

# Aspen PIMS and Aspen PIMS-AO

*Make fast, accurate, and profitable decisions about plant operations, feedstock selection, market responses, and production decisions*

*Aspen PIMS* is the world's leading petroleum and petrochemical planning system featuring cutting-edge optimization technology. An intuitive interface with enhanced reporting and parametric analysis make it easy to view, analyze, and report alternatives, guiding users to the optimum solution. Since 1984, *Aspen PIMS* has facilitated better feedstock selection, downtime planning, and risk and inventory management to optimize profitability. Now *Aspen PIMS* includes assay management, making it easier than ever to add, modify and re-cut assays, helping refinery planners deliver more accurate plans to yield greater profitability.

*Aspen PIMS Advanced Optimization (PIMS-AO)* empowers users with state-of-the-art non-linear functionality and enhanced modeling capabilities. The *PIMS-AO* model offers the best balance between available feedstocks, product requirements, and process unit capacity, while evaluating a more complete set of input parameters and optimization objectives.

*Aspen PIMS* helps improve refinery operations by:

- Adding flexibility to feedstock selection
- Extending production runs
- Providing rapid response to changing market
- Maintaining the highest value-added product mix
- Enabling faster problem-solving
- Modeling crude distillation columns with greater accuracy
- Sharing targets and assay data with scheduling applications
- Achieving a global optimum (by eliminating local optima) for product volumes, costs, and prices

representation of their plants and operations. Users familiar with *Aspen PIMS* can quickly leverage this functionality to take advantage of its increased modeling and analysis capabilities. Industry-leading *Aspen PIMS* and *Aspen PIMS-AO* also share production targets, assay data and sub-models, blend model libraries, optimum recipes, and more with Aspen Petroleum Scheduler to create powerful synergies among planning and operations to reduce margin leakage.

## |||||| The Challenge: Creating Profitable Plans in a Volatile Market

To achieve maximum profitability, planners must be able to make fast, accurate, and optimal planning decisions about feedstock selection, process runs, and product mix while taking into account numerous other factors, such as changing market demands and price volatility.

## |||||| The AspenTech Solution: Dynamic Planning for Optimum Results

*Aspen PIMS* is a scalable planning system that helps companies optimize feedstock selection, product slate, plant design, and operational execution. Users can even link a number of single-plant models to generate a complex multi-source, multi-plant, multi-market, multi-period plan.

Additionally, *Aspen PIMS-AO* allows the use of both linear and non-linear modeling and constraints to create an accurate

# Aspen PIMS

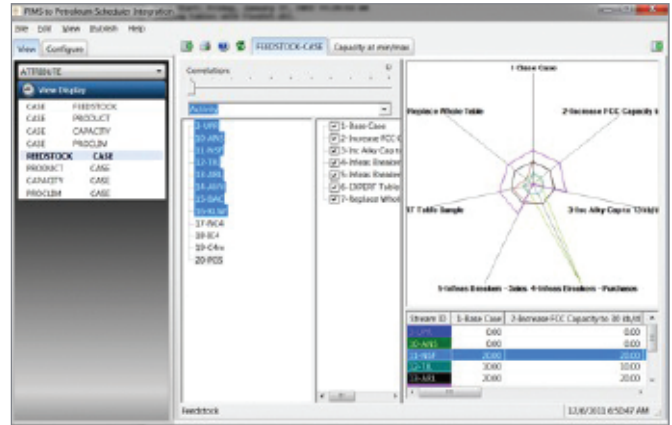
Aspen PIMS delivers a competitive advantage with optimization features that enable both professional and less-skilled planners to perform at an expert level, providing short response times with reliable, well-vetted solutions. The unparalleled visibility and reporting with hot links enables the development of new work processes that take full advantage of the wealth of information available.

## Ensure the Optimum Solution

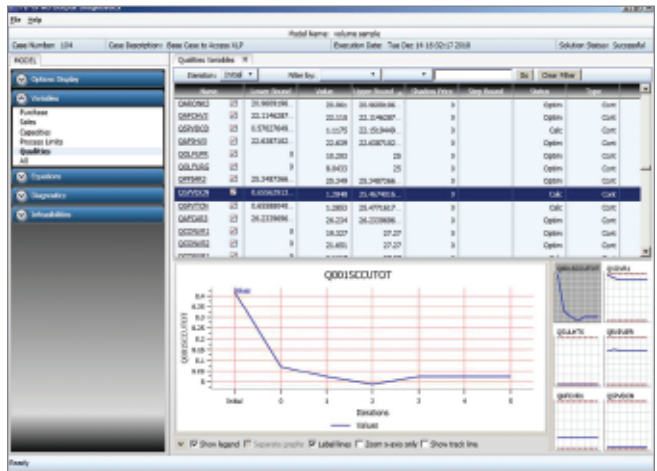
Aspen PIMS' advanced optimization quickly identifies the optimum solution while providing sufficient detail on alternative solutions. Aspen PIMS-AO reveals local optima and the highest value global solution. It also provides a convenient way to automatically vary selected feedstock purchase costs or product sales prices and monitor any aspect of the solution as these variables change. Aspen PIMS-AO even lets users optimize a combination of several objectives by setting primary, secondary, and tertiary goals for a solution. For example, while a solution would normally only maximize the economic objective, Aspen PIMS-AO can be set up to provide a balance between the economic objective while maximizing total crude unit throughput and minimizing the purchase of a particularly risky imported crude.

## Non-Linear Model Flexibility

Aspen PIMS-AO offers users great flexibility in the types of equations that can be used, such as adding non-linear equations to models or inserting new non-linear terms into existing equations. Users need only provide the non-linear constraints in equation form; the system then builds the required derivatives, eliminating many potential modeling errors. The new equations or non-linear terms can reference existing Aspen PIMS variables or define new ones. Users can also attach non-linear unit models natively and optimize.



New analytical tools enable planners to better analyze the solution space and effectively choose feedstock.



Aspen PIMS also includes an XLR Viewer that provides an improved ability to analyze infeasibilities and resolve issues that may cause execution problems.

---

## Function

## Benefit

### Global Optimization

- Finds global optimum while identifying potential locally optimal answers
- Uses open equation formulation
- Supports use of non-linear tools to run “what-if scenarios”

- Eliminates necessity for multiple runs; solves for local optima and global optimum to increase margin
- Identifies the solution that maximizes overall profitability
- Validates solution and enhances planning confidence

---

### Solution Ranging

- Provides unique visibility into the entire solution space and the range of its validity for feedstocks, unit capacities, and product slates
- Identifies the optimal range of values for each analyzed variable
- Describes deviations from the base optimal slate

- Ensures accuracy and consistency across business processes
- Reduces crude slate—eliminates risky crudes from feedstock slate while reducing the number of crude types
- Improves inventory management, tank management, and crude scheduling
- Improves downtime planning
- Improves risk management capability

---

### High Performance Computing

- Uses multiple CPUs on a single computer to run multiple scenarios in parallel—increasing both number of scenarios and speed

- Increases speed of response with an unprecedented level of confidence
- Allows the evaluation of more scenarios in less time
- Reduces case stack run times

---

### Goal Programming

- Defines secondary and tertiary objectives in addition to the primary objective for a solution
- Sets a maximum percentage economic deviation or change in goal

- Addresses operational requirements that are difficult to quantify
- Imposes non-economic goals that improve plan acceptance and execution
- Provides insight into economic cost of operating decisions
- Produces more consistent and stable plans over time

---

### Sharing of Targets and Assay Data

- Easily shares targets and assay data with scheduling systems

- Prevents margin leakage and increases collaboration among planners and schedulers

---

### Enhanced Analytics

- Powerful output to Microsoft SQL Server® allows for sharing of enterprise data and leverages Microsoft SQL Server's® reporting capabilities

- Provides enhanced decision support and ability to compare alternatives
- Streamlines reporting capabilities and ability to share information



### |||||| Empower Your Company to Succeed

aspenONE Refining and Marketing Supply Chain solutions provide the tools that enable refiners to improve supply chain visibility and operational efficiency. AspenTech's Professional Services team helps customers maximize benefits by effectively deploying solutions and best practices in demand management, refinery planning and scheduling, and distribution. Unparalleled industry knowledge combined with comprehensive solution expertise has allowed AspenTech to deliver thousands of successful implementations, driving increased margins for our customers. Combined with our world-class 24/7 technical support service, flexible training options, and local language product availability, AspenTech provides the resources to enable your company to meet and exceed its business objectives.

### |||||| About AspenTech

AspenTech is a leading supplier of software that optimizes process manufacturing—for energy, chemicals, pharmaceuticals, engineering and construction, and other industries that manufacture and produce products from a chemical process. With integrated aspenONE® solutions, process manufacturers can implement best practices for optimizing their engineering, manufacturing, and supply chain operations. As a result, AspenTech customers are better able to increase capacity, improve margins, reduce costs, and become more energy efficient. To see how the world's leading process manufacturers rely on AspenTech to achieve their operational excellence goals, visit [www.aspentech.com](http://www.aspentech.com).

### Worldwide Headquarters

Aspen Technology, Inc.  
200 Wheeler Road  
Burlington, MA 01803  
United States

phone: +1-781-221-6400  
fax: +1-781-221-6410  
[info@aspentech.com](mailto:info@aspentech.com)

### Regional Headquarters

Houston, TX | USA

phone: +1-281-584-1000

São Paulo | Brazil

phone: +55-11-3443-6261

Reading | United Kingdom

phone: +44-(0)-1189-226400

Singapore | Republic of Singapore

phone: +65-6395-3900

Manama | Bahrain

phone: +973-17-50-3000

For a complete list of offices, please visit  
[www.aspentech.com/locations](http://www.aspentech.com/locations)