

## ARIS/BIS™ billing information system



### Track ground resource fees with a usage-based billing system

The ARIS/BIS billing information system tracks your customers' use of airport ground services and facilities, and then automatically calculates fees owed based on the type and duration of resource use. Each time a customer uses a fee-based resource, the system creates a record that contains the type of use, the time the use started, and the time the use ended, which you can use to invoice your customers. You can, for example, produce billing reports to circulate internally and externally and export billing information to a separate accounting system for subsequent invoicing.

The system creates billing records, which are usage-based descriptions of airport resources and services your organization provides for a fee to airlines, handling agents, and other customers during a monthly billing period. Typical billing items include the use of facilities, such as gates, stands, pads, and check-in counters; and the provision of services and equipment, such as electricity, heating, and cooling at stands, CUTE consoles, ticket and boarding pass printers, and VIP and security services.

The billing records are always accurate because they are based on actual flight information captured, interpreted, and generated by the ARIS/GM® gate management system and other ARIS® products, and precise docking times from docking guidance systems used at the airport. The system indicates when information, such as flight arrival times, departure times, and tow times, is missing or may be unreliable, and enables you to compare and confirm billing information with other sources of information and enter corrected or additional information manually.

The system provides simple intuitive screens that guide you through the process of opening and closing each monthly billing period and then through the process of creating, analyzing, modifying, recalculating, and deleting billing items in the monthly billing period. The system enables you to produce billing reports for both open and closed billing periods, which you can print, distribute internally and externally.

## What the ARIS/BIS billing information system enables you to do

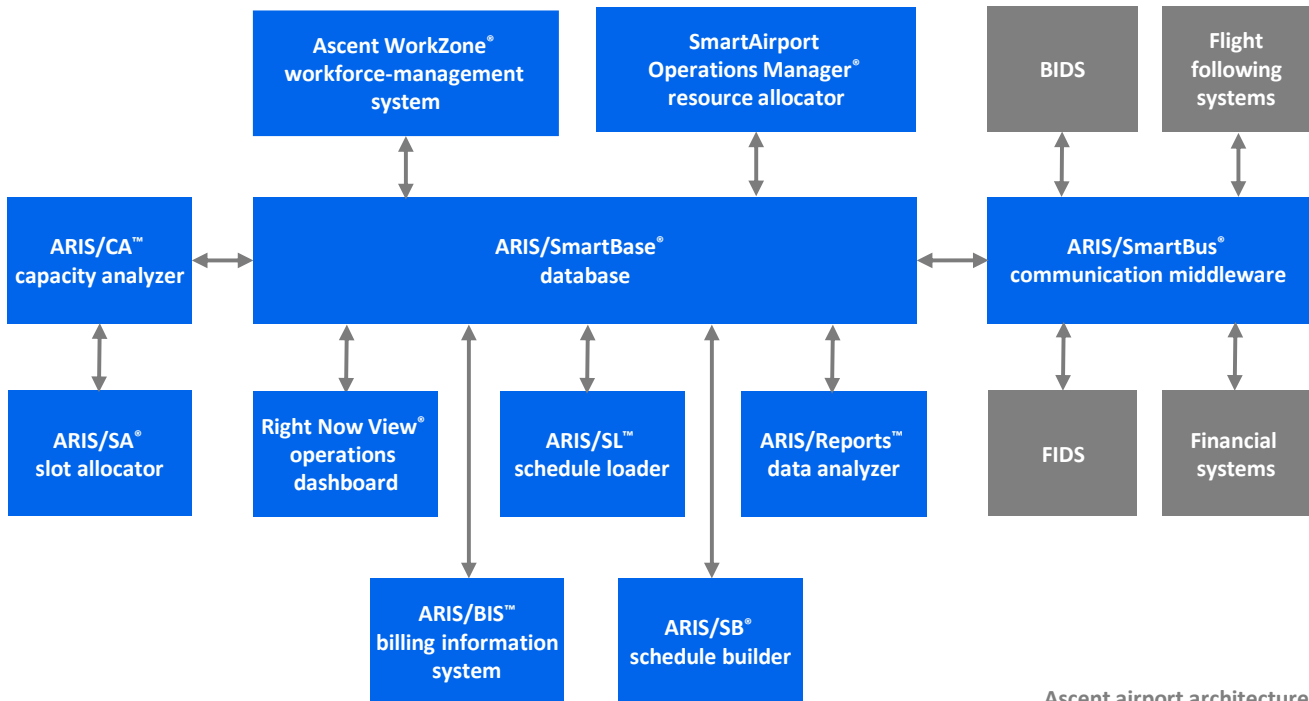
The ARIS/BIS billing information system enables you to:

- Enter business rules that describe your airport’s fee-based services and facilities and the prices you charge for their use
- Model the terms of each customer’s contract, including time exemptions, for resource usage
- Create, view, close, and reopen monthly billing periods
- Automatically create provisional billing items for the use of stands and stand-related resources, using flight information and ground activity information captured, interpreted, and generated by the ARIS/GM gate management system and other ARIS systems and stored in the ARIS/SmartBase® database
- Compare provisional billing items with other sources of resource usage information, confirming accurate information, and identifying and correcting missing or inaccurate information
- View, create, analyze, modify, and delete billing items
- Move billing items from one monthly billing period to the next or previous billing period
- Ask the system to re-evaluate billing rules when underlying business rules change and to recalculate billed costs when usage durations and fees change
- Create final billing items used for invoicing
- Produce billing reports
- Export billing report information to external accounting systems for customer invoicing.

### Who we are

Since our founding more than 30 years ago by members of the Massachusetts Institute of Technology Artificial Intelligence Laboratory, Ascent Technology has helped organizations deploy costly resources as efficiently, effectively, and economically as possible. Our highly trained and capable team of technologists, problem solvers, and solution designers has broad domain expertise and substantial experience in artificial intelligence, computer science and engineering, system design, mathematical optimization, operations research, and resource optimization, planning, scheduling, and management.

### To calculate billing costs



Ascent airport architecture names, addresses, contact information; the

terms of contracts between you and your customers; and your organization's fee structure for providing ground services and facilities. For example, you may bill customers for stand usage based on aircraft wingspan or aircraft weight, so that you can charge different prices for smaller aircraft and larger aircraft or for lighter aircraft and heavier aircraft. You may also establish fees based on duration of stand use, such as one price for a maximum of 240 minutes of stand use, another price for a maximum of 480 minutes of stand use, and yet another price for a maximum of 960 minutes of stand use. You may charge additional fees for the use of electricity, heating, or cooling while at the stand or for VIP services at the gate. The system also handles promotional pricing, which you may offer as a way to encourage airlines to add flights.

After you enter your business rules and billing rules, the ARIS/BIS billing information system automatically calculates the amount to charge for each use of a stand, starting from the time the aircraft is on block until the aircraft is off block, based on flight and ground activity information captured, interpreted, and generated by the ARIS/GM gate management system, information provided by other systems at the airport, and information you may enter manually.

The system organizes billing records by calendar year, and then in order of calendar month, day, and time of day. It enables you to view, create, close, and reopen monthly billing periods; to view, create, analyze, modify, and delete billing items that occur during monthly billing periods; and to produce billing reports that can be printed, distributed internally and externally, and exported to your accounting systems.

The ARIS/BIS billing information system creates billing items based on flight leg information stored in the ARIS/SmartBase database and then enables you to compare billing items with flight information for your regular airline customers and with flight information for all airlines at the airport. When flight information is missing, the system displays a form-like interface for manual information entry. The interface simplifies information entry by providing context-sensitive commands; automatic error-checking; and menus of correctly-formatted information entries to choose from. An intelligent filter and search feature enables you to locate and display particular billing items quickly, so that you can view, analyze, and modify them. When you need help, Advice blocks display brief explanations about the screen you are viewing.

## Representative features

**Creates provisional billing items automatically.** When you create a billing period, the system automatically generates provisional billing items for the billing period. For example, when you bill for stand use, you can ask the system to generate billing items for billable flights, which are the flights that use stands you provide for a fee, or for all flights at the airport. The system generates billing items based on flight legs for the billing period stored in the ARIS system. You review the provisional billing items, modify them as needed, and then create final billing items.

**Calculates billed costs automatically.** The ARIS/BIS billing information system automatically calculates the billed cost of a billing item based on your business rules, billing rules, and other information stored in the ARIS/SmartBase database, such as billing category, resource usage cost, the amount of time the customer used the resource, and the terms of the contract between your organization and the customer. The system also automatically re-calculates the billed cost when you manually modify the cost of the billing item or the amount of time the customer used the resource and save your work.

**Provides an intelligent filter search mechanism for billing information.** The system enables you to search large tables of billing items by numerous filter categories, so that you find the billing item(s) you are looking for quickly. The system provides tailored commands that enable you to perform actions on only the filtered subset of billing information, and not on all billing information in the monthly billing period.

**Enables you to create and modify billing information manually.** The system provides an easy-to-use form-like interface that enables you to enter the information required to create a billing item manually. You use the same form-like interface to modify information in a billing item produced automatically by the system. The interface provides easy-to-use information-entry boxes, which highlight required information and provide menus of corrected-formatted information from which to choose.

**Provides an intuitive, easy-to use graphical interface.** The ARIS/BIS billing information system's intuitive screens take you from one step to the next quickly and intelligently. For example, when the system requires you to enter information in a particular format, it provides a list of correctly formatted items from which to choose. When you ask the ARIS/BIS billing information system to do something it cannot do or if you do not give it all the information it needs, the system displays Guidance messages that tell you what you need to do to recover from or avoid the problem. If you forget how to do something, you can click the Advice button to display brief explanations about how to use the screen you are viewing. You can also display the ARIS/BIS Billing Information User Guide in a dialog that you can view at the same time you view the screen.

**Produces billing reports for distribution and exports billing information to external accounting systems.** The ARIS/BIS billing information enables you to produce billing reports for a monthly billing period by customer, airline(s), stand(s), and date range. You can save billing reports in Portable Document Format (PDF) files or Comma Separated Values (CSV) files, or you can export billing information to your accounting system for invoicing.

**Web-enabled for cost-effective rapid deployment.** You gain access to the ARIS/BIS billing information system using a standard web browser through secure internet links and local networks.

## Ways we can help you

**Advisory and consulting services.** We provide unbiased advice about resource allocation, optimization, planning, scheduling, management, and deployment methodologies; develop cost-benefit analyses; analyze business processes; manage projects; gather and document technical requirements; develop functional specifications; and specify hardware, software, and devices.

**Project management services.** Our project management team works closely with you, following our time-proven delivery methodology, and uses face-to-face meetings, teleconferences, web conferences, and email exchanges to keep you informed every step of the way. We believe careful project management is the key to successful on-time and on-budget deliveries of SmartAirline Operations Center and SmartAirport Operations Center products, services, and solutions.

**Knowledge engineering services.** Knowledge engineering is the process of identifying your business knowledge—the business rules, policies, procedures, preferences, and requirements that guide the way your organization operates—and then codifying your business knowledge in the knowledge base at the heart of SmartAirline Operations Center and SmartAirport Operations Center solutions. The business knowledge in the knowledge base determines how the solutions behave. Our knowledge engineers work with you to gather and enter the business knowledge that enables the solution to behave exactly the way you want it to.

**Implementation, integration, and installation services.** Our implementation team provides system integration and testing services; develops product extensions, enhancements, and connectivity software for importing data to and exporting data from external systems; and creates reports. The team also configures, installs, and tests hardware, software, and equipment for you when you choose to integrate the SmartAirline Operations Center or SmartAirport Operations Center solutions in your IT environment, and quickly sets up an environment in our hosting center for you when you choose to gain access to the solutions over the web.

**Training services.** We provide a wide range of user, administrator, trainer, and refresher training classes in person at your location, at our Cambridge, MA, headquarters, and remotely over the web. We also provide operational training services in person and remotely when you begin to use the SmartAirline Operations Center or SmartAirport Operations Center solutions in production.

**Maintenance and support services.** We offer Standard Support Services Monday through Friday during our normal office hours in Cambridge, MA, and Premium Support Services around the clock. Both provide comprehensive remote user support services via telephone, email, and Internet, as well as software maintenance, such as product updates, patches, and releases. We provide a web-enabled support portal that enables you to ask questions and receive responses, request service, report problems, and track issues.

---

### More information

To learn more about how Ascent Technology solutions can help you optimize your resources to greatest advantage and to schedule a demonstration of our products, send email to [sales@ascent.com](mailto:sales@ascent.com) or call our Sales and Marketing department at +1.617.395.4800.

---



## Technology Platform

You can gain access to the SmartAirline Operations Center or SmartAirport Operations Center solutions in two ways: you can integrate the solution into your own IT environment, or you can gain access over the Internet to the solution running on Amazon Web Services (AWS) platform.

Ascent Technology Products	Your own IT environment			Amazon Web Services (AWS) platform
	Server	Client desktop	Web browser	
	Server: Microsoft® Windows® Server™ 2012 or 2016 operating system or Red Hat® Enterprise Linux 7; if virtualized, our solutions are certified to run on VMware® server virtualization products  Database: Oracle 12C SE2  Desktop: Windows 7, 8 or 10 with 4GB of RAM  Browser: Latest Microsoft Edge, Google Chrome or Mozilla Firefox  Minimum internet access for remote support: 512 kbps			Browser: Latest Microsoft Edge, Google Chrome or Mozilla Firefox; Internet connection (1 Mbps or better)
ARIS/AV® aerial-view display	✓		✓	✓
ARIS/AR® aircraft-routing system	✓	✓		
ARIS/SmartBase® database (including Resource Editors)	✓			
ARIS/BB® baggage-belt allocator	✓	✓		✓
ARIS/BIS™ billing information system	✓		✓	✓
ARIS/CI® check-in counter allocator		✓		✓*
ARIS/CX® crew-connection analyzer			✓	✓
ARIS/GateView® real-time display	✓	✓		✓
ARIS/GM® gate manager		✓*		✓*
Right Now View® operations dashboard	✓		✓	✓
ARIS/PX® passenger-connection analyzer	✓		✓	✓
ARIS/Reports™ data analyzer	✓		✓	✓
ARIS/SB® schedule builder	✓	✓	✓	✓
ARIS/SL™ schedule loader	✓		✓	
ARIS/SmartBus® communication middleware	✓			
ARIS/SP® stand planner		✓*		✓*
SmartAirline/SmartAirport Capacity Analyzer strategic planner	✓		✓*	✓*

Ascent WorkZone® workforce management system	✓	✓*	1200x768 minimum resolution for ARIS/WorkNet® bid and trade manager
--	---	----	---

\*Minimum display resolution (pixels): 1600 x 1200

ARIS, ARIS/AR, ARIS/AV, ARIS/BB, ARIS/CI, ARIS/CX, ARIS/FW, ARIS/GateView, ARIS/GM, ARIS/IQ, ARIS/LegGen, ARIS/PX, ARIS/SA, ARIS/SB, ARIS/SE, ARIS/SL, ARIS/SmartBase, ARIS/SmartBus, ARIS/SP, ARIS/Tow Panel, ARIS/WorkModel, ARIS/WorkNet, ARIS/WorkOptimize, ARIS/WorkPlan, ARIS/WorkRelay, ARIS/WorkTime, Ascent Technology, Inc. (stylized), Ascent WorkZone, Ascent WorkZone (stylized), GateKeeper, Right Now View, SmartAirline, SmartAirline Capacity Analyzer (stylized), SmartAirline Operations Manager (stylized), SmartAirline WorkZone, SmartAirline WorkZone (stylized), SmartAirport, Smartairport.com, SmartAirport Capacity Analyzer, SmartAirport Capacity Analyzer(stylized), SmartAirport Information Manager, SmartAirport Information Manager(stylized), SmartAirport Operations, SmartAirport Operations Center, SmartAirportOperations Manager, SmartAirport Operations Manager (stylized), SmartAirport WorkZone, and SmartAirport WorkZone (stylized) are registered trademarks of Ascent Technology, Inc., in the United States.

Active Schedules, Advanced Pay Rule System, ARIS/AR Display Board, ARIS/AR Turn Generator, ARIS/BIS, ARIS/CA, ARIS/Reports, ARIS/SCR, Ascent WebConnect, Location Editor, Planning Control, Planning Schedules, Profile Editor, Query Editor, Reference Editor, Resource Editors, Rule Editor, SmartAirline Capacity Analyzer, SmartAirline Operations Center, SmartAirline Operations Manager, Template Worker Editor, User Editor, Work Schedule Editor, Work Schedule Manager, and Worker Editor are trademarks of Ascent Technology, Inc., in the United States.

This is not a complete list of all registered trademarks, trademarks, and service marks owned by Ascent Technology, Inc. Other company, product, and service names may be registered trademarks, trademarks, or service marks owned by other parties.