

ASAM Open Data Services

Overview for Managers



April 2004

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ASAM Open Data Services (ODS)

The Challenges of Maintaining Test Information

Testing managers are increasingly being squeezed between pressures for faster time-to-market testing programs and the increasing complexity of multi-vendor systems. The historically proprietary nature of testing systems has made it difficult to share testing data between systems, products, and labs. Adding new systems can be an integration nightmare caused by so many different data formats from different vendors working together. While standardizing on a single vendor for all testing tasks can ease this integration effort, the proprietary nature of these single-source solutions limits flexibility and choices.

One challenge is keeping information about tests relevant. Organizational and governmental regulations may require testing data to be kept for months or years. If the information about the test is not well documented, the test data may be called into question. Having a standardized way to describe meta-data such as testing equipment, channel information, measurement units, and physical properties allows for confidence in test data long after the test. In addition, modern query tools can utilize these standardized methods to enable sharing with a wider audience.

The restless nature of organizations has resulted in increasing use of outsourcing and re-organizations. This often impacts the ability of testing and Information Technology groups to retain the knowledge necessary to support the testing activities. It then becomes imperative to have a standard way of accessing and maintaining testing data.

IF THESE STATEMENTS APPLY TO YOU, THIS PAPER IS RELEVANT TO YOUR NEEDS:

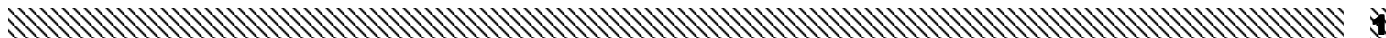
- You need to increase standardization in order to meet Reductions in time-to-market.
- You need a common data format for sharing data with suppliers or customers.
- The wealth of test data is underutilized because researchers cannot easily find all relevant information about the prior tests.
- You want to use an ISO standard that can be used by all your equipment vendors.
- The expertise for your test information systems was dispersed during your organization's latest re-organization or outsourcing
- Your test engineers manage their own test data in an ad-hoc fashion.
- Your test data is locked away in many proprietary formats.
- You are forced to use the analytical software provided by your test equipment vendor.
- You cannot easily compare test data between tests, between sites, or between systems.
- Your in-house standard for data storage has not kept up with diverse data types such as video, sound, PDF, etc.
- The 'standard' upon which your products are based is no longer supported by the software industry.
- Your testing system relies upon out-of-date information for descriptions of channels, units, and physical properties.

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“My Engineers spent as much time looking for test data as they did looking at test data.”

ASAM ODS User

“... being able to pull a column of data from 2-10 different files and graph them on another excel file is always the longest part of the process.”

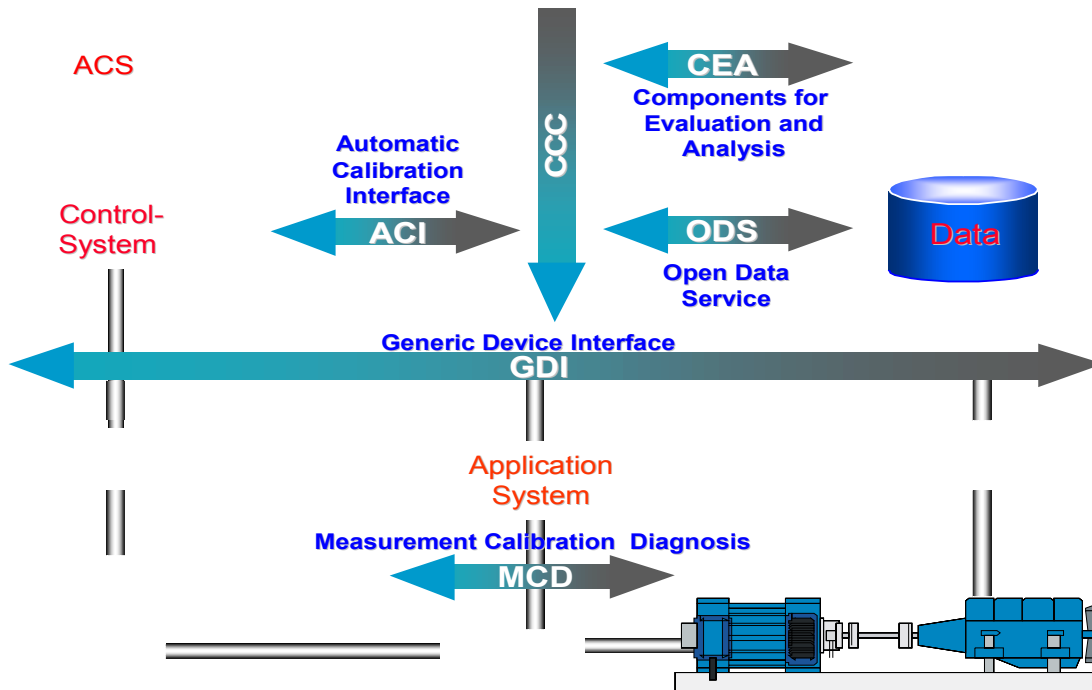
Research Engineer



Overview of ASAM ODS

ASAM Open Data Services (ODS) is the part of the ASAM family of standards responsible for storing and maintaining persistent testing data. It integrates well with the other standards as part of a complete ASAM – based solutions or it can be used alone as an effective testing data management solution.

ODS: ASAM's Standard For Persistent Data Storage



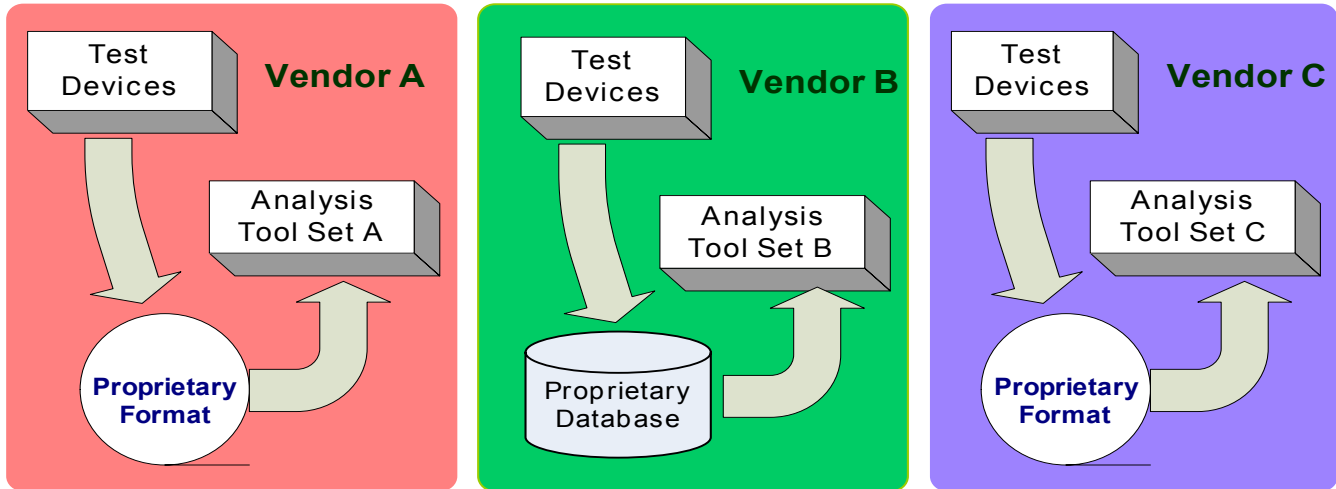
The ASAM family of standards originated in the European automobile industry as a method to increase standardization in the field of automated testing. Since its early days, its scope has grown beyond its European roots to become an ISO standard and is used in a variety of industries. The goals of the early designers are still at the core of the standards. They are:

- Reduced costs through the use of standardized components,
- Reducing the risks associated with acquiring new automated testing systems,
- Increasing the ability to get testing data to the people who need it, when they need it, and in the format that they need it – regardless of its source,
- Improved information exchange between different projects, departments, and suppliers
- Platform, operating system, database, and vendor independence

What Are The Benefits Of ASAM ODS?

ASAM Open Data Services (ODS) is just one part of a family of standards designed to provide benefits to the testing community through the use of common methods for acquiring, storing, describing, and accessing testing data. These common methods allow providers & consumers of testing-related solutions to benefit through reduced costs, reduced risk, shortened implementation cycles, and increased sharing of data.

Proprietary Vendor Solutions Make Sharing Data & Analysis Tools Difficult

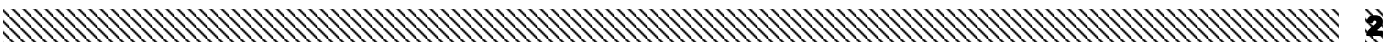


By using products that adhere to the ODS Standards, companies can free themselves from the proprietary approaches used by many manufacturers. These proprietary approaches made it very difficult, time consuming, and expensive to share data between different projects, suppliers, departments, or systems. As testing solutions become more complex and require components from multiple manufacturers, it becomes imperative that the products adhere to a common standard to ease integration. Previously, the only options for system integration were to buy complete packages from one vendor or to spend considerable time and effort combining the best available products into a cohesive system. ASAM ODS allows the best products to be integrated with less effort because they are designed to work with a standard. Many organizations that have paid the price of supporting myriad proprietary, closed systems have now specified that those days are over and that they will now support only one standard – ASAM ODS!

In many organizations, testing data is underutilized because there is a lack of standardization for how data is acquired, described, stored, or maintained. With ASAM ODS, the standards can be used so that data can be easily found and their self-describing nature help ensure that the information surrounding the test is recorded so that the results may be properly evaluated.

Supplier organizations are quickly learning the benefit of making their products ODS compliant. By making their products ODS-compliant, they can focus on processing the data obtained via the ODS API rather than maintaining a proprietary data format. By opening up their products via the ODS Standards, suppliers are able to expand their potential customer base to include the organizations that require ODS compliance.

Because ASAM ODS is neutral regarding hardware platform, operating system, database, and vendors, its long-term success isn't tied to today's technology. It is a standard that is continuously evolving to better meet the needs of the testing community.



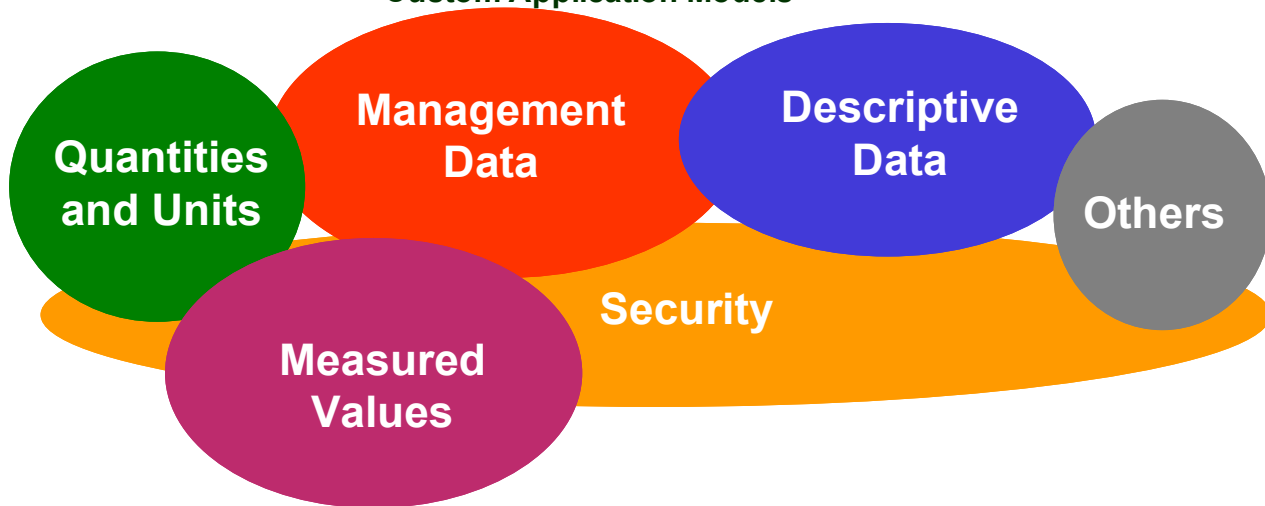
What is ASAM ODS?

ASAM ODS defines data models, interfaces, and methods for the storage, interpretation, and exchange of measuring and automation data.

The core element of ODS is the template for describing test information called the ODS Base Model. This basic data model is a design pattern that is flexible enough that it can be extended to meet the needs of virtually any testing environment. The Base Model uses predefined object types to contain data commonly used in the testing arena and it has evolved over the years to reflect the invaluable expertise of the ASAM ODS testing community.

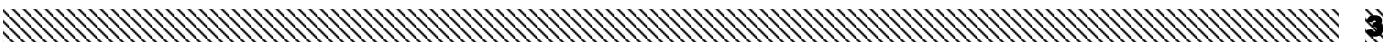
The Base Model is extended and customized into customer-specific Application Models. These Application Models are essentially the schema or description of an application. Because the data is described using this standard approach, data meanings are explicit rather than hidden. ODS-compliant software packages can utilize the senseful information in the Application Model in order to provide useful information to the user.

ODS Base Model: A Standard Template – Yet Highly Extensible Into Custom Application Models



Another key element of ODS is the Application Programming Interfaces (API) that allow ODS-compliant applications to access and maintain information about tests. By requiring programs to access the testing data via an API rather than directly from the database, a level of transparency is introduced. By allowing ODS-compliant applications to focus on the generic API rather than on a proprietary database, these applications can be from any vendor. Customers are now free to choose the products that best fit their needs rather than being locked into proprietary solutions.

The ASAM ODS Transport Format (ATF) is a convenient mechanism for storing or sharing test data. These self-describing files contain the Application Model and descriptive information about the test as well as the test data. Many popular software programs can import and export ATF files. The self-describing nature of ATF files makes them a perfect solution for archiving test information.

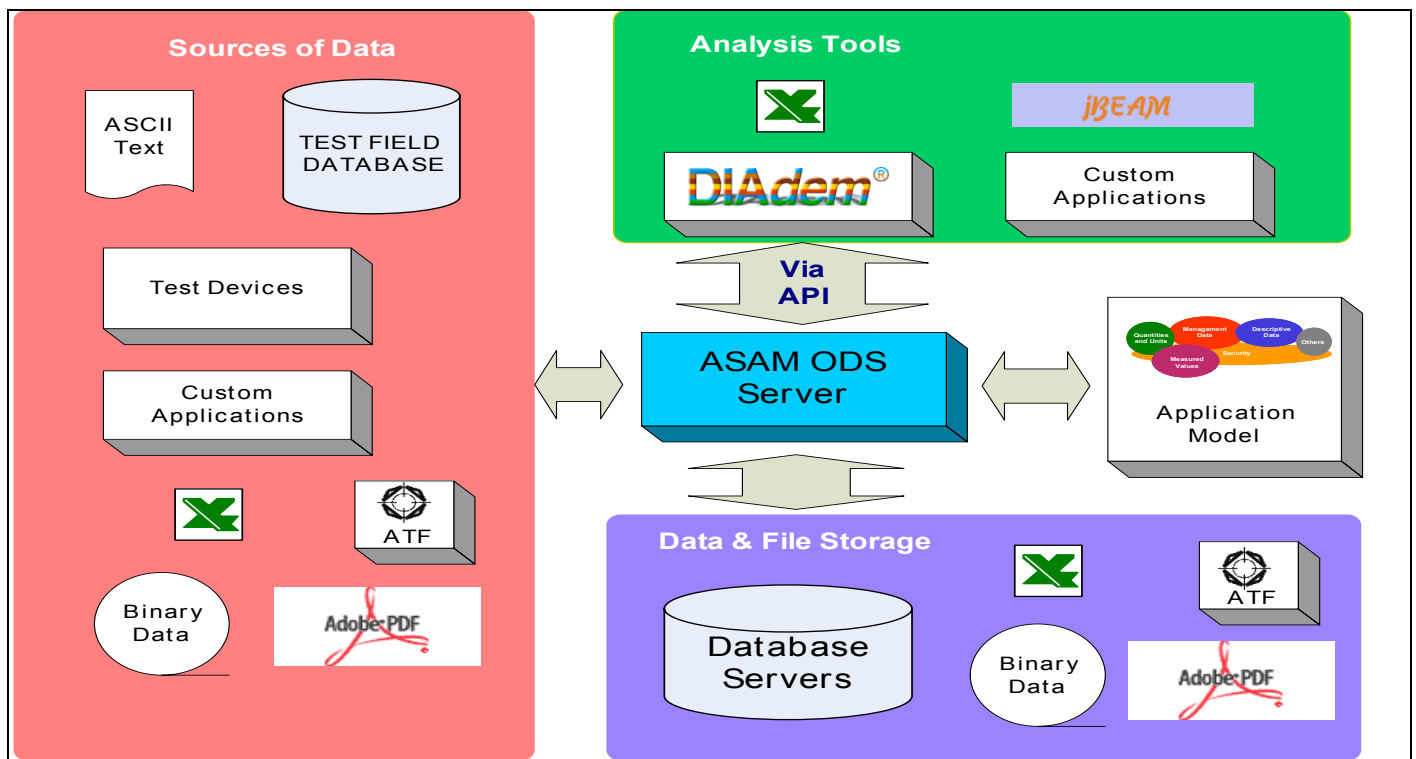


How ASAM ODS Works.

One of the primary reasons that ASAM ODS is so effective is the transparency of testing data offered by its Application Programming Interface (API). Application software such as analysis tools can utilize the API to obtain the testing data and information about the tests from an ODS server. By placing the ODS server between the applications and the data, the applications are free to concentrate on processing the data rather than the complexities of managing data in so many different formats.

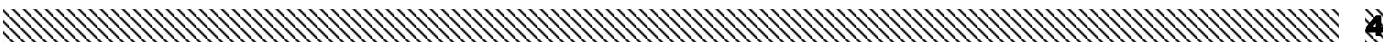
The analysis tools and client application programs connect to the server using the ASAM ODS API. The applications can query the server to see which Application Models are used by the server and to obtain very detailed information about the Application Models. The application programs can then use this information to start obtaining testing and measurement information.

The API Sits Between The Applications And The Data To Provide Data Transparency



The ASAM ODS server is responsible for interpreting the requests of the application software and obtaining the necessary data to provide the results in order to satisfy the request. ODS servers are capable of storing a wide variety of data types and sources. The servers use the Application Models to get specific instructions on what types of data are allowed and how they are to be stored. The ODS specification allows for very efficient physical storage methods.

Testing & measurement data comes in a wide variety of types and styles. The ODS specification has a great deal of flexibility for handling today's data types and for now as well as the foreseeable future.



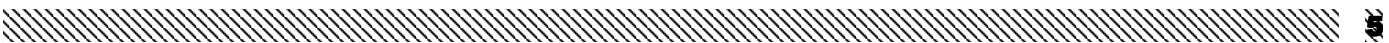
How Is ASAM ODS Used?

One of the key benefits of ASAM ODS is its ability to share data from different systems using common tools. In the past, combining data from multiple vendors and/or systems could result in a very complex integration effort. With ODS, the integration is greatly simplified.

In the example given below, 5 channels of data from 3 different vendors were taken during a test. The data sets from each vendor are stored separately. Prior to ODS, a problem like this would require an application program to open all of the data files, to manually combine the data. It would also take custom programming for each of the data files to be read so that the data could be obtained properly. With ODS, it does not matter if the data is in a database, binary files, or even ASCII text files. The type and location of the data is made transparent to the client applications. The ODS server uses the information in the Application Model to determine how & where to obtain the necessary data. The server returns the desired data to the client application. Regardless of the type of storage or the original vendor, the ODS API allows the entire set of results to be assembled easily. This allows client applications to focus on the nature of the data rather than the on the mechanics of obtaining the data.

ODS Integrates Data From Multiple Vendors / Systems Easily

		Time	Channels				
			A	B	C	D	E
A B		0.1			xxxx	xxxx	xxxx
		0.2	xxxx	xxxx	xxxx		
		0.3			xxxx		
C	ODS Server Via API	0.4	xxxx	xxxx	xxxx		
		0.5			xxxx	xxxx	xxxx
		0.6	xxxx	xxxx	xxxx		
D E		0.7			xxxx		
		0.8	xxxx	xxxx	xxxx		
		0.9			xxxx		
		1	xxxx	xxxx	xxxx	xxxx	xxxx



Who Can Benefit From Using ASAM ODS?

While ASAM has its origins in the automated testing departments of the European automotive companies, it has expanded geographically and to myriad other industries. In 2004, as ASAM ODS completes the process of becoming an ISO Standard, the list of industries where ASAM ODS is being used continues to grow.

Any organization that wishes to reap the benefits of basing its test data management upon an ISO standard is a good candidate for using ASAM ODS. Current and potential uses include:

- Automotive testing,
- Aerospace,
- Petrochemical,
- Pharmaceuticals,
- Environmental,
- Medical,
- Simulation

