Standard Terminal Replacement System
Adaptation Data Standardization Working Group (SADSWG)
Terms of Reference

April 3, 2002

Background

This initiative will standardize key NAS adaptation data elements and parameters. It will then have those data elements approved as data standards by the NAS Configuration Control Board (CCB) and registered in the FAA Data Registry. This Terms of Reference or charter establishes a working group in accordance with the NAS Data Standardization Procedures[1]. The SADSWG will address difficulties recognized in the past several years with adaptation data including implementation difficulties for newly fielded systems (e.g. STARS[2]). There are several possible sources for viewing data elements in various formats, including STARS, NASR, and COTS offerings from various system vendors. Each of these systems and others use their own definition, format, name, description, meaning, precision, and other characteristics for the data elements, which leads to confusion. This inconsistency in characteristics or metadata about the data elements impacts the maintenance, data conversion, migration, and mapping of current and future systems that rely on adaptation data.

Adaptation data can be viewed as a unique fingerprint of airspace, geographical, equipment, and procedures required to make a generic air traffic control system work in a specific field environment. A fielded system involving air traffic will often need to have various parameters set in order for it to work at a particular airport at a particular physical location in relation to the runways, routes, and airspace that the system supports. Adaptation data includes parameters for hardware, software, performance, and user preferences. It contains aeronautical information such as coordinates (for runways, NavAids, radar systems, etc.), and air route and airspace definitions. It also contains air traffic control rules such as operating procedures, controller design logic and operational agreements. The data is sometimes confidential.

More standardized adaptation data will:

- Facilitate management and maintenance of systems involved in air traffic control. It will do this by reducing data inconsistencies. This, in turn, has secondary benefits to aviation safety.
- Facilitate deployment and updates of air traffic control systems
- Facilitate merging and analyzing data from systems at various locations
- Reduce adaptation maintenance costs
- Facilitate the establishment of adaptation data repositories (e.g. NAS Adaptation Services Environment - NASE)
- Provide a common understanding of data allowing improved data sharing and interoperability between systems
- Improve data quality through consistent metadata

There are about 1200 data elements within the scope of "adaptation data". There is no common metadata (format, meaning, etc.) for many of these data elements. The working group has identified an initial 400 to focus on. Recently, 32 adaptation data elements have gone through

[1] NAS Data Standardization Procedures, Draft, February 2002.
[2] Standard Terminal Replacement System – STARS.

the standardization process already. GIS data is viewed as a subpart of adaptation data. A recently launched GIS working group was started on standardization of GIS data.

The effort is meant to address adaptation data in general with a focus on benefiting programs like STARS and ERAM. However, since STARS is well along its development and deployment, the near-term efforts may not benefit from standardization.

While data standardization can help to reduce data quality problems in the long-term, this effort is not focused on correcting existing data quality problems in adaptation data. Data quality involves whether the actual data values are correct whereas standardization focuses on standardizing the metadata (data element name, data type [character, numeric, date, etc], length, definition, etc.). Data standardization is viewed as contributing in the long run to improved data quality. There are existing data quality efforts on-going for adaptation data that are outside the scope of this working group.

Scope

The scope of this effort is to develop data standards for STARS adaptation data that are used in National Airspace System (NAS) systems. The following categories of adaptation data have been identified as meeting the criteria identified in the NAS Data Standardization Procedures (draft) Section 5.2 (page 19) for data commonly used across multiple systems. Each of these has a number of associated data elements and the team will work to develop proposed data element standards.

1. System Plane
2. Airport
3. Runway
4. Hospital[3]
5. Radar
6. Test Target – radar related
7. Altimeter
8. Fix
9. Holding Pattern
10. Route
11. Boundary[4] - Terminal Area Boundary (TAB) or Area of Responsibility (AOR)
12. Map
13. General Terrain Map[5]

[3] Information about nearby hospitals is available to air traffic controllers in the event of an emergency.
[4] It is likely that the Airspace Working Group will address items 11 and others above.
[5] It is likely that the GIS Working Group will address items 12 and 13 above.

The work of this group will be coordinated with other data standardization efforts. This includes the GIS Working Group that had its first meeting in February and an Airspace Working Group that has recently circulated a draft ToR.

The adaptation data standards established by this Working Group will be presented to the NAS Configuration Control Board (CCB). The Working Group intends for these standards to become an FAA-wide standard adopted for all new FAA systems.

Action Plan

The Working Group members will:

1. Develop working group charter (or Terms of Reference)
2. Distribute list of data elements to team (initial list)
3. Prioritize
4. Assess available resources
5. Research aspects of system adaptation – includes research into existing data elements that are apparently the same or similar from different sources. This will involve data elements internal to the FAA (NASR, STARS, local systems, etc.), private sector systems (including COTS), and international data standards. Research will also examining the logical placement of the data elements in the data architecture, understanding the business use of the data, and describing the business benefit from standardizing the data.
6. Review and formulate – review all materials gathered in order to formulate draft data standard(s); Involves team member participation.
7. Data entry into FDR – enter candidate data standards into the FDR to initiate the FAA-wide review and approval process.
8. Review draft data standards through the process using the FDR and the appropriate review board. Determine if any modifications are necessary to the products developed for other standardization efforts. Recommend the FAA offices that will develop and/or maintain the identifiers and categories.
9. Develop additional items necessary for presenting proposal to the NAS CCB. This is likely to include work on another set of adaptation data.

Product Schedule

- Approve ToR – March 2002
- Identify data elements within scope – March 2002
- Register proposed data elements in the FDR.
- Develop any other material required for NAS CCB.
- Register and approve data elements in the FDR by August 2002

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Membership

Membership of the SADSWG will initially include the following active participants:

NAME	ORGANIZATION
Tom Fulcher **(WG Chair)**	AIO-300
Katie Bolczak	MITRE/CAASD
Darrin Donlan	AIO-5
Therese Smith	AIO-5 (Contr.)
Ed Hogan	ATB-230 (Titan)
Maria Killian	ATA-100
Rick Jordan	AIO-300
Bob Niedermair	AVN-500
Diana Young	ASY-100
Paul Martindale (FDR & MDR Administrator)	AIO-300
Burt Parker (FDR Registrar)	AIO-300/Paladin

Rich Jehlen ATP-400

Other interested parties are invited and encouraged to attend the meetings and participate in the workings of the SADSWG on an ad hoc basis.

Approvals

Dick Powell 4/2/02

Dick Powell, ATA-100 (Date)
NIAC Co-Chair

Bennie L Sanford 4/5/2002

Bennie Sanford, AUA-6 (Date)
NIAC Co-Chair

Thomas R Fulcher 4/5/02

Tom Fulcher, AIO-300 (Date)
NIAC Co-Chair for AIO