

The ARIS/SmartBase® database

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Manage, monitor, and maintain the valuable business knowledge that forms the core of all Ascent Technology solutions

The ARIS/SmartBase database is the secure data repository at the core of all Ascent Technology resource allocation, optimization, and management solutions. It stores information about your human and physical resources, plans, schedules, scenarios, and operations in an extremely reliable and high availability environment, ensuring that timely and relevant information is always available throughout your organization. It stores your information in a well-engineered relational format, using English-language table and column names, ensuring information is readily available for reporting, auditing, and analysis purposes and for export to external systems.

In its knowledge repository, the ARIS/SmartBase database maintains the flexible business rules that control the creation of what-if scenarios, plans, schedules, and real-time responses to planned and unplanned events. In its historical archive, the ARIS/SmartBase database stores accurate records of resources, plans, schedules, operations, and events for use in management reports and analyses.

The ARIS/SmartBase database enables you to:

- Enter information about resources, plans, schedules, operations, and events into one ARIS® product and share it with the rest of the Ascent Technology solution automatically in near real time
- Gain access to a comprehensive, integrated, up-to-the-minute view of your organization's resource, plan, schedule, and operations information
- Export data to external systems and import data from external systems
- Maintain an accurate and consistent data repository for reporting, auditing, and analysis
- Maintain multiple versions of plans and what-if scenarios for evaluation

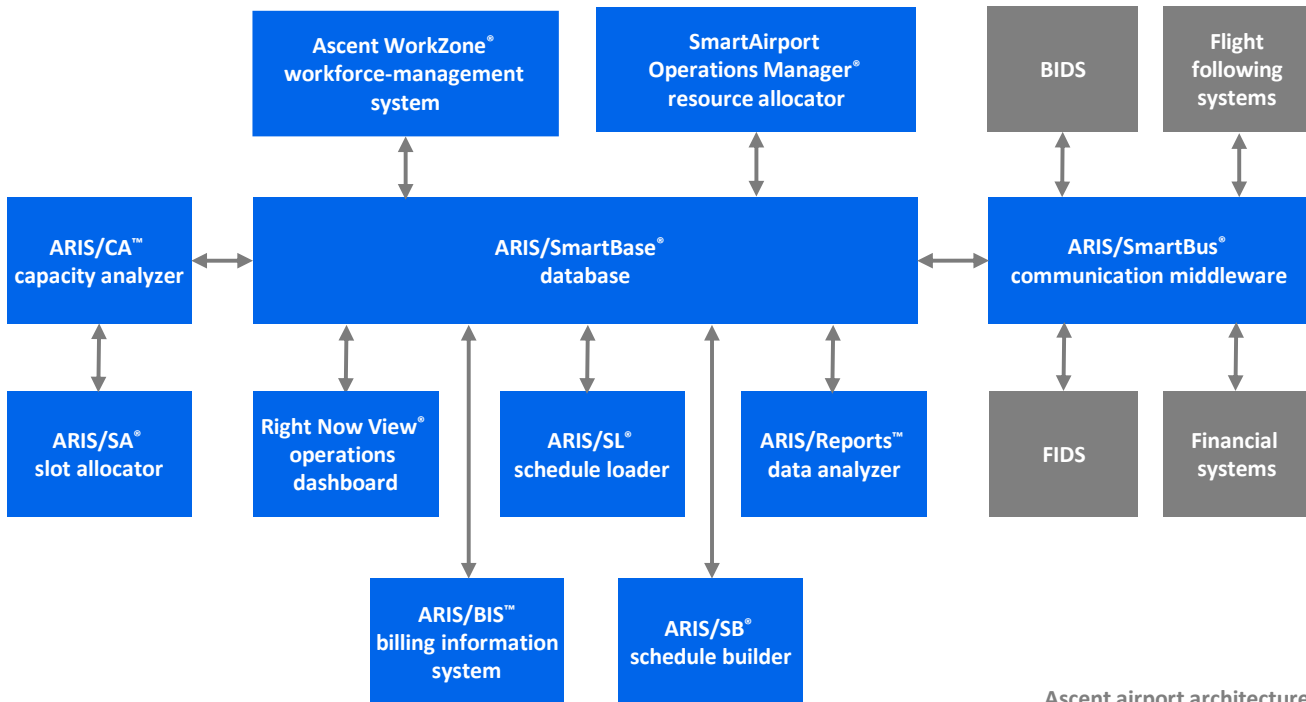
- Improve collaborative decision making and overall organizational effectiveness by ensuring everyone in your organization has timely access to the same resource, plan, schedule, and day-of-operation information.

Because the ARIS/SmartBase database coordinates the actions of all other ARIS products in your solution, when you enter information into one ARIS product, the information is available to all other ARIS products within a second or two. When used in combination with the ARIS/SmartBus® communication middleware, the ARIS/SmartBase database simplifies importing information from and exporting information to your organization's other systems.

Ensures a coordinated view of business knowledge

The ARIS/SmartBase database provides a bridge between planners, schedules, and day-of-operations managers. Planners use ARIS products to create plans, storing plan information in the ARIS/SmartBase database, where it is picked up by other ARIS products when scheduling and managing resources and events in actual operations. The ARIS/SmartBase database enables planners' decisions to guide day-of-operations managers' decisions by providing a coordinated view of resources, plans, schedules, and assumptions.

The ARIS/SmartBase database is an enterprise-wide solution; you can use a single database across your entire organization, which means that head office managers can establish consistent guidelines for subsidiary locations. You can adjust guidelines for each subsidiary location and maintain consistency. You can also roll-up subsidiary information to create high-level plans and historical reports.



Ascent airport architecture

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.

Ensures rapid and secure dissemination of information

The ARIS/SmartBus communication middleware, the technology layer that surrounds the ARIS/SmartBase database, enables secure information exchange between the ARIS/SmartBase database and external systems, such as finance, human resources, and payroll systems, and between the ARIS/SmartBase database and mobile pagers, tablets, smart phones, and other devices. Special mechanisms continuously monitor information, identify alerts and changes to operational conditions, and notify relevant staff.

Ensures high performance and reliability

Because the ARIS/SmartBase database runs on the Oracle® database system, it provides the benefits of Oracle database systems, such as:

- An extremely reliable data storage environment that prevents information corruption
- Back-up and recovery solutions that ensure no information is lost when hardware or software fails
- Operation on servers ranging from small laptop systems to large fault-tolerant multi-processor systems
- Compatibility with numerous software products, report generators, software development tools, and interface tools
- A wide range of purchase options based on hardware and/or number of users.

The ARIS/SmartBase database exploits the high-performance capabilities of the Oracle database, providing outstanding performance in complex environments and ensuring smooth operation during demanding situations.

Representative features

Provides a consistent view of operations across the enterprise. Information stored in the ARIS/SmartBase database is valid, accurate, consistent, and updated in near real time. Everyone in your organization can have access to up-to-the-minute information.

Follows a relational database model. The ARIS/SmartBase database follows the SQL relational database model. It is simple to understand, and it can be mastered easily, even by non-programmers. It is flexible, which makes it possible to retrieve information with minimal effort.

Runs on the Oracle database system. The ARIS/SmartBase database runs on the leading information-management software product. Hundreds of third-party tools operate with the Oracle database system to, for example, format reports, exchange information, and post information to web sites.

Integrates with external systems and web services. The ARIS/SmartBase database operates with the ARIS/SmartBus communication middleware, which simplifies data exchange between the ARIS/SmartBase database and external systems. The ARIS/SmartBus communication middleware generates logs of all inbound and outbound data transfers, greatly simplifying error tracking. Because messages are transmitted using the XML standard, they can be exchanged with and understood by other applications easily.

Maintains enterprise-wide business knowledge in a secure repository. The ARIS/SmartBase database models your business processes as rules entered by means of an easy-to-use forms-based interface. Other ARIS products rely on the business rules to drive planning and operational actions. Information and rules are stored in a single database, providing consistent operations at all locations.

Provides multiple layers of security. The Oracle database system provides both deep data protection and fine-grained access control. The ARIS/SmartBase database maintains audit trails of modifications made to stored data, such as the type of data modified, the data prior to modification, the modified data, the time of modification, and the reason for modification. In addition, the ARIS/SmartBase database provides partitioning to ensure the privacy of specific processed data.

Scalability and availability. The Oracle database provides transparent scalability when you move ARIS products from a single server to a cluster of servers, scalability with availability when machines in a cluster act as backup machines for all other machines in the cluster, and scalable performance at all hardware ranges.

High performance. The indices associated with each table and clustering in the ARIS/SmartBase database have been carefully tuned to provide high performance in environments where the number of users ranges from just a few to thousands.

Maintains historical information archive. The ARIS/SmartBase database maintains a secure archive of historic planning and operations data you can use to produce accurate and timely reports and to define and analyze key performance metrics. You can perform nightly updates of the archive or you can perform updates in real time, which provides immediate access to today's information for reporting. Careful database engineering ensures activities can extend across the midnight boundary into the next calendar day with no loss of data, possible confusion, or need to interrupt the applications. Using the scenario feature, you can reload the specific model that was active at the time the historical data were created.

Reports

All Ascent Technology solutions store information in the ARIS/SmartBase database, which runs on the Oracle® database. We can create reports for you, and you can create your own reports from a synchronized reporting database using Oracle-compatible report-generator tools, without interfering with the integrity or performance of the ARIS/SmartBase database.

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 Ascent Technology 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 Ascent Technology 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.

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 or call our Sales and Marketing department at +1.617.395.4800.

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 Ascent Technology 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 solution 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 Ascent Technology 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.



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 | ✓ | | ✓* | ✓* |

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|--|---|----|---|
| 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/IC, 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.

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