

About INOVATE

Welcome to INOVATE, a low cost, easy-to-use 3D desktop product for creating, modifying, communicating, and interrogating 3D designs. With INOVATE™, you will revolutionize the entire design chain, allowing everyone to contribute, and radically increase your design process effectiveness. You will discover unmatched productivity with INOVATE's Drag-and-Drop Solid Modeling, Design Flow™ Architecture, Visual Product Development, and Hyperoperability™.

This **Getting Started Guide** will help you to quickly begin using INOVATE to build 3D parts and assemblies; create 2D drawings; apply colors, textures, add a variety of rendering techniques; add animation effects; and communicate the results to the outside world.

This chapter will give you a quick overview of INOVATE and its basic concepts. The next chapter, **Starting INOVATE**, provides instructions on installing, starting and navigating INOVATE. Chapters 3 through 6 offer sample exercises:

- Chapter 3 walks users through a quick start example of INOVATE;
- Chapter 4 introduces the 3D design process using abstract parts;
- Chapter 5 provides more detailed examples for creating an actual part;
- Chapter 6 demonstrates some of the more advanced capabilities of the TriBall.

Chapters 7 and 8 demonstrate the capabilities for creating photorealistic renderings and animations for communicating to others. Lastly, Chapter 9 serves as a centralized reference for INOVATE's default shortcut and function key assignments, introduced through the various chapters of the Getting Started Guide.

More experienced users may want to begin with the installation instructions in Chapter 2 and then move to Chapters 3 through 6.



In this chapter:

- With INOVATE, Everyone Innovates Faster
- INOVATE - Innovative 3D Communication for the Desktop
- Working with INOVATE
- INOVATE Features

With INOVATE, Everyone Innovates Faster

INOVATE is a low cost, easy-to-use 3D desktop product for creating, modifying, communicating, and interrogating 3D designs. It is the ideal design collaboration and communication tool from concept to production. INOVATE's radical drag-and-drop 3D environment delivers unmatched ease-of-use, speed, design flexibility, and power, for faster designs with more concept iterations.

INOVATE easily works with existing designs, making it the perfect design chain communication and collaboration tool. Models can be imported, interrogated, modified and communicated to others as models, photo-realistic images or real world animations.

INOVATE – Innovative 3D Communication for the Desktop

Whether you are modeling, creating a rendering, or doing animations, the same basic concepts of drag-and-drop, right-mouse-option activation, and handles are utilized, making **INOVATE** the easiest-to-use design environment. Based on the same award-winning user interface technology as **IRONCAD**, **INOVATE** has been designed to allow members of the extended design chain to productively participate in design realization.

INOVATE brings powerful 3D design capabilities to the desktops of professionals in the following areas and more:

- **General Engineering.** Use INOVATE in the conceptual part of the design process for exploring design alternatives.
- **Sales and Marketing.** Use INOVATE to create photo-realistic renderings and animations for communication.
- **Manufacturing Engineering.** Use INOVATE to create prototypes for tooling and fixturing.
- **Quality Engineering.** Use INOVATE for accurate model measurement and analysis.
- **Design Engineering.** Use INOVATE for design collaboration and project proposals.
- **Engineering Management.** Use INOVATE for design reviews.

Wherever you turn in today's world, you are confronted with 3D computer images. When you check out an advertisement for a new automobile, it's hard to discern if the image displayed is a photograph of an actual car or a computer-generated model.

INOVATE offers a unique combination of simplicity and precision. It's easy to begin a 3D part with shapes, colors, textures, and other items from the INOVATE catalogs. Simply drag them from the catalogs and drop them in the 3D scene, INOVATE's working environment for 3D part design.

Once the basic elements are in place, you can use INOVATE's wide range of precision tools to size and position your part.

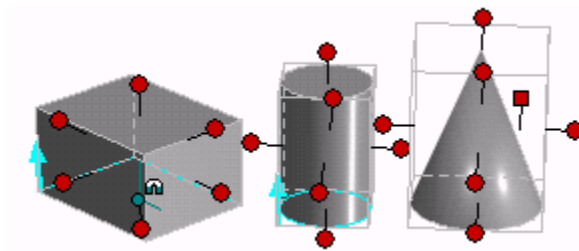
Parts

You use INOVATE to build parts. A part is more than a collection of 3D geometry -- it is a combination of components that intelligently interact with each other. In INOVATE, these components can be generated by the ACIS or Parasolid kernel.

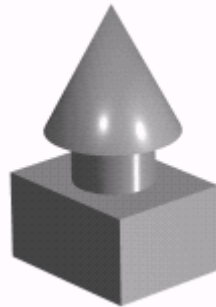
- **IntelliShapes®.** These geometric forms are the building blocks of a part. You can start with the basic IntelliShapes in the INOVATE catalogs or design custom IntelliShapes for special needs. IntelliShapes instinctively interact when they're joined or repositioned on the surface of another.
- **SmartPaints™.** Use these colors, finishes, and surface textures to add a realistic appearance to parts.
- **SmartMotions®.** Not all parts are stationary. For example, if you build a robot arm, you can simulate its motion. INOVATE includes a catalog of SmartMotions which are basic motion sequences, such as spinning, bouncing and moving along an axis. You can combine and edit SmartMotions to create complex animations.

For even more sophisticated animations, you can create and save SmartMotions on custom-designed paths, offering complete control of the part's animation.

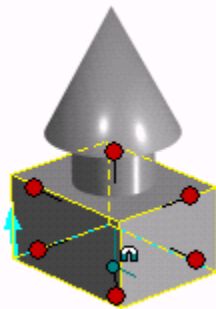
Here are some sample IntelliShapes:



You can combine these IntelliShapes to form a part similar to the one below.



The shapes that compose a part interact with one another in an intelligent fashion. They know how to land on one another and position themselves when moved. At any point in the part design process, you can select and work with the individual component shapes. For instance, the next illustration displays a part with a component shape highlighted.

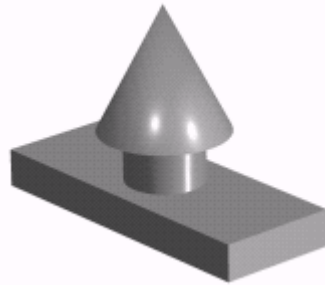


After selecting one shape in a part, you can move it, resize it, delete it, or perform other operations.

Note

Throughout the documentation, the term "shape" generally refers to an IntelliShape.

Once all the shapes are in place, SmartPaints can be added to your part.



Every part has at least one IntelliShape and at least one SmartPaint component; SmartMotions are optional. If you want animation effects, you can add SmartMotions to the part from the Animation catalog or create a custom animation path.

These intelligent components of a part are unique in the world of 3D software. They assist you in creating parts with more flexibility, extra speed and increased efficiency.

Assemblies and Products

When using INOVATE to design products, your design may require only a single part composed of several IntelliShapes. For example, a machine stand could be a single part that consists of five shapes: one for the top and four for the legs.

Other products are more complex and may require that individual components be created as parts that are then joined into *assemblies*.

Suppose you want to design a new coffee maker. You might want to start by combining a number of IntelliShapes to build the heating element section. You could go on to build parts for the carafe, the reservoir and other components. Finally, you could join these individual parts to create the finished assembly.

And, of course, very complex products may contain multiple assemblies, each containing several parts.

INOVATE facilitates creation of product designs at all levels of complexity. INOVATE cannot create multiple linked files; it can, however, maintain linked files that were created in IRONCAD.

Working with INOVATE

INOVATE users work in many design fields. Whether you need to build a machine part or a coffee maker, you can achieve the desired results using the tools in INOVATE to work through the various stages of an INOVATE project.

Setting the Scene

To begin a design project in INOVATE, you must first set up an appropriate scene for your 3D part design. INOVATE provides a variety of standard scene templates that are predefined with appropriate dimensions, lighting, and other parameters.

As you become comfortable working in INOVATE, you may want to create and save custom scene templates, much as you would create a template for a word processing document.

For more information on setting up the scene, refer to **Starting INOVATE** in the next chapter.

Note

Assemblies are made from multiple parts.

The Stages of an INOVATE Project

An INOVATE project has five potential stages:

1. Build a part.

Begin by using predefined individual shapes/parts that suit your needs. If none exist, then join existing IntelliShapes to achieve the basic form of your part or create custom shapes. Then you can edit or reposition components or a part to refine its design.

2. Build an assembly of parts.

It may sometimes be necessary or desirable to treat multiple parts as assemblies. INOVATE offers the capability to create such assemblies, and then add, delete or edit any of its components while maintaining the individuality of each.

3. Render a part.

Once you create a 3D part, you can apply colors and surface textures to achieve convincing realism. INOVATE includes catalogs of SmartPaint elements for this purpose. For example, you could add a brass finish to a fitting. You also can add naturalistic details, such as bumps and reflections.

In addition, you can apply a variety of scene rendering techniques to affect the realism of the part, including facet, smooth and realistic shading. Advanced rendering techniques offer even more control over the part's appearance.

4. Animate a part.

To animate a part, use SmartMotions included in the Animation catalog, or create a custom animation path. For complex animation, use the SmartMotion Editor. This tool is similar to a multi-track tape recorder that offers control of the position and movement of every animated part in a scene. For instance, you could rotate gears on a gear reduction assembly.

5. Communicate a part.

INOVATE parts seldom exist in a vacuum. You can share your parts with others through 2D drawings, high-resolution printing, electronic mail, OLE integration, and many other techniques. Export your parts to a wide variety of other applications or import parts into INOVATE.

Visual and Precision Part Design

At each stage of the design process, INOVATE provides two general methods for accomplishing your goals. They are:

- **The visual method.** You can accomplish many tasks in INOVATE using the mouse and visual feedback. For instance, you can edit the size of an IntelliShape by pulling shape or sizebox handles. There are additional visual techniques for positioning, assembling, coloring, and performing most features of INOVATE.
- **The precision method.** INOVATE also offers many precision tools for accurate part design. For example, you could position one component of a part exactly 15.75 cm from another.

Naturally, the method you choose depends on your preferences and the task at hand. You might use visual methods for quick results in the conceptual phase of a project and precision methods during the detailing phase prior to production.

INOVATE Features

INOVATE includes many other powerful features that will help in designing parts more quickly and efficiently.

- **Dual kernels.** Based on your specific design needs, INOVATE offers the flexibility of dual kernels -- ACIS or Parasolid.
- **Drag-and-drop.** For quick placement of IntelliShapes, SmartPaints and SmartMotions, simply drag them from catalogs and drop them in the desired location.
- **Face modeling.** INOVATE provides tools to directly edit a selected face, irrespective of its creation history.
- **Boolean.** Add, delete and move shapes with intelligent Booleans.
- **SmartSnap® functionality.** INOVATE's SmartSnap features aid in visually positioning the components of a part. When positioning an IntelliShape, valuable SmartSnap feedback is displayed.
- **Precision tools.** The TriBall®, Mate and Align Positioning and Constraint tools, SmartDimensions?, attachment points, scene grid, and many other features are available in INOVATE for precision part design.
- **Extensive 2D drawing and editing tools.** Create intricate 2D cross-sections for creating custom IntelliShapes.
- **SmartRender®.** SmartRender keeps projects on schedule by switching to less complex rendering methods while dynamically manipulating parts.
- **Extensive right mouse button support.** The right mouse button accesses powerful INOVATE functions. Most onscreen objects react to a click of the right mouse button, often displaying a pop-up menu, a dialog box or other items.
- **Catalogs.** INOVATE's catalogs contain hundreds of shapes and pre-designed parts, textures and other resources. You can organize your project by creating new catalogs to contain your own shapes and parts.
- **Customizable menus/toolbars/hot keys.** INOVATE's default menus, toolbars, and hot keys are fully customizable to meet specific user needs.
- **Complete compatibility.** INOVATE is compatible with Windows® 2000 and Microsoft Windows® 98, as well as Windows NT®.
- Custom macros generated using Microsoft's Visual Basic for Applications (VBA).

