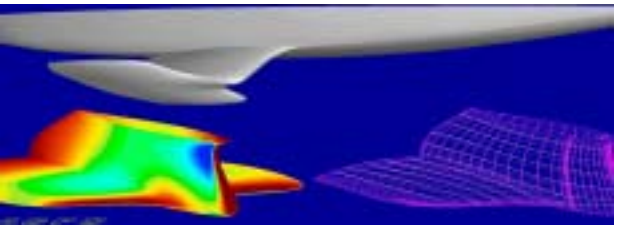
Modeling with AGPS™ revolutionizes the performance and affordability of your design process.



Take a look at why AGPS is the platform that allows you to develop custom technical and scientific tools for your specific geometric and analysis needs, to enhance your design tasks and processes. . .

Dilemma

During an intense design cycle where many design parameters, iterations, and scheduling of analyses are needed to effectively conduct a technical study current CAD modeling language and task journaling capabilities are rather crude instruments to use. The shortcomings associated with this is due to CAD tools being by nature, very interactive, rule-based systems which prove to be very laborious for any integrated design duties. Another shortcoming is the inability of CAD systems to create high quality surfaces within their environments without a great deal of training and/or experience. Although, it is certainly possible to solve these problems entirely within a CAD environment, the cost and flow time associated with this can be very high. Enterprises are typically forced to perform studies by a combination of in-house techniques or costly highly specialized software.

Solution - Unique Dynamic tools for advanced modeling

The solution lies in having an adaptable design environment that can be used effectively in attacking these problems. The Aero Grid and Paneling System (AGPS) is able to perform efficient design studies by interrogating and tracing design lineage during configuration layout. AGPS provides easy to use geometry models and libraries of analysis algorithms, for, high quality geometry creation, extraction of data, evaluation of geometry, model relationships, data exchange, visualization, and creation of scientific applications.

From its earliest beginnings, AGPS had a very unique approach to modeling that was based on time-tested philosophies for efficient geometry creation, multi-disciplinary analysis, and design optimization. AGPS's developers believed that providing an integrated platform with facilities for accurate modeling coupled with user programmability was the answer for an affordable and exceptional design process.

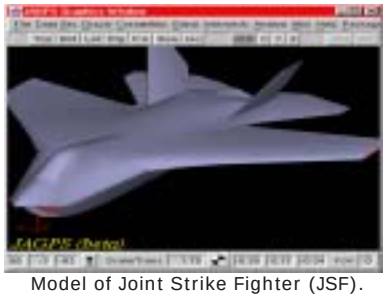
Design Space

AGPS permits engineers to create accurate mathematical models for the integration of geometric dependent analysis tools with their configuration models. The AGPS programming language can manipulate n-dimensional datasets, i.e., data that can depict position, X, Y, Z coordinates, time, and other data such as fluid properties.

Superior Mathematics

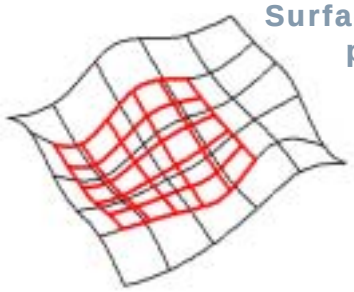
The development platform philosophy of AGPS, is a powerful and efficient tool endowed with advanced modeling algorithms, which have been vigorously validated and continuously improved over the years. Parametric mathematics technology provides the most robust methods for extraction and analysis of curve, surface, and solid data. Built-in models handle tasks such as surface discontinuity, slope matching, and specifications for degree of geometry fit.

The most accurate geometry definition possible . . .



Model of Joint Strike Fighter (JSF).

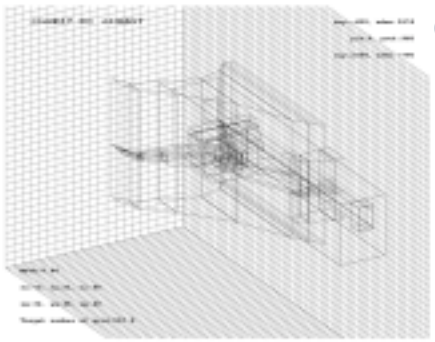
AGPS solves geometry creation problems with technologically advanced surface-patch and polynomial mathematics that provide a variety of advantages over traditional geometry definitions. AGPS also provides a host of mathematics capabilities to handle existing curve and surface generation functions.



Surface-patch technology provides very elegant solutions for parameter-space, parametric velocity, and parametric derivatives.

Multidisciplinary Analysis

The fundamental postulate for using AGPS math models for integration of multi-disciplinary analysis is that design and the exchange of information between design disciplines are fundamentally dependent on geometry. AGPS's data structure provides a convenient means for managing geometry, computational grid, and analysis data in a common framework, for use by varying industry sectors to model data that can then be used by other disciplines. By using AGPS to map analysis entities to geometry, each discipline can communicate through a common geometry. Enterprises can use the programmability of AGPS to maintain and enhance any proprietary formats that may become a staple of working with other industries.



AGPS makes the design space easier, cheaper and logical.

Time- Dependent Modeling

Unlike CAD systems, all geometric entities in AGPS are multidimensional. Whereas, traditional CAD only allows parameterization of geometry with one or two independent variables, AGPS mathematical models allow transformations into many variables, for example temperature and pressure, and even dependencies such as time. What this means is that geometric entities can change shape with time, configuration revisions, design iterations, or any other field parameters.

Surface Quality

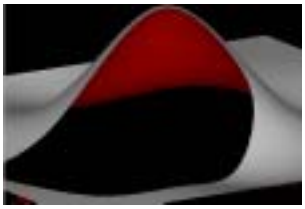
While a surface may properly fit data, if that surface contains slopes, curvatures, or rates-of-curvature that violates a designer's intent, it will be a low-quality surface. Existing software attempt to "heal" CAD models through surface re-rendering which is an extremely poor method of definition, since the designer's intent is still unknown and has to be interpreted.

The easy answer to surface quality is to begin with AGPS's advanced modeling constructs and algorithms. Although AGPS cannot account for poor modeling technique and layout, it can provide more than sufficient tools to highlight and fix any poorly constructed surfaces.

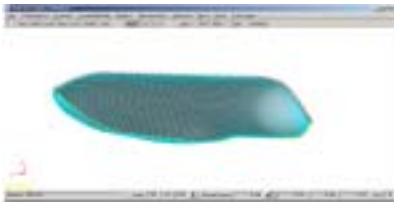
If "surface healing" is necessary AGPS provides numerous methods to accurately fix surface flaws and extract design intent from geometry models. In fact AGPS designers included a custom Surface Quality application that mathematically interrogates surfaces and presents visual assessments.

Innovative Precision

Included in its extensive geometry modeling capability, AGPS provides a mathematical entity called a 'Subrange', that directly attaches data to models, using the exact mathematical formulation as the underlying base geometry. This is an exceptional and powerful premise for both geometry building and paneling/grid-generation processing. The Subrange object allows extracted points, curves, or surfaces to retain the exact mathematical definition of an original object and the parameter value specifying the location of the object (point, curve, surface, or solid). Operations such as grid generation are simply accomplished by mapping arrays of points and establishing pointers to original underlying geometry. The Subrange capability also allows curves or surfaces to be precisely trimmed and retain their exact mathematical definition.

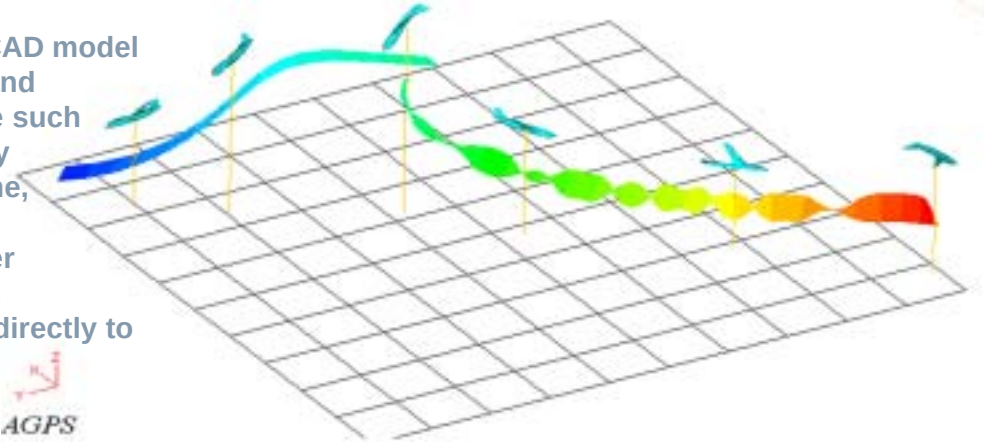


Surface trimming is always easy and exact.



Computational grid generation utilizing AGPS's Subrange math model. Grid points always lie exactly on the underlying database.

AGPS™ extends CAD model representations and abilities to handle such tasks as geometry changing with time, computational meshes, and other analysis data that require mapping directly to geometry.



AGPS is used to quickly assess the trajectory flight path of a vehicle for a variation of flight regimes. The application will automatically render results for a variety of possible flight simulations.