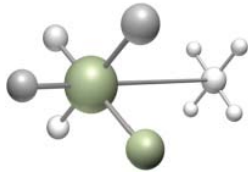


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## ARIS/FW<sup>®</sup> flight watcher



### Drive other ARIS<sup>®</sup> tools with real-time FAA flight information

The ARIS/FW flight watcher receives flight information from the U.S. Department of Transportation Federal Aviation Administration (FAA) and other radar information sources, interprets it to remove errors, and enters and stores it in the ARIS/SmartBase<sup>®</sup> database. Once it is stored in the ARIS/SmartBase database, you can use the flight information to drive other ARIS products and external systems.

With the ARIS/FW flight watcher, you can:

- View, analyze, and store near real-time commercial aircraft position data for use by other ARIS products and external systems
- Obtain estimated the time of arrival (ETA) for most commercial flights in U.S. airspace
- Determine if a flight has arrived at or departed from an airport
- Reduce manual flight information entry in the ARIS/SmartBase database
- Identify flights in route to your airport that are not in your schedule
- Increase collaborative decision-making and overall organizational effectiveness by ensuring all staff has access to near real-time flight information.

### How the ARIS/FW flight watcher works

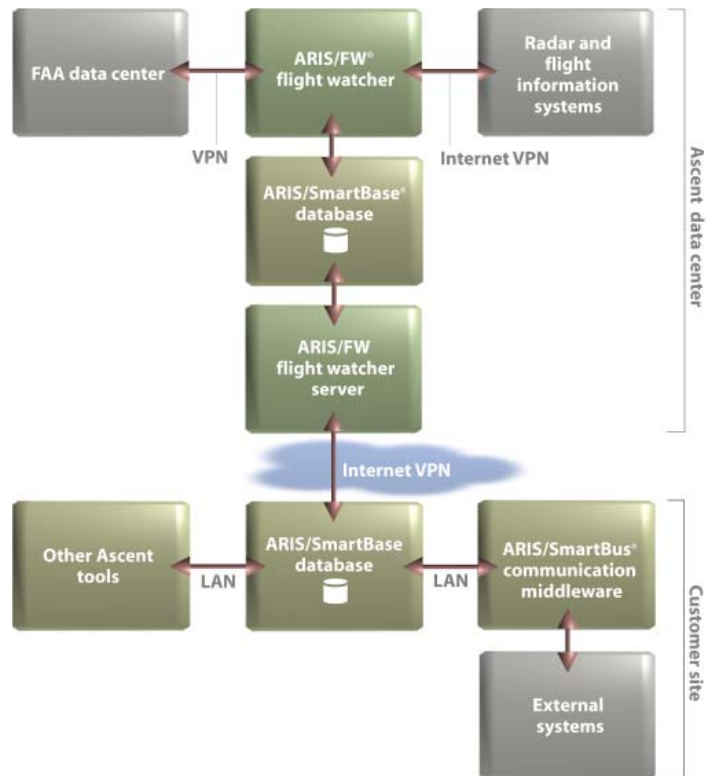
Ascent receives FAA Industry Aircraft Situation Display (ASDI) data for most commercial aircraft in flight over the U.S. and within a few hundred miles outside U.S. borders directly through a dedicated high-speed communications link to the U.S. Department of Transportation's John A. Volpe National Transportation Systems Center. The information typically includes the flight number, origin, destination, aircraft type, off time, expected on time, heading, speed, position, altitude, and route for most commercial flights. (Some information may be unavailable for flights that originate outside of the U.S., and some information may be unavailable in compliance with FAA regulations and privacy concerns.)

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## Who we are

Since our founding 25 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.

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To provide information you can use, Ascent's ARIS/FW flight watcher server analyzes FAA ASDI data stream, filters it to extract commercial flights, corrects inconsistencies, and stores the resulting time-stamped flight-parameter data in the ARIS/SmartBase database. The ARIS/FW flight watcher creates a set of records for each flight in the ARIS/SmartBase database and updates the records until the aircraft lands. Records are retained in the ARIS/SmartBase database for a fixed amount of time after landing and then cleared automatically. You can retrieve data for analysis and reporting from the ARIS/SmartBase database, and you can transfer data to external systems through the ARIS/SmartBus® communication middleware.

The ARIS/SmartBase database is indexed in a way that makes it possible to store data for all flights for which FAA ASDI data and data from other radar sources are available without degrading performance. Furthermore, the ARIS/FW flight watcher contains a secure high-speed data-distribution and communication mechanism that distributes real-time flight information to your ARIS/SmartBase database, which then distributes it to other ARIS products and, through the ARIS/SmartBus communication middleware, to external systems.

## Reports

The ARIS/FW flight watcher stores 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 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.

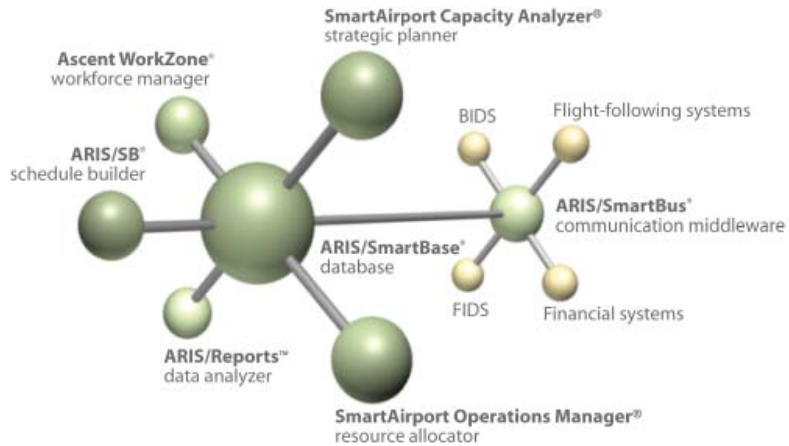
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### More information

To learn more about how the SmartAirline Operations Center or the SmartAirport Operations Center solutions can help you optimize your resources to greatest advantage, send email to [sales@ascent.com](mailto:sales@ascent.com) or call our Sales and Marketing department at +1.617.395.4800.

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Ascent airport architecture

## 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 in our IT environment in our hosting center.

**Database server:** A server that supports Oracle® Database Standard Edition  
**Compute and/or connectivity server:** A server running Microsoft Windows Server® operating system or Linux® operating system; if virtualized, our solutions are certified to run on VMware® server virtualization products

**Desktop:** A PC running Microsoft Windows Vista®, Microsoft® Windows XP, or Microsoft® Windows 7 operating system; or some versions of the Linux operating system

**Internet access:** To receive the continuous stream of FAA ASDI data, the ARIS/SmartBase database server installed at your site must be permanently connected to Ascent's ARIS/FW flight watcher server. The most cost-effective and secure approach is a VPN circuit over the Internet. A special encryption device connected to your ARIS/SmartBase database server ensures that only the ARIS/FW flight watcher server can transmit data to, or access, your local ARIS/SmartBase database server. To prevent data backlog during peaks, we also suggest you install a high-speed circuit, such as a T1, DSL, or cable modem connection. When we host your ARIS/SmartBase database server in our facility, we transfer the FAA ASDI data to your server directly without having it flow through the Internet.

### Notes

1. FAA ASDI data are generally available for aircraft positions above 5,000 feet in altitude. This means that data are generally unavailable immediately before an aircraft lands and immediately after an aircraft takes off. Some data may be incomplete.
2. FAA ASDI data provides estimated times of arrival (ETA) based on flight plan data processed by the FAA. ETAs may not take into account holding patterns, reroutes around weather, or changes in speed mandated by FAA traffic-flow management, among other factors.
3. FAA provides data on an as-is basis. FAA and Ascent provide no warranties, express or implied, related to the accuracy, completeness, timeliness, usability, and/or merchantability of the data and are not liable for any loss, damage, claim, liability, expense, or penalty, or for any direct, indirect, special, secondary, incidental, consequential, or exemplary damages or lost profit deriving from the use or misuse of the data.

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/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, 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, SmartAirport Operations Manager, SmartAirport Operations Manager (stylized), SmartAirport WorkZone, and SmartAirport WorkZone (stylized) are registered trademarks of Ascent Technology, Inc. ARIS/AR Display Board, ARIS/AR Turn Generator, ARIS/CA, ARIS/Reports, ARIS/SCR, Location editor, Reference editor, Resource editor, Rule editor, SmartAirline Capacity Analyzer, SmartAirline Operations Center, SmartAirline Operations Manager, User editor, Work schedule editor, and Worker editor are trademarks of Ascent Technology, Inc. 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. Revised 01/2012.

