

## ARIS/SL™ schedule loader



### Load and store SSIM flight-schedule information

The ARIS/SL schedule loader enables you to load flight-schedule information from a Source file and to save the information in the ARIS/SmartBase database or in the ARIS/SA slot allocator. The ARIS/SL schedule loader accepts Airline-wide schedule files in the format specified in Chapter 7 and Airport-centric schedule files in the format specified in Chapter 6 of the IATA Standard Schedules Information Manual (SSIM). The Ascent WorkZone workforce management system, the SmartAirline Operations Center solution, and the SmartAirport Operations Center solution all rely on accurate Flight schedule files loaded and stored in the ARIS/SmartBase database by the ARIS/SL schedule loader.

The ARIS/SL schedule loader provides simple intuitive screens that guide you through the process of choosing a schedule file to import, choosing where to store the schedule file, loading and naming the schedule file, selecting the Airport(s) for which the schedule applies, adding probable Turn information for the selected Airport(s) to the schedule file, and saving the schedule file in the ARIS/SmartBase database. The screens simplify information entry by providing lists of items, in the correct format, to choose from. The Summary at the top of each screen enables you to track your progress, and Advice blocks display brief explanations about the screen you are viewing.

### What the ARIS/SL schedule loader enables you to do

With the ARIS/SL schedule loader, you can:

- Load and save Airline-wide Flight schedule files in the IATA Standard Schedules Information Manual (SSIM) Chapter 7 message format in the ARIS/SmartBase database
- Load and save Airport-centric Schedule Clearance Requests (SCR) and Standard Movement Advice (SMA) messages marked with Action code N in the IATA Standard Schedules Information Manual Chapter 6 message format in the ARIS/SmartBase database

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## 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.

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- Load and save Airport-centric Schedule Clearance Requests (SCR) and Standard Movement Advice (SMA) messages marked with Action codes C, D, E, N, and R in the IATA Standard Schedules Information Manual Chapter 6 message format in the ARIS/SA slot allocator
- View problems in Flight schedule files, such as duplicate Flight legs operating on the same day and Flight records with Start dates and/or End dates outside the Schedule period, that may prevent the system from loading the Flight schedules and that should be fixed before you complete the schedule-loading process
- View problems in Flight schedule files, such as Airline codes, Aircraft type or subtype codes, Origin codes, and Destination codes that are not defined in the ARIS/SmartBase database, that do not prevent the system from loading the Flight schedule files, and that should be fixed so the Ascent Technology resource allocation products operate correctly
- Select the Airport(s) for which the system loads schedule records, and then generate probable Turn information for the selected Airport(s)
- Save the Flight schedule file for the selected Airport(s) by appending the file to an existing Flight schedule, or by overwriting an existing Flight schedule, or by creating a new Flight schedule.

After you load and save a Flight schedule in the ARIS/SmartBase database, you can use the Schedules tool in the ARIS/SB schedule builder to view and manage the Flight schedule. When you load and save SCR and SMA messages, you use the ARIS/SA slot allocator, which works with the ARIS/CA capacity analyzer, to view and manage the messages.

## How the ARIS/SL schedule loader produces accurate schedules

The ARIS/SL schedule loader checks both the syntax and the data validity of the Flight records in the Source file. The syntax, which is the layout of the fields in each line of the schedule file, controls how the ARIS/SL schedule loader interprets the text of the schedule and translates it into the elements of the Flight schedule, such as the Flight numbers, Start times, and End times. When the syntax of a line is not valid, the system may misinterpret the text elements and produce a faulty schedule.

Data validity checking ensures that the translated text is meaningful, given the Airport, Airline, and Aircraft type reference information defined in the ARIS/SmartBase database; the framework of the schedule file, such as the Season and the type of schedule file; and relationships between Flights, such as duplicate Flight numbers.

The ARIS/SL schedule loader performs syntax checking as it processes each line of the Source file because syntax errors can adversely affect the system's interpretation of the file. The ARIS/SL schedule loader performs data validity checking separately, usually after the system has read all the lines in the Source file. Representative validity tests include:

- **Aircraft type codes.** The system checks all Aircraft type codes in the Source file against Aircraft type codes defined in the ARIS/SmartBase database. When an Aircraft type code in the Source file is not defined in the ARIS/SmartBase database, the system displays a description of the problem.
- **Airline codes.** The system checks all Airline codes in the Source file against Airline codes defined in the ARIS/SmartBase database. When an Airline code in the Source file is not defined in the ARIS/SmartBase database, the system displays a

description of the problem. For records in SSIM Chapter 7 format, the Airline code problem is reported for both the Arrival Flight and the Departure Flight. (The system processes records in SSIM Chapter 6 format later.)

- **Airport codes.** The system checks all Airport codes in the Source file against Airport codes defined in the ARIS/SmartBase database. When an Airport code in the Source file is not defined in the ARIS/SmartBase database, the system displays a description of the problem.
- **Flight dates.** The system displays a description of the problem when the Start date occurs after the End date; when the Start date occurs before the Season Start date; or when the End date occurs after the Season End date. In addition, Start date must be one of the operating days specified by the days-of-operation field, and the End date must be one of the operating days specified by the days-of-operation field.
- **Flight times.** The system displays a description of the problem for a SSIM Chapter 6 format Turn if the Departure time is before the Arrival time and the Over-midnight indicator is missing or zero. Additionally, the over-midnight indicator is required to be in the range of 1 to 6.
- **Service type codes.** The system checks each Service type code in a Flight leg for validity. If it is not valid, the system screen displays a description of the problem.

When the system processes SSIM chapter 7 format records, the system displays descriptions of problems for all Flights in the Schedule file because the system performs data validity tests before you select the Turn Airport(s).

If you store the Schedule file in the ARIS/SA slot allocator Inbox/Outbox, the system stores data validity problems in the Inbox with the schedule. You then have the ability to modify the request to correct the problems.

When you install the system, you determine which types of problems in a Source file are serious enough to prevent the ARIS/SL schedule loader from storing the schedule and which types of problems are less serious. When you encounter serious problems, you must correct them in the Source file and reload the corrected Source file before you can save the schedule. When you encounter less serious problems, you can decide to correct the problems before or after you store the Flight schedule in the ARIS/SmartBase database.

## How the ARIS/SL schedule loader links arrival flights and departure flights

The word Turn refers to how an Arrival flight links to a Departure flight at an Airport. For example, an Arrival flight may be described as turning, or linking, to a Departure flight. Typically, the Source file defines some, but not all, Turns. Intelligent algorithms in the ARIS/SL schedule loader generate probable Turns for a selected Airport, which enables you to work with a Flight schedule prior to the time you receive actual Turn information from an Airline.

Probable Turns are the system's best guesses about Turns because the ARIS/SL schedule loader does not split original schedule records into different date ranges to accommodate Turns. When the ARIS/SL schedule loader creates a probable Turn, the Turn is valid for all days of operation that apply on either side of the Turn. In contrast, a Flight schedule that contains actual Turn information splits Flight records into different date ranges when linking Arrival Flights and Departure Flights to accommodate Turns.

The ARIS/SL schedule loader creates four types of probable Turns: Explicit, Onward Flight, Transit, and Unrolled. At each step of the Turn-creation process, the system considers only the effective dates of Flights that are not yet linked.

- Explicit Turn, which is a Turn already defined in the Flight schedule
- Onward Flight Turn, which is identified by a field in a Flight record in the Flight schedule that contains the Flight designator of the onward Flight
- Transit Turn, which links Arrival Flights and Departure Flights at the Turn Airport that have the same Flight number and Aircraft type
- Unrolled Turn. When unlinked Flights remain at the end of the first three steps, the system matches Arrival Flights with Departure Flights. For each Departure Flight, the system finds the most recent unmatched Arrival Flight that obeys rules for short minimum ground times.

## Representative features

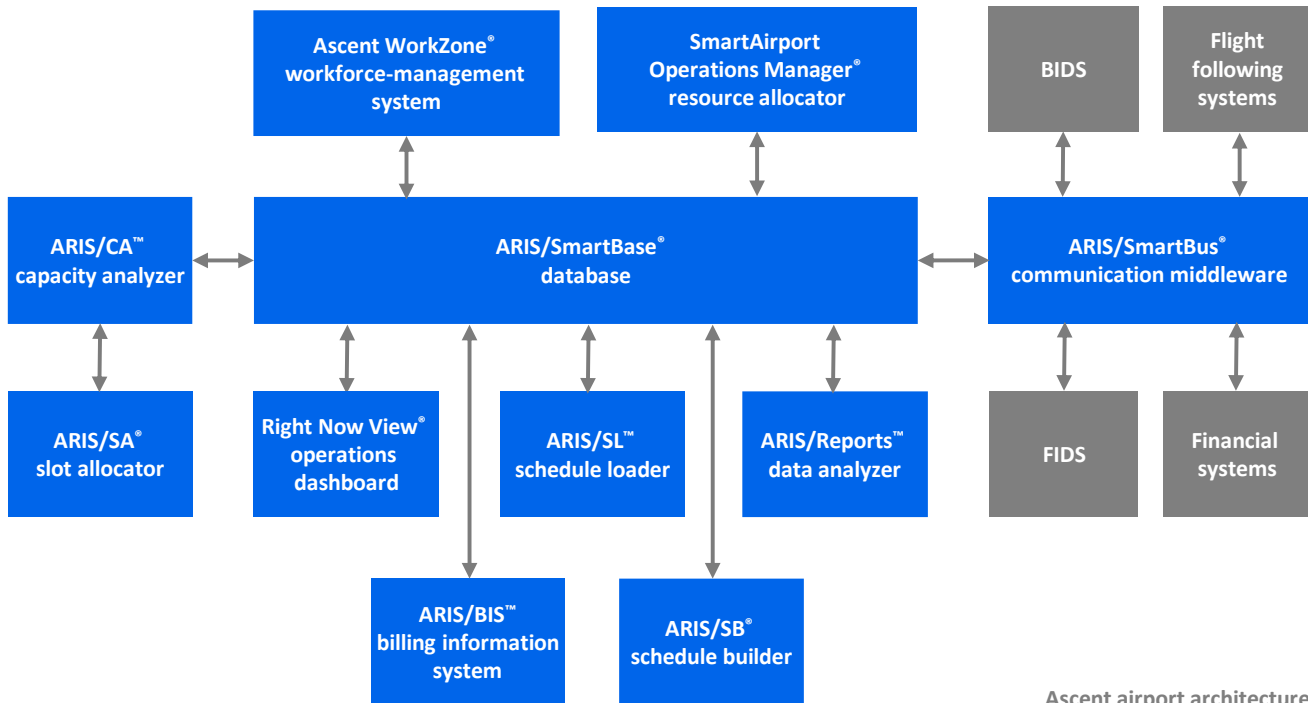
**Accepts SSIM Chapter 6 and Chapter 7 message formats.** The ARIS/SL schedule loader handles Airline-wide Flight schedule files in the IATA Standard Schedules Information Manual (SSIM) Chapter 7 message format, and New Schedule Clearance Requests marked with Action code N in the IATA Schedule Clearance Request (SCR) message format and Standard Movement Advice (SMA) message format (SSIM Chapter 6). It handles Airport-centric Schedule Clearance Requests (SCR) and Standard Movement Advice (SMA) messages marked with Action codes C, D, E, N, and R in the SSIM Chapter 6 message format.

**Checks flight records for syntax and data validity problems.** The ARIS/SL schedule loader checks both the syntax and the data validity of the Flight records in the Source file and displays the problems it finds. When your organization installs the system, it determines which types of problems in a Source file are serious enough to prevent the ARIS/SL schedule loader from storing the schedule and which types of problems are less serious, leaving it to you to decide to correct identified problems before or after you store the Flight schedule in the ARIS/SmartBase database.

**Links arrival and departure flights to create probable turns in the absence of actual turn information.** The ARIS/SL schedule loader enables you to create Flight schedules prior to the time you receive actual Turn information from Airlines. Sophisticated algorithms create probable Turns, such as by linking identical Flight numbers and Aircraft types and by matching Arrival Flights and Departure Flights that obey rules for short minimum ground times.

**Provides an intuitive, easy-to-use graphical interface.** The ARIS/SL schedule loader'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/SL schedule loader 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/SL Schedule Loader User Guide in a dialog that you can view at the same time you view the screen.

**Web-enabled for cost-effective rapid deployment.** You gain access to the ARIS/SL schedule loader using a standard web browser through secure Internet links and local networks.



Ascent airport architecture

## 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, email exchanges, and collaborative project management tools 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.

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#### **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.

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**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.



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

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