



## VortexDNA Technology Primer

### Introduction

VortexDNA is a technology that enables an improved match between one or more users, or a user and another object (such as a URL or product line), based on alignment with the user's purpose and values.

Each user and object in the VortexDNA database has an associated 'Genome' – a 7 or 35 digit code that represents the data collected from surveying users and from browsing decisions made by users who have a similar Genome. Two users who have the same Genome have a very high alignment in their purpose and values. Two objects with the same Genome will have a high similarity in the users who are likely to choose that object.

### User Participation

The VortexDNA system needs to create a 7 digit *genome* for a user in order to make recommendations. This can be done by taking a survey or, once there are enough data points have been collected from the client's URL universe, through real world usage.

### Signup and Survey

To calculate a user's Genome, VortexDNA relies on surveying the purpose and values of a sample of users. For Web sites that have integrated VortexDNA into their system, a one-way hash on the user's email address (or other unique token) can be compared to the user Genome database to determine if the user already has a Genome calculated.

If the user does not have a Genome, two options exist:

1. The user may be redirected to a custom page on the VortexDNA site. They will perform their survey, and be returned to the client's site, along with their calculated Genome. The client may then update their database immediately (the Genome will also be provided to the client in the next update).
2. Once a statistically significant proportion of the population is actively using the VortexDNA system, VortexDNA is able to overlay the habits of surveyed users upon those that are not using the VortexDNA system, creating an 'Idealized Genome' of fully anonymous users.

### Real World Usage

Once a user is set up in the VortexDNA system (either as a full surveyed user or as an Idealized Genome), the activity of the user is monitored by their click trail (or other system more specific to the client). This enables the VortexDNA system to determine how the user's Genome relates to the object being clicked (based on similarities between Genomes choosing a particular object).

For this reason it is important that information is returned regularly from the client system.

## Database

There are 3 primary aspects to the technology supplied by VortexDNA: Data Supply, Algorithms, and Data Collection. All are critical to using the system successfully.

### Data Supply

VortexDNA will supply a client site with two primary data feeds:

1. A mapping between all the hashed user email addresses (or other hashed identifiers) and their associated 7 digit genome
2. A mapping between all the objects (identified by a URL) and their associated 35 digits genome.

Initially the client will be provided with an initial snapshot of the entire database, either in CSV (preferred for compactness) or XML formats. A custom format may be supplied on request. The initial snapshot will be supplied on one or more DVDs, on other media as specified by the client, or by secure transfer over the Internet.

The client may compare the email addresses of their users with the user database by performing a one-way hash on the email address (or other unique identifier), and comparing to the user Genome database.

Subsequent updates may either be pulled or pushed to the client, in a manner best suited to integration with the client's system. Subsequent updates will be supplied incrementally – only minimal data will need to be transferred in comparison to the original update.

The client may manipulate and store the data in any manner they wish, to best integrate with their existing system.

### Algorithms

VortexDNA will supply a client with the algorithm required to perform a user:user match and a user:object match – no calls to VortexDNA servers are required for time critical operations. Sample code will also be supplied – an implementation may be provided in almost any language upon request. The client may choose how to apply the algorithm in the most efficient manner for their database.

### Data Collection

In order to provide improved matches, VortexDNA must collect data from the client. The data required is a simple list of which objects have been requested, associated with the hashed unique identifier of the client that requested the object (the object might be a link, or a product, or something more specific to the client).

## More Information

Richard Waid, Technical Director  
[richard@vortexdna.com](mailto:richard@vortexdna.com)

Branton Kenton-Dau, Director  
[branton@vortexdna.com](mailto:branton@vortexdna.com)

Nick Gerristen, Director  
[nick@vortexdna.com](mailto:nick@vortexdna.com)

Raf Manji, Director  
[raf@vortexdna.com](mailto:raf@vortexdna.com)