

Vitature[®] Technical Brief

Vitature[®] is the cloud-based SaaS (software as a service) application for supporting raw material compliance. Each customer receives their own Vitature subdomain, as well as their own physical database.

What This Brief Covers:

- System Architecture
- Application Architecture
- Data Storage
- Reference Databases

System Architecture

Hosting

Vitature is hosted on Amazon Web Services—the best-in-class for cloud-based solutions. Vitature is also mirrored to a failover environment on Microsoft Azure. Frequent updates of customer data are log-shipped to Azure, minimizing data loss in the case of a catastrophic event.

Monitoring

Vitature is monitored externally for potential failures. Alerts are sent to technical personnel who respond quickly to troubleshoot issues and switch to Azure if necessary.

Application Architecture

Authentication

Microsoft Web Security is used for form-based logins, providing secure and reliable user authentication. Passwords are stored as a one-way hash using the latest cryptographic algorithms—this means even Healthnotes' personnel cannot determine user passwords.

Secure Access

Vitature access is secured via SSL and TLS. This encrypts all requests made to and from customer's browser to our servers, making it impossible to decipher information "on the wire." An HTTP Strict Transport Security (HSTS) header is also used to protect from man-in-the-middle spoofing.

Threats

All of the Open Web Application Security Project's top-10 security threats have been addressed, including the following common threats:

- **SQL Injection (SQLi)**
 - SQLi protection is provided by our proprietary data adapter layer and parameterized queries. All data is accessed through this layer, eliminating the possibility of SQLi hack attempts.
- **Cross-Site Scripting (XSS)**
 - Script is not allowed in data entry fields, and all requests are validated via ASP.NET request validation, eliminating the possibility of an XSS attack.
- **Cross-Site Request Forgery (CSRF)**
 - All client-server requests use anti-forgery tokens to ensure they are being made from the correct source.

Data Storage

Databases

Vitature uses Microsoft SQL Server as its primary storage service. Each customer gets a separate physical database; the subdomain used within Vitature determines which database is used.

Objects

Vitature employs an object-based architecture to ensure all data is stored and retrieved in the same manner.

The primary objects in Vitature are:

- Materials
- Supplier Materials
- Suppliers
- Bulk Formulas

Data Fields

All objects can contain unlimited data fields. Data field values are saved immediately upon entry with the authenticated user's identifier, as well as the change's date and time. A historical list of changes is kept for each data field, ensuring a complete digital audit trail report can be pulled any time, for any object.

Documents

Documents are stored logically using SQL Server's FileStream feature and are included in all database backups. A complete history of document versions is kept, and each version is associated with the user that created it and/or updated it.

Electronic Signatures

Vitature requires authentication for all access, and all changes are tracked with the authenticated user. In certain situations (e.g., approving a material), an additional level of authentication is required; here, the user is asked to re-enter their password to confirm they are the user that logged in originally.

B2B Data

Vitature customers can request qualification information from suppliers. Suppliers are required to authenticate in a manner similar to Vitature customers. All data is stored within the requesting customer's database, and all changes are versioned and associated with the authenticated supplier.

Reference Databases

Healthnotes[®] maintains various databases that are updated regularly as part of the Vitature release process. These databases cannot be modified by any Vitature customer.

Supplier Database

A comprehensive list of suppliers providing supplement-related ingredients. Included are supplier's names, addresses, websites, other contact information, and, for many, product catalogs.

Science Database

A list of studies (primarily from PubMed) that have been processed through our proprietary tokenizer to identify those with a high-degree of relevancy to supplementation. Studies are associated with Vitature Smart Ingredients and MeSH-based health topics, providing a uniquely useful way to search for, and filter, relevant studies.

Product Research Database

Currently in beta, contains the majority of supplement products on the market, with additional meta-tagging. Ingredients on the Supplement Facts panel are processed through our tokenizer to associate them with Vitature Smart Ingredients.

Smart Ingredient Taxonomy

Our proprietary database composed of a complete taxonomy of supplement-related ingredients with regulatory information.

Backup

All database changes are copied hourly to a different hosting facility using SQL Server's log shipping feature. This ensures a duplicate copy of the database is maintained in a secured facility and can be quickly restored in the case of a catastrophic event.

