealiMation format, you can try out a a 30 day demo of the RealiMation STE for creating virtual worlds.   Why not try it and upgrade to the full RealiMation Designer STE!

Don't delay - upgrade today!!

See Also
RealiStorm General Concepts

RealiStorm Desktop

RealiStorm for AutoCAD

RealiStorm for 3DStudio MAX

RealiStorm for MicroStation

Installation

- Run the file **setup.exe** from the root directory of the CD.

- The Welcome Installation Panel appears - click Next to continue.

- The **Licence Agreement** appears - click Yes to accept and continue, and click No if you do not agree and want to exit the installation.

- The **Registration** Dialog appears with the name and company data taken from your system settings.
  If this is correct click on OK and confirm the details at the next prompt.

- Choose the **target directory** where you want to install the software.   The default directory is c:\realimation.   To accept the default click on the Next button.

- Select the **language** you want to use - the default is English, German is also available

- At the next dialog you can **select the different components** to install from the options:
  - **<u>Space Time Editor: Designer Edition</u>**
    Take your models from   RealiStorm   and build scenes and worlds with added motions, textures and bring them to life.   View interactively , send to clients and colleagues to fly through and investigate even put them on the Web!

  - RealiStorm
    Work in real time interactive   3D with the powerful RealiStorm plug-ins   inside AutoCAD, 3DStudioMAX and MicroStation REAL power CAD performance

  - Display Drivers
    You will need to install at least one dispaly driver from the selection to run the RealiStorm dekstop application.

  - RealiView
    Freely distributable viewer for RealiMation files and browsing the Web in interactive, real time 3D

  - Screen Saver
    A special RealiMation application which turns your RealiMations into 3D screen savers!

  - ReaiBench
    Independent benchmark program for many different   display accelerators

  - RealiStorm automatically detects which of the supported host applications you have on your machine and where they are located.   The appropriate boxes on the right hand side are checked.   For example, if you have 3DStudio MAX and MicroStation, then both these check boxes will be enabled by default.   You can enable or disable the options by checking or unchecking the boxes, before continuing.

- To **accept the settings** click Next

- The next dialog prompts you to select the Program Folder or Program Group name.   The default name is RealiMation Designer.

- The next prompt "**Have you been supplied with a dongle and RealiMation serial number?**" determines which software will be installed.
  Click **Yes** to install the full working copy of the STE Designer Edition (you will be prompted for the serial number when you run the STE for the first time.)
  If you click **No** then a 30 day demo version of the STE Designer Edition will be installed.

- If you are installing RealiStorm as part of a product set then an information panel will appear. Click OK to continue.

- At the next prompt is to **verify the destination directory** for your RealiStorm application. The installation procedure will have already detected which host applications you have and where they are installed. We recommend that you install to the same directory where your host application file is found.

- If you are installing multiple RealiStorm versions then the previous prompt will reappear.

- The installation continues, prompting you for your preferred Web browser (if you are installing **RealiView**), and the default driver to use. You MUST install a default driver as this is used for the RealiStorm application window.
  Note: Obsidian Pro based graphics technology cannot be chosen as the default display driver at installation time. However, you can configure RealiStorm when you run it for the first time to use the Obsidian Pro for your real time, interactive 3D view.

- An information panel appears with specific data for the selected display driver

- The RealiStorm components are then installed, - a progress meter reports back on the installation status and the program group is created.
  Note: RealiStorm does not have its own icon. This is because it can only be run from inside a host application, e.g. AutoCAD, 3DStudioMAX or MicroStation.

  You will need to restart your system before you run RealiStorm. The next step we recommend if to read the section on **running RealiStorm**, and the **desktop layout**. ans then specific notes on your host application: **AutoCAD**, **3DStudio MAX** or **MicroStation**.

Running RealiStorm
.... A Step By Step Guide to a RealiStorm Session

Once you have installed RealiStorm on your machine you can get straight to work. Although a program group has been added to your Windows system you can only access RealiStorm through your host application.

To start RealiStorm
- Start your host application and open a drawing or design file in the usual way.

- When you are ready, you can start the RealiStorm session.   (The steps are slightly different for each host application.)
    #### AutoCAD
    - At the command line type `rstorm` to run RealiStorm for the current drawing.   To run the configuration options first, type `rstormcfg`.

    #### 3DStudio MAX
    - From the Utilities panel select RealiStorm from the drop down list.

    #### MicroStation
    - Use the key-in box and type `mdl load realistorm` or the **Utilities | MDL Applications** menu, selecting the RealiStorm option, and press 'Load'.

- Once the data has been transferred from your host application the RealiStorm application window will appear.   This is the same for all supported host applications, with common **toolbars and buttons** and three windows:
    - a View Lister Window
    - a Cameras "Lister Window" and
    - a 3D View window.
    Click **here** for more information about these windows.

Using RealiStorm
The power of RealiStorm lies in its real time 3D manipulation capability of any object.
- All the objects in the view you have transferred appear in the 3D View, and can be moved, scaled and rotated in real time.   Click **here** for help on changing and moving the models in the scene.

- If you have behaviours and actions associated with the models then you press **F10** or Play on the RealiMate bar and see them move

- While the scene is playing back you can switch to the Free Camera and enable **Mouse Flies Camera** and **fly around** the scene - looking at it from any angle!!

- You can even edit them during the sequence!!

- Create a **new flight path** around the model for fly throughs you can pass back and store in the original drawing!

There are some specific pointers for each host application and these are detailed separately in other sections of this help file.   for more information about your chosen host please click on the section below:

RealiStorm for AutoCAD , **RealiStorm for 3DStudio MAX** or **RealiStorm for**

MicroStation.

Finishing the RealiMation Session

When you have completed your work in RealiStorm, you have 3 possible options depending on the host application and whether you have the full RealiStorm and Designer STE package:

i.   Save the modifications to the original drawing file only (inside the host application).

ii.   Save the modifications to the drawing file, and create a RealiMation file (i.e. a RealiBase, with the extension .rbs) or

iii. Save the new data as a RealiMation and discard any changes to the drawing file in the host application.

Notes:
Changes are only updated automatically if you have the **Update Host** option enabled.   You can specify which object types are updated, by clicking the appropriate radio button: objects, cameras, flight paths and the view background colour.   Currently the save / pass back to 3DStudio MAX and MicroStation is limited to saving the flight path data only.

You can only save to RealiMation format if you have the full **RealiMation STE Designer Edition**.

When you save to RealiMation format, the RBS file is linked to the original drawing / model as "extended data".   Next time you open the drawing and start RealiStorm the system will prompt you to select the associated RealiMation file.

Because you do not have to pass modifications back to the host application, you can create different RealiMation files each time you open the drawing in RealiStorm, and store these as extended data.   This is particularly useful if you want to make several different 3D representations of the same basic model.

In Demo Mode?   Want to Upgrade to the full version with RealiMation STE Designer Edition?   If you do, click **here** to find out more.

RealiStorm Desktop

The RealiStorm application window is identical across all supported host applications, and is split into the following main sections:

- **Lister Windows** which reference all the objects transferred into RealiStorm
- a 3D View window, a 3D representation of your original design which you can fly around interactively and create **flight paths**.

There are also a number of tool and button bars with shortcuts to the main application functions which are described in more details below: **Note**:   The accelerator keys for short cuts in RealiStorm for MicroStation and AutoCAD are not implemented in this release.

Menu Options

There are seven menus with many of the options available on **buttons** and / or accelerator keys.   Click on the links to display more information where available.

File Menu

Save As -   Save the current design file to RealiMation format.   This option is available only in the full Designer Edition version of RealiStorm

Record   -   **Record the sequence** to AVI format

Exit   -   Close the RealiStorm session.   If you have **Update Host** enabled then the changes you have made will be passed back into the original file.

Edit Menu

Undo   Undo the last actions taken in RealiStorm.   Also accessed by **Ctrl + Z**.

Fit to View   Locate the current selection in the View Lister. Also accessed by **F3**.

Clear Selection   De-select all selected objects in the Lister and View windows.   Also accessed by **Esc**.

Properties   Display the Statistics for the currently selected object.   Also Space Bar and Double click of mouse

Select Parent   Move up the hierarchy to the top level placement.   Also accessed by **Alt and Up Arrow**.

Update Host Objects   Transfer the changes you have made to models in RealiStorm to the host application.   This option is only active if you do have the **Update Host** configured to "On Demand".

Update Host Cameras   Transfer the changes you have made to cameras in RealiStorm to the host application.   This option is only active if you have the **Update Host** configured to "On Demand".

View Menu

Wire frame   Use wire frame to display the scene

Flat Shaded   Use flat shading to display the scene

Smooth Shaded   Use smooth shading to display the scene

Anti-alias   Enable antialiasing on your display (where your graphics accelerator will support it)

Mouse flies camera   Enable free flight around the world with the mouse.   Also accessed by **F9** and a button on the **Standard Toolbar**.

Ground Flight   Toggle ground flight.   Also accessed by a button on the **Standard Toolbar**.

Solid Camera   Enable solid camera.   Also accessed by a button on the **Standard Toolbar**.

Terrain Following   Enable a terrain following camera.   Also accessed by a button on the **Standard Toolbar**.

Slide Camera   Enable a slide camera.   Also accessed by a button on the **Standard Toolbar**.

Prelight   Prelight the object selected in the View / View Lister.

Flight Paths

Create Flight   Start the flight path creation process.
Edit Flight Path   Edit the existing flight path
Finish   Finish the flight path creation session
Preview Flight   Preview the flight path you have created
Change Flight Speed   Alter the overall speed of the path you have created
Delete Last Node   Delete the last node you have created in the flight path.

Note: For more detailed information about creating **flight paths** click here.

Customise Menu

Interaction   Configure display of axes and autolinking in the View window and mouse flight sensitivity

Display Driver   Select the display driver you want to use for the current RealiStorm session

RealiMate   Set up the RealiMation playback options
Colours   Configure the colours used to display the view background, edit handles and path nodes.

Texture Options   Enable and disable different texture mapping options depending on the capability of your hardware

Update Host   Configure the pass back options for cameras, objects, flight paths and background colour changes.

Always on Top   Set the RealiStorm window to always be on top of the host application.   Click the menu option to enable / disable.

Toolbars

Toggle the display of the toolbars
Reset Toolbars   Reset all the toolbars to their original positions

Help

Buttons and Toolbars

The RealiMation main button bar is made up from 2 separate toolbars - Standard and RealiMate.

The Standard Toolbar comprises the following short cuts:

   Save As -   Save the current design file to RealiMation format.   Available only with the full STE Designer Edition

Fit to View - to find the selected placement and display it in the view window

Display modes - choose between the three options:

wire frame,

flat shaded or

smooth shaded

Note: Anti-aliasing is available for those drivers with suitable support.   This option is enabled from the View menu.

Choose the appropriate **flight mode and camera constraints**

Enable **mouse flies camera** - use the mouse inside the 3D View to travel around the scene

Enable **ground flight** mode

Enable **solid camera**

Enable **terrain following** for the current camera

Enable a **slide camera** for the current camera.   (**Note:**   You will need solid camera enabled for this to work correctly.)

The RealiMate Toolbar has all the controls for playing back the sequences you have created in the host applciation.   The amount of elapsed time is also displayed on this bar.

The controls are standard - rewind to beginning (or **F11**), move back one frame, forward on frame or fast forward to the end of the sequence. The play and stop controls are also on hotkeys using **F10**.

All three toolbars can be enabled and disabled from the Toolbars menu.

See Also:
Lister Windows

RealiStorm for AutoCAD

RealiStorm for 3DStudio MAX

RealiStorm for MicroStation

Lister Windows

Once you have transferred the drawing data you will see the Lister Windows contain references to all the objects transferred into RealiStorm.   Two Listers are created - Views and Cameras and these relate to the contents of the 3D View window.

Views

A view is the container for all the objects in a scene and the **View Lister** contains a list of all these shapes, placements and atmospherics (lights) in the view you have transferred. It also references the camera you are using to display the view.   (Although RealiStorm transfers all the camera information, only one camera can be used in a view at one time.)

You can look at some properties for views, shapes and placements by selecting the object in either the View Lister or View window and double clicking the mouse, pressing the Space bar, or choosing the **Edit | Properties** menu.

The different object types in the View Lister are identified by a unique icon:

identifies the view object.   There can be only one view.

identifies a placement.   There can be multiple placements in a view.

identifies a shape.   There can be multiple shapes in a view.

identifies an atmospheric object.   There can only be one atmospheric object in a view.
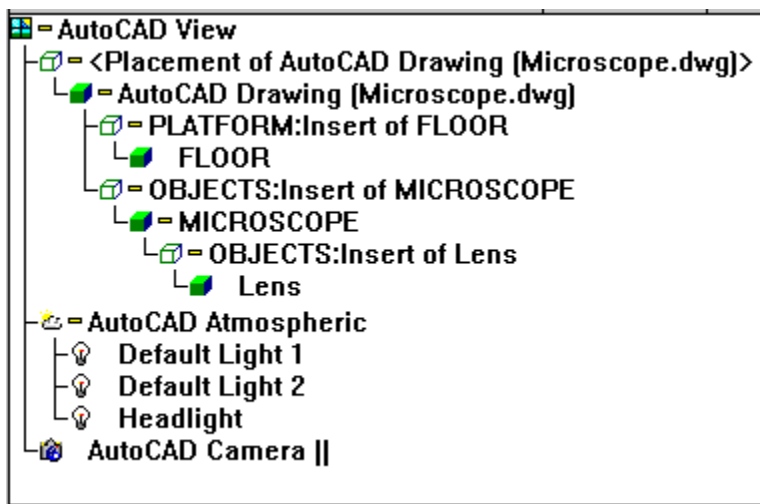
identifies a light source.   Multiple light sources can be in the atmospheric object

identifies a camera.   There can be only one camera used to display the view.

The image below shows a typical View Lister window taken from RealiStorm for AutoCAD.

Hierarchies and Object Names

The names of the different objects in the view are taken from the host application and the

drawing you have transferred.   For example, the view may be called **AutoCAD Drawing View** or **MicroStation View 1**.

The names of placements, shapes, light and cameras are also taken from the drawing and transferred. (The example above shows how Layer Names can be included in the RealiStorm Listers (this is an **AutoCAD specific configuration option**)

Because RealiStorm understands the concepts of **hierarchies**, the data from the host application is transferred preserving the structure in place.   Expanding the hierarchy displays all the placements and shapes in the view.   (Click **here** for more on expanding and contracting hierarchies)

Shapes and Placements
What are Placements?
For every shape or geometry object that is transferred from the host application, RealiStorm creates a placement of that shape, and adds it to the view object.
Designed for efficiency placements are "instances" of geometry e.g. you can include lots of cars in a scene but only actually create and store one shape.   Each placement can be in a different position, scale or colour.   RealiStorm understands these and automatically transfers the information as you move from host application to RealiStorm.

Selecting Placements
Depending on your **customise settings**, when you select any placement in the Lister, a bounding box is drawn around the object in the view to identify it from the rest of the view.   The selected placements can then be modified - translated, scaled, rotated etc. using the "handles" which appear on the bounding box.   More information on editing placements can be found in the section in **Manipulating Placements** within the helpfile.

If you have selected a small component in the view window but actually want to edit the top level, or parent of the objects, then you can use the **Edit | Select Parent** menu option or press down the **Alt key & Up arrow**.   This allows you to select the object you want easily.

There are some application specific notes about placement editing - please turn to the appropriate section for more information on these e.g. **RealiStorm for AutoCAD** , **RealiStorm for 3DStudio MAX** or **RealiStorm for MicroStation**.

Lights and Atmospherics
Any lights you have created in your host application are transferred and listed under the RealiStorm "Atmospheric" object in the View Lister.
Any scene can have multiple light sources - all of which are stored as part of the Atmospheric.   Future releases of RealiStorm will also support atmospheric effects such as fogging.

There are some application specific notes for lights and atmospherics - please turn to the appropriate section for more information on these e.g. **RealiStorm for AutoCAD** , **RealiStorm for 3DStudio MAX** or **RealiStorm for MicroStation**.

Cameras

The Camera Lister displays all the cameras which have been created in the host application and transferred into RealiStorm.

Notes: RealiStorm is a true 3D environment, and as such makes substantial use of **perspective cameras** to give true 3D representation of the view. However, AutoCAD and MicroStation make extensive use of **parallel cameras**.
Because parallel cameras are not suitable for viewing 3D environments, they do not give a true representation of a 3D world.
To overcome this, RealiStorm takes the parameters for the default parallel camera and converts them to **perspective** to give a more realistic view. Please note however, that this means the view you get in RealiStorm will not exactly match the one in AutoCAD or MicroStation.

Parallel cameras which have been converted to perspective are identified in the Listers by a symbol (II) at the end of the name as shown in the image above.

Any camera created in the host application is transferred automatically into RealiStorm and will be displayed in the **Camera Lister**. RealiStorm also creates a new roving camera which you can use to fly around the world freely and interactively, it is purely for viewing the scene, and will not be passed back to the host at any time. This camera is called **RealiStorm Free Camera**.

You can swap the camera used to view the scene by selecting a different one in the Lister and dropping it over either the View Lister or the View window. Although there is no limit to the number of cameras you can create and transfer to RealiStorm, you can only use one camera in a view at any one time.

To change the camera clipping planes use the Front and Back thumbwheels on the 3D View window.

There are some application specific notes about working with cameras - please turn to the appropriate section for more information on these e.g. **RealiStorm for AutoCAD** , **RealiStorm for 3DStudio MAX** or **RealiStorm for MicroStation**.

3D View Window
The 3D View window is a 3D representation of the objects shown in the View Lister. You can then fly interactively around the scene, selecting and **manipulating placements**, Swap cameras to view from different angles, **create new flight paths** for cameras etc. The 3D View window is framed with the **thumbwheels** for controlling the camera movement and clipping planes, and in Create Flight mode has **grid setup** and action node thumbwheels.

If you enable display of axes in the 3D view, these will appear in the bottom left corner of the window. The position and orientation of the axes depends on your host application. For example, if you are using RealiStorm for AutoCAD, then the orientation will match the axes in AutoCAD, i.e. if Z is up in AutoCAD, then the RealiStorm view will be identical.

See Also:
RealiStorm Desktop

Manipulating Placements Inside RealiStorm

Creating Flight Paths

Flying Controls

What Do The Different Thumbwheels Do?

Note: Click the mouse over the thumbwheel you want to edit and drag the mouse up and / or down.
> Holding down the **Ctrl** key as you move the thumbwheels gives you finer control (slower movement) and holding down the **Shift** key gives your coarser control (faster movement).

Pan pans the camera left and right and up and down. **(Horizontal and Vertical)**
An analogy could be moving your body along a straight line both sideways and up and down, while keeping you head, and so your view, completely still.

Orbit moves the position of the camera around the centre of vision in a circular path, keeping a constant distance from the orbit centre.   **(Horizontal and Vertical)**   An analogy for this could be the way that the moon orbits the earth.

Aim aims the camera in a different direction -   left and right and up and down. (Horizontal and Vertical)
An analogy could be turning your head from left to right and up and down, without moving your body

Roll spins the camera while maintaining the direction in which it is pointing.   **(Horizontal only)**

Move moves the camera position into and out of the scene, to give the impression of zooming in and out.   **(Vertical only)**

Field of View (FoV) changes the camera's 'span', and so limits the extent of the view. **(Horizontal only)**

Front changes the front clipping plane of the current camera.   Roll the wheel up to increase the clip plane**.**

Back changes the back clipping plane of the current camera

Manipulating Placements Inside RealiStorm

RealiStorm, like RealiMation STE offers intuitive manipulation techniques for placements in the virtual world using the mouse controls and keyboard commands.

- Drop the **RealiStorm Free Camera** into the view window.   This camera is a special "roving" camera which is not attached to any other object and is very useful for freely exploring the scene.   The Free Camera is not be handed back to the host application.

- Select a placement in the 3D view window.   (Alternatively you can select it in the View Lister and use **Edit | Fit to View** to move the camera to locate the selected object)   You can select multiple placements simultaneously - for more **click here**.

- The placement will be drawn with a bounding box and manipulation handles.

- Using either mouse or keyboard you can begin to change the placement - the shape of the handles determines whether you are translate and scale or rotate the object.

   In **translation /scaling** mode the corner handles are triangular and red, with rectangular handles on each "face" of the bounding box.   These are colour coded to identify the axes you move in.   (The colours can be changed using the **Customise | Colours** dialog)

   In **rotation mode** the corner handles are triangular and blue, with the handles on each face changing to pentagons.   The rotation handles are positioned around the orbit centre of the placement.
   Note: Depending on the model you are rotating, these handles may not be at the logical centre of the shape.
   (If you save to RealiMation and bring the design into the STE you can reset the orbit centre to be the logical centre, and also permanently apply any transformation to the selected shape.)

Mouse Transformations: Translating and Scaling

- Drag the triangular handles on the corners (red by default) and drag the mouse to scale (i.e. make smaller and larger) the shape about the opposite corner.

- Drag the rectangular handles to translate the placement (change it's position).   The colour of the handle identifies the direction of the movement.   The default colours for the handles are as follows:

   cyan   drag in the local X axis
   magenta   drag in the local Y axis
   yellow   drag in the local Z axis

- Hold down the **Ctrl** key as you drag to move the placement in the direction of the axis.   (e.g. hold down the Ctrl key and drag the yellow face to scale the placement in the Z axis.)
- Hold down **Ctrl + Shift** as you drag to scale the placement in its local direction about its centre of origin.

- Double click the mouse over the selected placement to switch to rotation mode.

Note: If you drag the mouse over the entire edit box (not over a specific handle) then the placement will be dragged parallel to the viewing plane.

Keyboard Transformations: Translating and Scaling

You can also use the numeric keypad on your keyboard to change the position and size of the placement.   (Please make sure that the number lock button is depressed before you start trying to move / scale the placement)

Translating

Keys 7 and 9   translate / scale the placement along the X axis
                    (where 7 is negative and 9 is positive)

Keys 4 and 6   translate / scale the placement along the Y axis
                    (where 4 is negative and 6 is positive)

Keys 1 and 3   translate / scale the placement along the Z axis
                    (where 1 is negative and 3 is positive)

Ctrl + 2 and 8   scales the entire placement around its centre of origin.

You will notice that as you keep the number keys depressed the editing gradually increases in speed.

Press key 5 to switch to rotation mode.

Mouse Transformations: Rotation

- Double click the mouse over the selected placement, to switch to 'rotation mode'. The handles have changed from   rectangles to pentagons, and allow you to rotate the placement around its origin, in the direction shown with colour coding.

- Drag on the pentagon to rotate the placement, about its respective axis in the direction shown by the colour of the handle. The handles are colour coded as follows:
    cyan   drag in the local X axis
    magenta   drag in the local Y axis
    yellow   drag in the local Z axis.
(This is the same colour / axis combination as the translation modes and is used to display the direction of the action nodes.   These are the default colours - you can alter them in the Customise | Edit Colours menu.)

- Click on the corners (red) to initiate a 'trackball' type of drag option.

- You can change the centre of the object by holding down the **right mouse button** key and dragging a pentagon with the left mouse button in its respective direction.

Keyboard Transformations: Rotation

You can also use the numeric keypad on your keyboard to rotate the placement.   (Please make sure that the number lock button is depressed.)

Keys 7 and 9   rotate the placement in the X axis (change pitch)
                      (where 7 is negative and 9 is positive)

Keys 4 and 6   rotate the placement in the Y axis (change yaw)

(where 4 is negative and 6 is positive)

Keys 1 and 3   rotate the placement in the Z axis (change roll)
                                (where 1 is negative and 3 is positive)

You will notice that as you keep the number keys depressed the editing gradually increases in speed.
Press key 5 to switch to translation mode.

Transforming Multiple Placements

To transform more than one placement at a time:
- hold down the **Ctrl** key and pick the placements in the 3D View window
  As you are select placements, the most recently selected is displayed using the usual coloured edit box, while previously selected placement(s) are displayed with greyed edit box(es).

- Change the placement transformation using the current edit box, and all the selected placements will change.   You can switch between selected placements, changing the edit focus simply by clicking on another edit box.

- Once you have changed the position and orientation of a placement, you can edit them further by changing individual faces to define a different shape.

Note: A great level of accuracy can be achieved if you save to RealiMation and then work on the drawing inside the RealiMation STE.   In the STE you can directly edit the Properties for the selected placements.

See Also:
Flying Controls

Flying Controls

Note: To make flying faster hold down the **Shift** key as you move the mouse, to slow down hold the **Ctrl** key.

How To Start Flying Around the World ...

As soon as you select the **mouse files camera** option (or F9) you can move the mouse inside the view window to fly around the scene.

Note: You can improve the camera control the first time you fly by toggling: **solid camera** ( ) and **ground flight** (

)

Using the White Box As A Guide
The white box (enabled by default) is a control aid - as your mouse nears the box, the finer the camera movements, the further away, the faster the flight.

The interior of the box is a "null" or "dead" area - if you click the mouse inside the box the camera will not move.   Also if you have solid camera enabled, and you make contact with a solid surface, which you cannot pass through, the box will be shown in red.

 You can toggle the display of the box, and also modify the camera flight controls from the **Customise | Interaction** menu.

Controlling Free Flight using the Mouse
- with left mouse button depressed ...
   ... move the mouse to the left to look left   (i.e. turn the camera to the left)
   ... move the mouse to the right to look right (i.e. turn the camera to the right)
   ... move the mouse so the cursor is above the box to move into   the scene
   ... move the cursor down below the box to move out of the scene

- with right mouse button depressed...
   ... move the cursor to the left to pan the camera left
   ... move the cursor to the right to pan the camera right
   ... move the cursor up above the box to pan the camera up
   ... move the cursor below the box to pan the camera down

- tap the left mouse key...
   ... as you pan up or down to tilt the camera viewpoint up or down, to look onto the view from a different angle.
   If you pan down the left mouse button will tilt the camera up, and if you pan up the left mouse button will tilt the camera down.

- with left and right mouse buttons pressed together...
   ... position the cursor in the top half of the window and hold both buttons down to tilt the camera up
   ... position the cursor in the bottom half of the window and hold both buttons down to tilt the camera down
   ... position the cursor in the left half of the window and hold both buttons down to roll the camera anticlockwise
   ... position the cursor in the right half of the window and hold both buttons down to roll the camera clockwise

Notes:
For finer flight control hold down the **Ctrl** key as you move the mouse
To accelerate hold down the **Shift** key as you move the mouse.
You can also adjust the flight sensitivity from the **Customise | Interaction** menu.

See Also:
Creating a Flight Path

Camera Thumbwheels

Creating Flight Paths

Using the mouse you can quickly build up flight paths for creating walk throughs around your scene.   Simply click the mouse where you want the nodes to be, change their position and orientation until the route is ready.   A preview mode means you can see how it looks before you save any changes, or even go back and edit the nodes again.   Flight paths can be saved back to the host file as an integral part of the drawing.   This mechanism is identical across all versions of RealiStorm.

To create a path you simply add nodes around the scene.   Nodes look like axes and are colour coded to show the direction they are travelling: - The defaults are: Cyan is X, Magenta is Y   and Yellow is Z
Note: You can change these colours from the **Customise | Edit Colours** dialog.

- Make sure you are using a **Free Camera** in the view.

- Select the **Flight Path | Create Flight** menu and you will see three additions to the 3D View window:
    1. a reference grid appears to guide node positioning.
       As you move around the scene more of the grid comes into view.

    2. a button , and two thumbwheels 'Size' and 'Height on the right side of the view window.
       Click on the button to **fine tune the grid positioning**.
       The Size thumbwheel scales the size nodes, to make them a suitable size for your scene.
       The Height thumbwheel changes the height of the grid.   Hold down the **Ctrl** key for finer thumbwheel control and hold down the **Shift** key for coarser thumbwheel control.   You can fine tune the position by clicking on the **button**.

    3. a 3D view port which shows the view as if looking down the Z axis of the current node
       To move the viewport (first make sure that you do not have mouse flies camera enabled) click inside it and drag it around to a new position.
       To resize the viewport click on the small square in the bottom right corner and drag the window to the size you want.

- Using the grid as a guide for positioning, click the left mouse button to place the node in the scene.   (Releasing the mouse button fixes it in space.)

- Use the view port to help you position the nodes - the viewport changes each time you add or edit a node to display the view you will get from the camera at that point.

- You can edit nodes, move them around, changing position and orientation following the steps below:

    To move a node click the left mouse button over the node and drag it around to a new position.

    To raise a node above or below the grid: hold down the **Alt** key as you click the left mouse button over the node and drag it up or down.   A blue 'wire' will be drawn between the node and the grid to show its position.

To change the orientation click the right mouse button over the node, and drag the mouse around, spinning left and right (**yaw**).   Hold down the **Ctrl** key as you drag the mouse to change the **roll** and hold down the **Shift** key as you drag the mouse to change the **pitch**

- When you are ready to add another node, position the mouse and click the left button.   A green line appears to mark the route between the nodes.   The position and curve of this route marker depends on the Speed settings you have for the flight path (**Flight Paths | Change Flight Speed** menu).
Small values = high speed = straight line routes between nodes
High values   = slow speed = more curved routes between nodes.
We recommend that you experiment a little getting more of a feel for the link between route and speed.

- Continue in the same way to add more nodes to the flight path.

- If you make an error you can remove the last node you added with the **Flight Paths | Delete Last Node** menu option.

- You can preview the route at any time using the **Flight Paths | Preview Flight** option which will run through and display the flight path once in the viewport.   **Press Esc to stop the preview**.

- When you have finished defining the flight path, select the **Flight Paths | Finish** option - the viewport, nodes and route marker will disappear from the view window, and a new camera called **Flight Camera X** (where X is a number) will appear in the Camera Lister.

- To view the completed fly through in the View window drop the camera into the view window and press the play button.

Editing Flight Paths
- To edit the path, drop a free camera into the view, highlight the **Flight Camera** you want to modify and select **Flight Paths | Edit Flight Path** menu option.   The nodes, route marker and viewport appear in the View window again, and you can edit the nodes in the usual way.

Deleting a Flight Path
- If you want to delete the flight path, first make sure that you are using a different camera to display the view, highlight the Flight Camera you want to delete and select **Flight Paths | Delete Flight Path** and it will disappear from the Lister.

Notes:
- The camera always points in the direction of travel i.e. along the Z axis.   However, if you have the full **Designer STE** then you can save out to RealiMation and modify these cameras to always point at other models in your scene

- The speed you set up applies across the entire path.   If you have the full **Designer STE** and save out to RealiMation then you can later modify the path in the STE and change the speed between different nodes, as well as changing other aspects.

- If you enable the **<u>mouse flies camera</u>** option   (**F9** or) then you can fly around the scene adding nodes to the flight path.   Please remember though that you will have to disable mouse flies camera before you try and place or edit nodes.

- If you have Update Flight Paths disabled when you create your paths but want to pass back some or all of the paths at a later date then you can do this by following these steps:
  1. In the **<u>Customise | Update Host</u>** dialog and check the Flight Paths to be 'On'
  2. Highlight the flight camera in the Camera Lister and select **Flight Paths | Edit Flight Path** followed by **Flight Paths | Finish.**
  3. Your original drawing file will be updated to include this flight path.   If you have multiple flight paths to add to your drawing, then you will need to follow these steps for each one.

  Flight paths can be passed back to all host applications.

- In this release flight paths for MicroStation are limited to 23 nodes.

- The Create and Edit Flight Path options will finish automatically if you try to change display driver while you are creating or editing a path.

RealiStorm for AutoCAD

Note: RealiStorm for AutoCAD Release 14 is supported, but is a Beta version in this release, and as such does not currently support   some of the newer features including textures and entity data.

Starting RealiStorm for AutoCAD
You can either start RealiStorm from the buttons on the RealiStorm toolbar in AutoCAD or type directly in the command line.

- To run RealiStorm only type the following command in the text area: `rstorm`

- To   run the **Configuration** and then RealiStorm type the following command in the text area: `rstormcfg`

Transferring Data from AutoCAD to RealiStorm
- Once you have selected the configuration settings you want to use, click OK and the RealiStorm application window will appear with **Listers and 3D view** window on the scene.

- A RealiStorm for AutoCAD View Lister, showing all the objects which have been transferred, including the headlight would typically look like this:
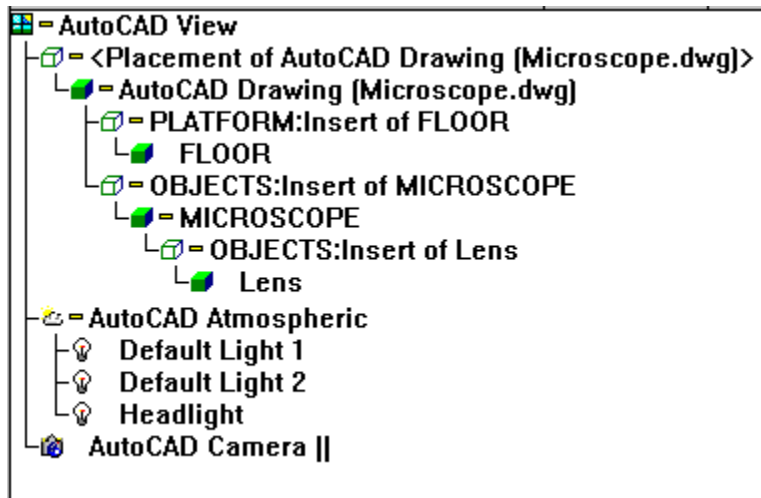
- As you can see, the **AutoCAD layer names** have been preserved and prefixed to the placement names.   This makes them easier to identify if you have complex drawings with many objects.

Placements
Only placements of blocks (not entities) can be moved or scales in RealiStorm.

Parent objects in a view, i.e. the container holding placements of the different shapes used to make up the complete model, cannot be modified.   These objects, referred to as "top - level" placements will be displayed with a "greyed out" bounding box if you have auto-linking enabled in the **Customise** menu.

Problems with Mirrored Objects
Moving mirrored objects in AutoCAD can cause problems if you have **dynamic update** enabled and you move an object which has been created using mirroring.   In this

situation you might find that you move an object in RealiStorm and all instances in the AutoCAD drawing update with the change.   However, the RealiStorm objects will not be updated, because RealiStorm is treating them as separate placements.
We recommend that you do not use the object mirroring feature in AutoCAD to create models you want to transfer to and manipulate in RealiStorm.

For more information on editing placements turn to **Manipulating Placements.**

Cameras
Notes: AutoCAD uses **parallel cameras** by default.   However,   parallel cameras are not suited to displaying 3D environments because they do not give a true representation of a 3D world.   To overcome this, RealiStorm takes the parameters for the default parallel camera and converts the parameters to create a **perspective camera** to give a more realistic view.   This means that the angle of the view in RealiStorm will be not identical to the AutoCAD view you have transferred.

Parallel cameras which have been converted to perspective are identified in the Listers by a symbol (II) at the end of the name.

When you are have finished working in RealiStorm and are ready to return to AutoCAD, the perspective camera settings will be deleted and the parallel camera settings "passed back" into AutoCAD. (You will need to set your **Customise | Update Host** Camera to be On)

Troubleshooting with Cameras
Clipping planes within RealiStorm are linked to the camera settings.   This means that as you move around the scene the clipping planes move with you.   This can result in display problems, i.e. the drawings disappear from view as you move closer to them.
If this occurs then we recommend the following course of actions.   In AutoCAD set the front clipping plane of your camera to its minimum setting and use back clipping for the view.   This means that you will only lose sight of objects in the view when you are far away.
You can also alter the camera clipping planes with the Front and Back thumbwheels on the View window.

Lights
If the drawing does not contain specific light sources,   AutoCAD will create a default "headlight" which is attached to the camera and always points at the objects in the view. RealiStorm transfers the headlight's original position, into the RealiStorm view.   This headlight will not move in RealiStorm regardless of the camera movement.

Additionally, where your AutoCAD drawing does not have light sources specified, RealiStorm will automatically add two default lights (Light 1 and Light 2) to the Atmospheric to provide a good default lighting model to view the scene.

 Notes:
1. Using a headlight attached to the camera means that any objects in the view are always lit in the same way regardless of the viewing angle.
2. There may be some discrepancies between the light sources in AutoCAD and how they appear in RealiStorm - for example the attenuation drops off quicker in AutoCAD, although the direction, colour and intensity settings will be the same in both AutoCAD and RealiStorm.

Materials and Colours

AutoCAD specifies colours according to the modelling process, i.e. either on blocks or layers.   This mechanism is a little arbitrary and so can cause some display problems when a drawing is displayed in RealiStorm i.e. some colours do not appear as expected. In order to reduce the likelihood of any problems we recommend that you specify your AutoCAD colours at the entity level as this is more reliable and more likely to result in correct colour information being transferred.

Using RealiStorm

Once the data is transferred to RealiStorm you can begin to edit your model, changing position, orientation, scale etc. You can also create real time fly throughs around the scene.

- Use the RealiStorm Free Camera to fly around your scene (even while the sequence is playing back) and make any **changes** or create **flight paths**.

Saving Modifications and Changes

When you have completed your work in RealiStorm, you should **close the session in the normal way**.

Once you have finished your RealiStorm session you can pass changes you have made to objects, cameras and the flight paths back into AutoCAD.   You will need to be sure that you have the **Customise | Update Host** set to include flight paths to ensure this happens.

Notes:

The accelerator keys for short cuts in RealiStorm for AutoCAD are not implemented in this release.

AutoCAD annotations and other text are not transferred into RealiStorm.

If you have the full STE: Designer Edition, then you can save the design to RealiMation format and then embed this file with the original AutoCAD design.

If you would like to upgrade your system to the full RealiMation Designer STE, then click **here to find out how to order** the ultimate real time 3D visualisation application for the desktop.

See Also:
Flight Paths

RealiStorm General Concepts

RealiStorm Desktop

Flying Controls

What is RealiMation?

RealiStorm for AutoCAD Configuration

RealiStorm for AutoCAD Configuration

The RealiStorm for AutoCAD Configuration Option dialog sets up a number of different display and transfer settings using check boxes.

General
- **Double Sided Faces**
  Check this box to draw the model in RealiStorm as double sided, i.e. visible from each side.
  This is particularly useful if you have created your models using faces and so cannot always be sure which direction the faces point, and therefore which side will be visible.
  If you model using solids you should not need to check this option, since all the faces will automatically point the right way.

  There is more information on face directions in the AutoCAD User Guide.   There is also more on face directions in the RealiMation STE online help.

- **Merge Vertices**
  Merge Vertices is an optimisation process for joining adjacent vertices in a model to thus reduce the number of vertices used, and therefore the complexity of the overall model.
  Notes:
  Depending on the complexity of the original model this process can add a significant amount of time on the transfer from AutoCAD to RealiStorm.
  Merge vertices and other optimisation techniques are also included as standard in the RealiMation STE.

- **Transfer Selected Objects Only**
  Check this box to transfer only the objects you have selected in the AutoCAD drawing.

- **Include Layer Names**
  AutoCAD drawings make extensive use of layers, and this data can be included in the RealiStorm file during the transfer process.   The layer information will be prefixed to the placement name in RealiStorm.   For example, "Placement of Propeller" might become "Engine: Placement of Propeller"

Initial Display Mode
- **Display Modes**
  Select from the three options: wire frame, flat shaded or smooth shaded.
  You can change the display mode later inside RealiStorm using either the buttons or the **View** menu.

- **Prelight**
  Check this option to prelight all the objects in the scene.
  Prelighting can also be enabled (and disabled) from inside RealiStorm using the **View | Prelighting** menu option.

Advanced
- **Solids Deviation**
  Because all 3D surfaces defined in RealiStorm are made up of *planar facets*, the transfer process converts AutoCAD's curved surfaces into collections of rectangles and/or triangles, which are an *approximation* of the original surface in the AutoCAD

drawing file.   The accuracy of this approximation is controlled by the value of 'solids deviation' which sets the maximum value of deviation between the points on the facets from the corresponding point on the *true*   surface.

This option is only applicable when you are transferring solids, and the default value is 0.3.   You should not need to modify this setting.

Notes:

- Higher values generally result in fewer faces generated, while lower values generate more faces.   However, the granularity is determined by the scale of the shape you are transferring.

- If you have a drawing with large solids and you specify a low number the transfer may take a long time.   We recommend that you use a higher value.

- **Force DView**
  This option updates the system variable to always force a DView when the data is transferred to RealiStorm to ensure that the view is displayed correctly.   This option is checked by default.
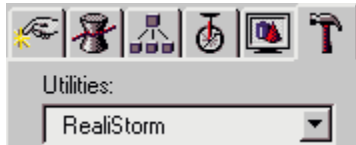
  Note:
  Any configuration options you set up will apply to all drawings (unless you alter the settings).

RealiStorm for AutoCAD

RealiStorm for 3DStudio MAX

Starting RealiStorm for 3DStudio MAX
- To start RealiStorm for 3DS MAX open the drawing you want to use and select the

  Utilities panel (from the button [image]), and from the drop down list select the option RealiStorm, (which is found below the RealiMation entry).

Note: The RealiStorm panel is identical in functionality to other plug - ins.   For example, you can "minimise" it with the button in the top left, and pan up and down with the mouse .

Transferring the Data from 3DStudio MAX to RealiStorm
There are three options on the RealiStorm Panel: **Enable Space Warps, Transfer Options** and **Transfer Data**.
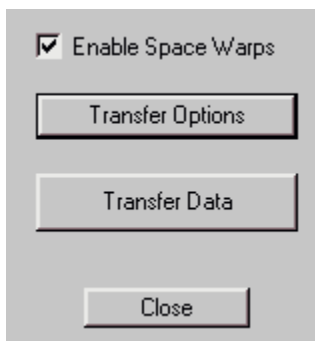
- Set the **Transfer Options** for the design file and when you are ready to convert the 3DS MAX drawing to RealiStorm press the "Transfer Data" button.
  A dialog and progress meter will appear.   Please note that some files, particularly those originating from Character Studio may take some time to transfer all the data into RealiStorm.

- The RealiStorm window will open and you can begin your 3D manipulation.   The RealiStorm view will match your 3DStudio MAX image perfectly,   This is because both products are true 3D applications, using perspective cameras and materials to define colours.

- If you have actions associated with your models then you can press **play** (or **F10**) to see the sequences fully rendered in real time.

  If your 3DStudio MAX design file uses objects with identical names, then RealiStorm will auto-rename them to make identification easier.   For example if you have two cameras called Camera, then the first one will be transferred and named Camera and the second will be named Camera 2.
  This only affects objects with the same name.

- Use the RealiStorm Free Camera to fly around your scene (even while the sequence is playing back) and make any **changes** or create **flight paths**.

Saving Modifications and Changes

When you have completed your work in RealiStorm, you should **close the session in the normal way**.

Once you have finished your RealiStorm session you can pass new flight paths back into 3DStudio MAX.   You will need to be sure that you have the **Customise | Update Host** set to include flight paths to ensure this happens.

If you have the full STE: Designer Edition, then you can save the design to RealiMation format and then embed this file with the original 3DStudio MAX design.

Notes:

If you have the full RealiStorm product and save your work to RealiMation format, the Space Warp effects will not be saved. This is because RealiMation actions do not support these effects.

If you would like to upgrade your system to the full RealiMation Designer STE, then click **here to find out how to order** the ultimate real time 3D visualisation application for the desktop.

See Also:
Flight Paths

RealiStorm General Concepts

RealiStorm Desktop

Flying Controls

What is RealiMation?

Enable Space Warps

Enable Space Warps

During sequence playback, RealiStorm interrogates 3DStudio MAX for the exact point definitions of the models to give an accurate representation of how the models behave.   **This option is enabled by default.**

Note: We recommend that you disable this option if you do not have Space Warps in your scene, as this will result in a significant performance improvement.

RealiStorm for 3DStudio MAX Configuration

The RealiStorm for 3DStudio MAX Transfer Option dialog has two fields to configure the transfer into RealiStorm.

Disable hierarchy

Although 3DStudio MAX hierarchies allow placements to use parts of actions associated with other placements RealiStorm does not support this.   Therefore some placements may not behave as expected.

To work around this check this option to split the hierarchy into separate "top-level" placements, with its own actions.

Click **here for example screens** to show a complete and a disabled hierarchy.

If you find that there is a problem with your model and this option is disabled, then we recommend you re-transfer the models with the option enabled.   **This option is disabled by default.**

Frame rate

This option tells the filter at what speed the animation is designed to run at, in frames per second (fps).   The filter uses this information to set up the correct time in any path nodes that it generates.   The default setting is 25 fps.

3DStudio MAX Disable Hierarchy

The first example View Lister shows a 3DStudio MAX file where the hierarchy is retained.
.
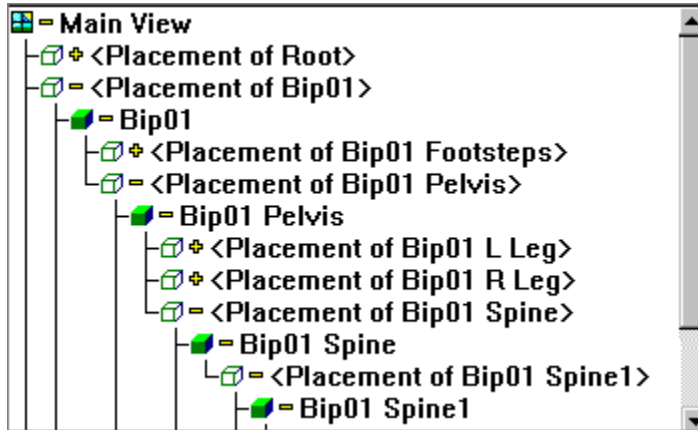
The second example View Lister shows a 3DStudio MAX file where the disable hierarchy option has been checked before transfer:
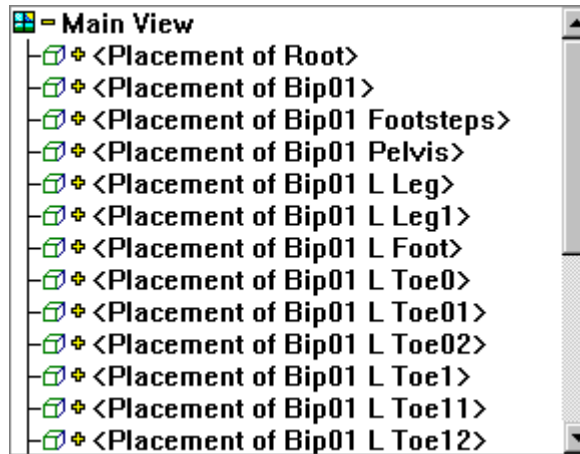
All the actions are still associated   with the placements, and so the model will behave as expected.

RealiStorm for MicroStation

Starting RealiStorm for MicroStation

You can either start RealiStorm from the Key-in box or from the **Utilities | MDL Applications** menu.

- From the Key-in box type the following: `mdl load realistorm` or from the **Utilities | MDL Applications** drop down menu select the RealiStorm option and press the **Load** button.

- The **Configuration Options dialog** appears with a number of different transfer options.
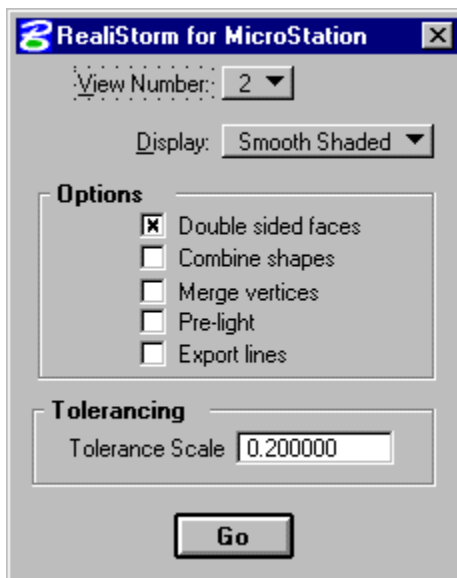
- Select the options you want to enable and press the   **Go** button.

- A progress meter will appear to display the status of the transfer from MicroStation to RealiStorm.

- The RealiStorm application window will open and the View Lister will look something like the image below:

```
⊞ – MicroStation View 2
├─ ◻ – <Placement of MasterFile (3d.dgn)>
│   └─ ▣ – MasterFile (3d.dgn)
│       ├─ ◻ – <Placement of Solid 1>
│       │   └─ ▣   Solid 1
│       ├─ ◻ ✚ <Placement of Solid 2>
│       ├─ ◻ ✚ <Placement of Surface 3>
│       ├─ ◻ ✚ <Placement of Cone 4>
│       ├─ ◻ ✚ <Placement of Solid 5>
│       ├─ ◻ – <Placement of BLK123>
│       │   └─ ▣ – BLK123
│       │       └─ ◻ – <Placement of Solid 6>
│       │           └─ ▣   Solid 6
│       └─ ◻ ✚ <Placement of SPOTLT 1>
├─ 💡 – MicroStation View 2 Atmospheric
│  ├─ 💡 FlashLight
│  └─ 💡 SpotLight 1
└─ 🎥 MicroStation View 2 Camera ‖
```
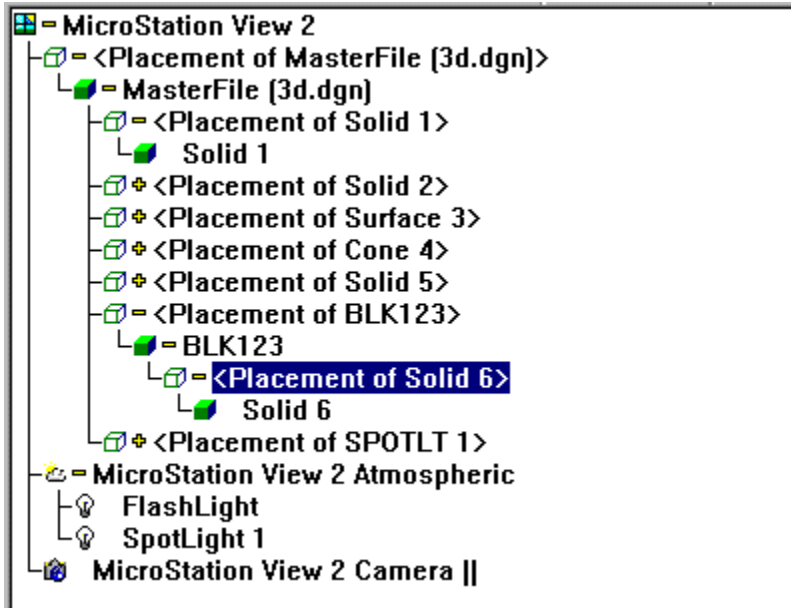
- You can now begin your 3D manipulation of the model …

3DView Display: Appearance
- MicroStation uses both Smooth and Phong Shading, which is an advanced form of smooth shading.   However, because Phong shading is not suited to real time visualisation applications, RealiStorm smooth shades the scene.   This may mean that the RealiStorm and MicroStation views look slightly different.

- In the View Lister you will see that all the objects are automatically named with geometry references and numbers to make them easy to identify.   The numbering system is continuous rather than according to object type.

  Note: In this release any changes you make to objects (and placements) are not passed back to the MicroStation file.

- Placements of cells (rather than shapes) can be translated and scaled inside RealiStorm. As an example if you have a model of a bicycle you could edit the body and the wheels, but you could not the individual spokes of the wheel.

- Parent objects in a view, i.e. the container holding placements of the different shapes used to make up the complete model, cannot be modified.   These objects, referred to as "top - level" placements will be displayed with a "greyed out" bounding box if you have auto-linking enabled in the **Customise** menu.   For more information on editing placements turn to **Manipulating Placements.**

- Use the RealiStorm Free Camera to fly around your scene (even while the sequence is playing back) and make any **changes** or create **flight paths**.

  Note: In this release flight paths in RealiStorm for MicroStation are currently limited to 23 different nodes.

3DView Display: Cameras
- The RealiStorm window will open and you can begin your 3D manipulation.

MicroStation uses **parallel cameras** by default.   However,   parallel cameras are not suited to displaying 3D environments because they do not give a true representation of a 3D world.   To overcome this, RealiStorm takes the parameters for the default parallel camera and converts the parameters to create a **perspective camera** which gives a more realistic view.
This means that your RealiStorm view has perspective, and will differ slightly from your view in MicroStation.

Parallel cameras which have been converted to perspective are identified in the Listers by a symbol (II) at the end of the name.
When you are have finished working in RealiStorm and are ready to return to MicroStation, the perspective camera settings will be deleted and the parallel camera settings restored.   Please note that camera settings cannot be passed back to the original MicroStation design file in this release.

Saving Modifications and Changes
- When you have completed your work in RealiStorm you can pass new flight paths back into MicroStation (you will need to be sure that you have the **Customise | Update Host** set to include flight paths to ensure this happens) and then **close the session in the normal way**.

- **Note**:   In this release changes you make to cameras and objects cannot be passed back to the MicroStation file.

- If you have the full STE: Designer Edition, then you can save the design to RealiMation format and then embed this file with the original MicroStation design file.

If you would like to upgrade your system to the full RealiMation Designer STE, then click **here to find out how to order** the ultimate real time 3D visualisation application for the desktop.

See Also:
Manipulating Your Model Inside RealiStorm

Creating Flight Paths

Flying Controls

RealiStorm Desktop

RealiStorm for MicroStation Configuration

The RealiStorm for MicroStation transfer Configuration Option dialog is visible at all times, and can be set and altered at any time, allowing you to modify then re-transfer the data. Closing this dialog will unload the drawing file from RealiStorm, and return you to your MicroStation setting.

- **View Number**
  Choose a view to transfer into RealiStorm from the list available.   You can only transfer one view at a time.

- **Display Modes**
  Select the display mode to use in RealiStorm.   The three options are wire frame, flat shaded or smooth shaded, which can be changed later either using the RealIStorm **button bar** or the **View** menu.
  Note: Because RealiStorm does not support Phong shading, (but uses smooth shading instead) the RealiStorm display may be different from the MicroStation view.

Options
- **Double Sided Faces**
  Check this box to draw the model in RealiStorm with two explicit faces, i.e. the rendered images is always visible from any direction, regardless of the face direction and camera position.
  There is more information on face directions in the RealiMation STE online help.

- **Combine Shapes**
  Check this box to combine all the shapes in the selected view into one shape for transfer into RealiStorm.

- **Merge Vertices**
  Check the box to join adjacent vertices in the file.   Reducing the number of vertices optimises the shape and reduces the complexity of the overall model.
  Notes: Depending on the complexity of the original model this process can add a significant amount of time on the transfer from MicroStation to RealiStorm.   Merge vertices and other optimisation techniques are also included as standard in the RealiMation STE.

- **Prelight**
  Check this option to prelight all the objects in the scene. Prelighting can also be enabled (and disabled) from inside RealiStorm using the **View | Prelighting** menu option.

- **Export Lines**
  Check this box to transfer linear information with the model.   This will retain and convert line and text information.

Tolerancing
Because all 3D surfaces defined in RealiStorm are made up of *planar facets*, the transfer process converts MicroStation's curved surfaces to collections of rectangles and/or triangles, which are an *approximation* of the original surface in the MicroStation design file.
The accuracy of this approximation is controlled by the value of 'tolerance' which specifies the maximum value of deviation between the points on the facets from the corresponding point on the *true* surface.

Any of the above options can be combined e.g. select merge vertices and combine shapes when you transfer the drawing.   Although this will produce a more efficient model for manipulation in RealiStorm, the transfer process will take longer.

RealiStorm for MicroStation

Lister Windows

A Lister Window (also referred to as simply a "Lister") is designed to give you continuous visibility of the objects in the scene and the different cameras available to view that scene. Every object transferred from the original CAD / design file is displayed in a Lister.

The **View Lister** displays all the models in the scene (as individual shapes and placements0 as well as the atmospherics, light sources and current camera used.

The **Camera Lister** shows all the different cameras created in the CAD / design tool, and available to view the scene.

To change camera select a new camera from the Camera Lister and drag it over an drop it onto either the View Lister or the View Window itself.   The View Window will update automatically to display the world from the new viewpoint.

Hierarchies

As you look at the Listers (particularly the View Lister) you will see that most of the objects have a 'cross' symbol next to them.   This indicates that there is a hierarchy of child-objects below them.
For example the View Lister with a hierarchy closed would look something   like this:
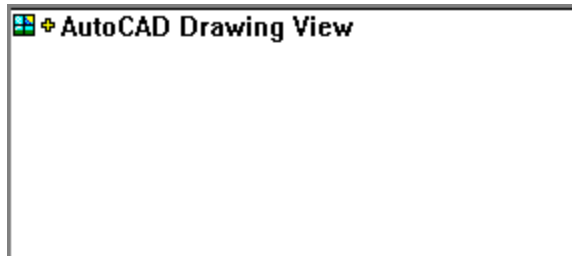
To "open" the hierarchy simply click on the cross and it will look something like this:

Once a level is expanded it is shown with a 'minus' sign and shows the next level of child objects. You can continue to expand each level of the hierarchy until each object is fully expanded to show placements, shapes and actions, and how they are related to one another.

You can collapse different levels in the hierarchy, by clicking on this minus sign, until the top terms are visible.

To expand or collapse the entire hierarchy in one go simply hold down the 'Alt' key as you click on the symbol.

RealiStorm Menus and Dialogs

RealiStorm Object Properties
Statistics

The Properties show the statistics i.e. the number of faces, vertices, beacons as well as the centre and scale of the selected object.

Notes:

To display the Properties for an object, select it in a Lister and then either double click the mouse, press the Space Bar or use the **Edit | Properties** menu option.

File | Record to AVI

RealiStorm sequences, like those in RealiMation, can be output to AVI file formats for distribution to users without access to RealiMation or **RealiView,** (the freely distributable Internet ready, 3D viewer, flyer and browser).

The sequences you record can be those transferred into RealiStorm from the original CAD / design package, or may be those flight paths you have set up yourself in RealiStorm.

This dialog allows you to specify the different settings for recording AVI files.

- Click on 'Set file' to specify the directory and file name for the AVI file.   The File and Directory details in the dialog will update automatically.
   Note: You cannot start the recording until you have set up the file and directory.

- Specify the resolution of the final AVI at playback time.   Choose from one of the three "pre-set" sizes (current view size, PAL and NTSC resolution) or set up a custom size.
   Note: The output size should be either the same size or smaller than the original view window size - it cannot be bigger.

- Define the duration of the sequence by typing in a start and finish time.
   Note: The default start time is 0, and the default end point is the last point of the longest action in the sequence.

- Specify the number frames per second you want to use for the recording (the default is 15fps).

- Configure the quality of image using the 'AVI Compression' button to change the compression utility you want to use.

From the 'Compression' dialog you can ...
- select the compression utility to use.   (We would recommend that you use the Codepack compression utility where available if you do not have hardware accelerated compression.)

- alter the quality of the compression, by moving the slider bar.
   Note: Higher quality recording takes longer and will result in a larger AVI file size.

- set up the key frame rate and the data rate.   (Use the data rate to allow for different storage media / playback times).   Availability of these options is compressor dependent and the compressor might change the quality automatically to best suit its capabilities.
   Note: The settings you make here will be stored and be used as the defaults until you change them.

- When you have finished changing the settings, click on 'OK' to start the recording process.   RealiStrom will begin to record the AVI file.

Notes:
To abort the process press the Escape key several times.

The full RealiStorm product allows you to save your work in RealiMation format, which you can edit using the RealiMation STE (Space Time Editor) Professional and Designer editions for detailed texture mapping, action creation, or combination with drawings from other

CAD / design tools.

Edit | Fit to View

Button and Shortcut / Hotkey: [icon] or   **F3**

How Does It Work?

The Fit to View option changes the cameras position and viewpoint to display the selected object (shape or placement) at the centre of the view window.   It also sets the orbit centre of the selected shape as the orbit centre for the camera thumbwheels (around the edge of the view window).

- Using a free camera in the current view, select either a placement or a shape in the View **Lister**.

- Click on the button, shortcut (F3) or menu option and the position of the camera will change to display the selected object in the centre of the view window. (Where there are no individual shapes or placements selected, this option will move the camera's viewpoint to fit the entire scene into the View Window.)

- The orbit centre of the camera is also updated to be the centre of the selected object.   (If you have not selected an object, then the orbit centre for the camera thumbwheels will be the centre of the entire scene.

Notes:

1.   This option is only available when there is a "free camera" used to display the RealiStorm world.   If the selected camera is attached to an object or an action both the button and the menu option are "greyed out".

2.   Depending on the autolinking feature in the **Customise | Interaction** option, the selected object may be shown surrounded by an edit bounding box.   The default is set to "on".

Camera ThumbWheel Bar Options

The camera thumbwheels positioned along the left side and bottom of the View Window control camera movements for the current view.   The thumbwheels along the side control the vertical movement of the camera (**pan, orbit, aim** and **move**) while the wheels along the bottom control the horizontal movement (**pan, orbit, aim, roll** and **field of view**).

Free, or roaming, cameras can be moved with any of the thumbwheels, whereas fixed cameras (i.e. those attached to actions or objects) have limited options, e.g. no orbit controls.   Active wheels are coloured red, while inactive wheels are "greyed out" and coloured yellow.

Changing the Camera Thumbwheel Settings

- Click on the check boxes to disable and enable the different wheels.   Any wheels you uncheck will disappear as you close this dialog.

- Click on and move the slider between 'Fine' and 'Coarse' to set the sensitivity / speed / accuracy of the thumbwheels as you move around.

View | Prelighting

How Do I Pre-light Objects In The Scene?
- Select the object (e.g. an individual shape) in the View Lister and use the View | Prelight option to calculate the lighting at that point in time and apply it.
  You can select the entire view in the Lister, to apply pre-lighting to every object in the scene.

- To stop prelighting, select the object and then pick the option again.

What is Pre-lighting?
Lighting a scene is usually calculated on a frame by frame basis, i.e. for every object each time a frame is generated.   So, if your scene contains lots of different objects then the lighting calculations can take a great deal of processing power.   (It is worth noting that the extent of calculations depends on the complexity of the RealiBase).

However, in many situations some objects do not need to be lit on a frame by frame basis, but could have the lighting calculated and applied once.   Typically these are static objects which do not move in the world, for example terrains, buildings etc.

Notes:
We would recommend that you only apply pre-lighting to still objects e.g. terrains, buildings etc.   This is because the lighting on static objects remains constant at all times, whereas the lighting applied to moving objects will vary as it moves around.

Mouse Flies Camera

Menu Option: **View | Mouse Flies Camera**

Button and Shortcut / Hotkey: or **F9**

- Check this option use the mouse to control your flight around the scene.
  Once you are in mouse flight mode, moving the mouse moves the camera.   See **flying controls** for flying information.

You will see that a small white box appears in the view window by default.   This is a visual cue to help you as you fly around.   (This display is configurable from the **Customise | Interaction** menu option).

You can also select other flight options when you are in this mode, including **ground flight**, **solid, terrain** and **slide cameras**.

Note: You will need to have created a free camera in your CAD / design tool and selected it inside RealiStorm to use this feature.

Ground Flight

Menu Option: **View | Ground Flight**

Button:

Toggle the button to switch between free flight (Mouse flies camera) and ground flight.

In **free flight**, if you tilt the camera down and continue to fly 'forwards', then you will fly into the ground.
In ground flight, if you tilt the camera down and continue to fly forwards, you continue to fly forwards, but the viewpoint will be tilted down.
The ground flight mode option keeps the camera steady as you fly around, and gradually accelerate.
All flight controls are the same, whether you are in free or ground flight except that ground flight does not have a roll function.

Level Camera

Menu Option: **View | Level Camera**

Shortcut / Hotkey: F7

Select this option to reset the position of the camera without any pitch or roll values, particularly useful if you find yourself off course and need to "straighten up" quickly.

Notes:
This option is enabled when the view window has focus, and the selected camera is not attached to an action.
The F7 key is a hotkey for this option.

Solid Camera

Menu Option: **View | Solid Camera**

Button:

Solid camera prevents you flying through solid objects while you are in flight mode, by using a type of collision detection.

For example, if you are flying around a building, and have solid camera enabled, as you fly up to a wall, floor or ceiling, or any solid object in the view, the camera will stop. If you have the white box on display it will turn red, and you will need to 'pull the camera back' and change direction.

Note:
You can enable solid camera in all **free flight modes**, and it is enabled by default when the **slide camera** option is selected.

Terrain Following Camera

Menu Option: **View | Ground Flight**

Button:

- Enable terrain following to keep the camera at a constant height from the closest object in the scene, typically a terrain.
For example, you can enable this and fly up stairs, or follow hills of a landscape.
Terrain following camera can only be enabled when a "free" camera is selected.

Slide Camera

Button:

The Slide Camera allows you to slide the camera along a surface.
To do this correctly, fly directly into an object, usually, at a slight angle - to determine the direction of the slide.   When you make contact with the object, the camera will start to slide in the direction you are flying i.e. if you are pointing the camera towards the left, then the camera will continue sliding to the left when you make contact with the object.

Note:
The Slide Camera can only be enabled when you are using a free or roving camera, and you will need to have **<u>Solid Camera</u>** enabled.

View | Update Host Objects

This option is only available when you have set the **Customise | Update Host** dialog to update the host "on demand".

As you work in RealiStorm and make changes to different objects, you can update the host application view by selecting this menu option.   Only those changes you have made to objects in the scene will be updated - camera updates are handled by the **Update Host Cameras** menu option.

Note:
This option is disabled ("greyed out") when you have Host Update configured   as On or Off.

View | Update Host Cameras

This option is only available when you have set the **Customise | Update Host** dialog to update the host "on demand".

As you work in RealiStorm and switch between cameras, you can update the host application viewpoint from this menu option.   Only those changes you have made to objects in the scene will be updated - object updates are handled by the **Update Host Objects** menu option.

Note:
This option is disabled ("greyed out") when you have Host Update configured   as On or Off.

Customise | Interaction

Configures the different interaction options for the view windows and camera controls.

3D View Options
- **Show axes** - check the box to display of the X,Y,Z axes in the view window.
  The axes act as an aid to navigating your way around the scene, with a constant reminder of the direction you are travelling or looking.   They are particularly useful when it comes to creating flight paths.

- **Auto-Link placement selection to edit boxes** - check the box to enable the auto-link between placements and Listers.
  The Auto-Link is an aid to finding objects within the world.   If you select an object directly in the view window, the reference to the object in the Lister will be highlighted.
  Similarly, if you select an object in a Lister, then that object in the view will be highlighted with an edit box.

Camera Flight Options

- **Show box in fly mode** - Check the box to display the white box in the 3D view while you are in **flight mode**.

- **Sensitivity** - Use the slider to change the sensitivity of the mouse control for the flying.   Finer settings will move more gradually, and appear slower, than coarser ones.   There is more about this in the Frequently Asked Questions in the RealiMation help file.

Other Customise Options:
Customise | Display Driver
Customise | RealiMate
Customise | Colours
Customise | Texture Options
Customise | Update Host

Customise | Display Driver

One of the key strengths in RealiMation and RealiStorm is the multiple render support.   The current list of supported drivers includes: RenderWare, OpenGL, Direct 3D, 3Dfx (Glide) and Rendition Verite.   You should use this dialog to set the driver to with RealiStorm.

Description
- Choose the driver you want to use from the drop down list.   The list contains all the supported drivers you selected at installation.   If the driver you want to use is not in the list, but is supported by RealiStorm, then you will need to reinstall the software and select the driver you require.

Use the Add button to use a driver not currently on the drop down list.

Capabilities
- The capabilities for the selected drivers is displayed in the list, which you can view using the scroll bars. A checked box denotes that the selected driver supports that option.

Resolution Options
- The Resolution Options part of the dialog is only active when you select a driver which runs on a second slave screen (e.g. 3Dfx Obsidian Pro technology) or for full screen Direct 3D.

- When you have made the changes click on 'OK' to confirm the changes and close the dialogue.

Notes:
You cannot change the capabilities for the selected drivers (the options are greyed out to reflect this).

Other Customise Options:
Customise | Interaction
Customise | RealiMate
Customise | Colours
Customise | Texture Options
Customise | Update Host

Resolution Options

The Resolution Options are only applicable where you want to display RealiStorm either using a 3Dfx Obsidian Pro card (e.g. driving an external, slave monitor, or using VGA pass through to "take over" the desktop) or Direct3D full screen (under Windows)

- Display the display options from the drop down list.

  The options displayed differ depending on the selected display driver, and we recommend that you make sure your hardware is capable of running at the resolution you select.
  (Some hardware types report modes beyond their capabilities - Click **here** for more information).

Notes:
Where the mode includes the term '1 page' the display is single buffered and '2 pages' refers to a double buffered display.

Direct 3D Issues
Because of the nature of the Direct3D driver running full screen there are no menus visible on the desktop.   This means that although you can fly through the RealiStorm view you cannot use any RealiStorm editing functions.

- To return to edit mode, and your Windows desktop use Shift + F4 to close any 3D View window, and restore the desktop to use the default driver.
  (Typically this will be RenderWare, although you can edit the registry to set up an Alternate driver.   This means that you can use Shift + F4 to toggle between the two driver settings for Windows and full screen Direct 3D).

Display Problems

Direct 3D with Hardware Accelerator Cards

Direct 3D accelerator cards are relatively new, and as such can sometimes encounter problems.   One major problem is that many of the cards have limited memory for screen, depth buffer and textures. This can manifest itself in a number of ways :

- Direct 3D Full Screen resolutions may be limited, for example only capable of displays up to 800 x 600 x 16bpp.   Although resolutions above this may appear to be available, they will fail if selected.

- When using Direct 3D in a Window, the resolution of the Windows desktop is important. If the desktop resolution is too high, there may be insufficient memory left for the depth buffer. This can lead to the driver failing

- Textures can be 'mangled' - either not appearing, the wrong image appearing, or garbage appearing.

If you encounter problems, try reducing your Windows desktop resolution to 640 x 480 at 16 bits per pixel (65536 colours, sometimes called 'Hi-colour'). You can then try increasing the resolution step by step, to find which resolutions your accelerator card can support.

Card manufacturers are continually updating the drivers for their particular cards. We recommend that you try to make sure you have the most up to date drivers available for you particular card. Contact your card manufacturers for more information - many provide downloadable drivers from their web sites.

Direct 3D Full Screen

The Direct 3D Full Screen driver offers a number of resolution options. RealiMation obtains these options by asking the display hardware what combinations of resolution, colour depth, etc. are available. Some cards have been known to wrongly report resolution options which are not fully supported. This can lead to the driver failing, or possibly even your machine locking up. So far, we have found the safest mode is 640 x 480 x 16bpp, 2 pages. All the cards we have tested so far support this option.

Customise | RealiMate

NB: RealiMation sequences are time based, unlike animations in the traditional sense which are frame based.   When actions and behaviours created in the host application are transferred into RealiStorm they are converted into time based sequences.

Use this dialog to set up the properties of the RealiMation

Time Control
- **Use real time clock** - check this option to show the playback in "real time".   Use this option in conjunction with the options in the **Rate** box.

- **Use time delta** - check this option and type in time delta value (in seconds) which will be added to the actual time.   You can use this to see the position of objects in the world after this time delta.

- **Show Frame Rate** - check this option to display the frame rate in the RealiStorm status bar whenever you play a sequence.   Please be aware that the displayed figure is subject to Windows system clock and overhead constraints.

- **Show rate every * frames -** type in a value to determine how often the frame rate is updated.   For example if the value is set to 10 frames, then the frame rate displayed value will be updated every 10 frames. This gives an average frame rate over the given number of frames.   Please note this option can only be used when the "Show Frame Rate" option is enabled.

Frame Rate   These options are only active when the real time clock is selected
- Check the appropriate radio button to set the playback rate.

  - **Normal Rate**:   uses the rate set by the real time clock, and any time delta you have specified

  - **Time Lapse**:   increases the rate of playback by the value you type in the box

  - **Slow Motion**:   slows down the rate of playback by the value you type in the box

Other Customise Options:
Customise | Interaction
Customise | Display Driver
Customise | Colours
Customise | Texture Options
Customise | Update Host

Customise | Texture Options

Because RealiStorm is rendering independent you can take advantage of some of the advanced rendering and display technologies available.   By default, RealiStorm transfers and uses the texturing options as they have been set up in the original drawing file, however, you can change the texture mapping options for the scene.
Note: You can change the texture options for the current RealiStorm view, or as a default for the next transfer you make.

Use Default Texture Options

This is selected by default and uses the texturing as set up in the original drawing / design file.   The check boxes

Use Selected Options

Use this in conjunction with the check boxes below to select the level of texture mapping
Note: The check boxes are disabled if you choose default texture options.

Texture Maps

Turn the display of texture maps on and off.   Disabling texture maps will make display processing speeds much faster.

Bi-linear Filtering

This is a texture filtering technique which samples and blends more of the texels (texture pixels) to interpolate a pixel, and then maps this average onto the selected polygon, removing "chunky pixelation", and produces a better quality image.

Mip Mapping

This is a technique used to improve texture mapping, by sampling the individual texels of the original map to produce several pre filtered texture maps until there is a map containing just a single texel.
The texture map process then selects the correct mip map according to the shape, and places the texel at that point.   This eliminates almost all 'shimmer' that might appear as the textured shape is redrawn.

Mip Map blending

This process refines the images further, by blending the mip maps.   The texels to be mapped can then be chosen from a wider range of possibilities to produce a superb high quality finish.

Preload textures

Check this option to transfer all the textures directly to the graphics hardware / software renderer before generating the first image.   Because the textures are pre-loaded the image generation and display processing speeds are improved during playback.
Note: Because there may be a small delay at the beginning as the textures are transferred, this option is disabled by default.

Other Customise Options:
Customise | Interaction
Customise | Display Driver
Customise | RealiMate
Customise | Colours
Customise | Update Host

Customise | Colours

Use this dialog to change the default colours used to display edit handles, axes and view background colour.

- Select the component within the application to edit from the drop down menu. This list includes components such as the editing handles, faces and edit box.

- Select the new colour to use by clicking on the Choose Colour button.
  As you select a component, the current colour associated with it is shown in the preview colour box

- When you have made the changes click on 'OK' to confirm the changes and close the dialogue.

Background Colour

The preview box shows the current colour used for the background of the view.

To change the colour:
- Click on 'Change' and the standard Windows colour selection palette will appear.
- Select a new colour, or define one and when you are happy click on OK.
- The preview box will update, and when you click on Apply, the view window will also change.

Other Customise Options:
Customise | Interaction
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Customise | Update Host

Customise | Update Host

When you make modifications to the scene inside RealiStorm, you can "pass" these changes back to the original drawing file.   You can do this either while you are still in RealiStorm, or at the end of the session.

You can use this dialog to set up wen you make updates, and to which objects.   The dialog is split into two, with a set of options for both cameras and objects which can be configured independently of one another, so you could set cameras to always update, and objects to update only on demand.

Object and Camera Update Options

On   when enabled the host application is updated with the changes as they happen, e.g. if you move the camera in RealiStorm the view in the host application will change

Off   when enabled the host application is not updated as you make changes. When you close the RealiStorm window you will have the option to update the host with all the modifications you have made.

On Demand when enabled this option allows you to update the host application as you go along.   For example you could make a number of alterations, undo and redo, and then apply them all at once.   You do this using the **View | Update Host** menu option.   There are separate options for **Update Host Objects** and **Update Host Cameras.**

Flight Paths
When checked the host application is updated to include any **flight paths as you create them**.
If unchecked then you can include them later by checking the box, and then highlight the flight path you want to add, select the **Flight Paths | Edit Flight Path** menu, followed by **Flight Paths | Finish**.   The host application file will be updated.

Background Colours
Check the box to update the original drawing file with the 3D view background colour.
You can change the background colour using the **Customise | Colours** menu.
Note: If you enable this update later then the host will be updated to use the new colour.

Embed RealiBase Name
Check this to store a reference to the stored RealiBase as part of the original drawing file. (**Note:**   This will only be possible if you have the Designer Edition.)

Other Customise Options:
Customise | Interaction
Customise | Display Driver
Customise | RealiMate
Customise | Colours
Customise | Texture Options

Browse

Locate the directories where the display drivers have been installed - usually in the RealiStorm directory.

Driver Registration

This dialog should only appear if the registry has become corrupted and you have lost your display driver information.

- Select the drivers you want to reinstall and from the **Customise | Display Driver** Properties configure a default driver to use when you restart RealiStorm or RealiMation STE.

- As soon as you have done this, RealiStorm will start up in the correct mode with the selected driver.

Grid Configuration

Use this dialog to fine tune the position and alignment of the reference grid.

Grid Position: Type in an absolute value for the height of the grid from the origin in the scene.

> **Note:** Units of measurement are arbitrary in RealiMation applications - the choice of units to use is flexible to suit your environment.

Align Grid:

To Scene position the grid relative to the lowest (base), middle and highest (top) coordinate point in the scene.

To Nodes position the grid relative to the nodes.
Set the grid to be at the first or last nodes on the path, or take an average height and line the grid up with that value.

When you have selected the grid alignment the dialog will close and update the dispaly automatically.   If you are typing an absolute value then you will need to click OK to confirm the settings.

You can change the colour of the reference grid in the **Customise | Colours** menu

See Also:
Creating Flight Paths

Select RealiBase

Users of the RealiMation STE Designer Edition can save out their RealiStorm files to *.RBS format which are then stored as extended data along with the original design / drawing file. This dialog appears when you have RealiBases stored with your drawing file and it allows you to select a RealiMation to use from the stored files.

- Highlight a RealiBase from the list:
  - Click Open to use that RealiBase in RealiStorm

  - Click Clear Entry to remove it from the list

  - Click Retransfer to start with a new RealiMation, transferring the data from scratch once more.

Frequently Asked Questions

What About Text

<u>How Do I Create a Camera Fly Through</u>

<u>I've Finished My Session - What Next?</u>

RealiStorm for AutoCAD appears to hang as it is transferring - why?

How Do I Put my Work on the Web?

How Do I Build Up a Scene With This Model?

<u>How Do I Upgrade?</u>

<u>How Can I Change the Model Using My Mouse?</u>

<u>How Do I Fly Around?</u>

How Do I Edit my Flight Path?

The Colours Are Wrong in RealiStorm - Why?

I Can't See my AutoCAD Drawing When I Move the Camera Up Close!

What About Other Plug-Ins - Will RealiStorm Work With Them?