



# DataPipe Product Overview

## EHS Information Management Software

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 **DataPipe™**  
*The Complete Information Management Software Solution*



**OCCUPATIONAL HEALTH  
AND MEDICINE**

**ENVIRONMENT AND  
WASTE MANAGEMENT**

**INDUSTRIAL HYGIENE  
AND SAFETY**

**Microsoft®**  
**CERTIFIED**  

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*Partner*

**ISV/Software Solutions**

## DataPipe Overview

Knorr Associates was founded in 1979 and has over 25 years experience providing an easy-to-use, modular software solution for collecting and managing EH&S information. Over the years this knowledge evolved into DataPipe™, the complete information management software solution for professionals in the EH&S fields. DataPipe is accessible from the Web or Windows, offers point-and-click reporting, data exchange with external systems and software, automated email notification, triggered events, extensive customizing capabilities, risk management, compliance reporting and more. DataPipe software easily meets the needs of today's and tomorrow's EH&S business requirements.

## Knorr Associates Inc.

Knorr Associates Inc. is an experienced software development firm with specific expertise in the areas of Environment, Health and Safety (EH&S). The company has a 25+ year history developing and marketing advanced EH&S Data Management Systems and related instrument interfaces to businesses and organizations worldwide.

## Company & Product History

Founded in 1979, as a safety engineering and consulting firm, Knorr Associates Inc. was one of the first companies to provide EH&S computing solutions. In the 1980s, the company developed computer interfaces for industrial hygiene instruments and offered its first multi-user, modular EH&S software program based on the UNIX operating system. It used an enhanced PC as a server with "dumb terminals" as workstations. In 1989, DataPipe, the very first Windows-based EH&S data management system, was introduced by Knorr Associates. Since then, DataPipe has been implemented by both commercial and governmental customers, at locations throughout the U.S.A. and worldwide. The company also provides related training and application consulting services, supporting clients in the areas of data collection, analysis and reporting.

## What is DataPipe?

The latest .NET version of DataPipe is the third generation EH&S software solution offered by Knorr Associates Inc. It's a multi-tier Web-based application truly designed for global use, offering more than one hundred general and very specific modules for EH&S data collection, risk assessment and compliance reporting. The system is built entirely with Microsoft .NET managed code, and utilizes advanced technologies and programming tools for designing, developing and operating Web-based programs and services. Engineers at Knorr Associates participated in the first .NET "beta" testing program, and continue to work directly with Microsoft as a partner and solution provider using .NET for the continuing development and improvement of the "next generation EH&S solution."

## Architecture

DataPipe is a multi-tier or n-tier application.

### *Tier 1:*

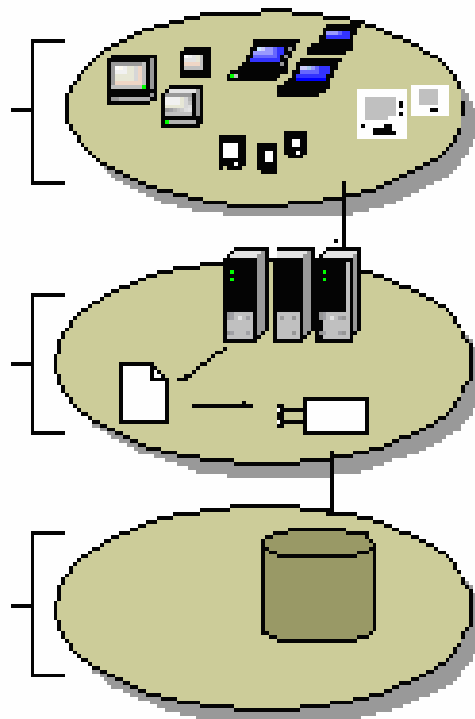
In a multi-tier system the first tier or "Client" includes the entire user interface. Since DataPipe is a Web-based application, users typically access and interact with it using a Web Browser (Internet Explorer), from their workstation, laptop, PDA/handheld or tablet computer. However DataPipe may be accessed as a native Windows application as well. You choose, by user, how you want to access it.

### ***Tier 2:***

The middle tier is the IIS Server and Web Services part of the system. It resides on a Web Server or Servers and provides the business logic and the rules that govern the application. This tier acts to connect the user at one end with the data at the other.

### ***Tier 3:***

The third tier is the "Data Services" part of the system. DataPipe is database independent, which allows customers to select and use their preferred database.



## **Database Independence**

DataPipe allows customers to choose their own "backend" database. We provide the data definition language commands to create the necessary tables, fields and relationships. The databases that have been tested with the system at this time are Oracle, DB2 and SQL Server. The data base specific programming is modular, so we can easily expand to additional databases when market demand dictates.

## **Web Enabled**

DataPipe can be run as a browser-based application using Internet Explorer as the browser and it can also be run as a native Windows application, even within the same organization. It's "firewall friendly" because it uses HTML, XML, SOAP and other "friendly" protocols. How users interface with the system really depends on your organization's infrastructure and the choices that you make regarding access to the Internet, firewalls, Intranet, application servers, etc.

### System Flexibility and Customization

#### *Data Security*

DataPipe provides a layer of security and data access permissions in addition to what you set up in your operating system, network and database. It prevents overriding any restrictions that you've set up at these primary levels. DataPipe requires a username and password for any user logging on to the system, and may be customized on a per-user and per-form basis as to what data access is allowed. The system administrator (SA) or database administrator (DBA) can fine-tune very specifically who can see and do what in their DataPipe system.

#### *Defining Database "Views"*

Unlimited numbers of "views" for single users or user-groups can be defined in your database. These user-specific views are basically sub-sets of the "master" database tables. For example, one may want to limit a user or user-group to seeing data from a single plant, even though information from all plants is in the master database. You can control and limit data access for every user on every form in the system, if desired. Database views provide an added level of security without a lot of complicated database partitioning.

#### *Form Customization*

DataPipe comes with a Developer Kit called the Form Designer for customers wanting to increase system flexibility through form customization. The Form Designer allows for making form property changes and for building form template libraries. Unlimited numbers of unique form templates can be developed, providing custom versions for user-groups or even down to the individual user level. The system administrator selects which version of a form to use for a particular user, and the next time the user logs on and loads that form, the underlying data will be presented through the new form layout. Here are a few of the major ways in which a DataPipe form can be customized:

- Labels – The text labels for fields can be changed to provide user- or group-specific descriptions or terminology. Further, the language used for labels can be different on different versions of a form.
- Add Lookups to fields so that they can be validated to a table of data.
- Edit drop down lists so that you can add or remove choices that a user can pick from when they click that field. Remember, as with any form you can customize this by user if you want. Meaning that each user can theoretically have their own drop down list.
- Multi-language option - The DataPipe Form Designer can automatically **translate** text labels from one language to others using a master dictionary that you can configure.
- Move Fields/Position – Where labels and data fields are located on a form can be arranged to suit the specific information that individual users need to work with.

- Hiding or Removing unused fields – If a user doesn't need to see or isn't authorized to see certain fields, his/her version of a form can have these fields removed from view, with a few exceptions. A large form like Injury & Illness could have one version for someone who enters all the data and other versions for people who just need to look up and see certain fields of information. The unused fields would not appear on the second version.
- Custom help – Hovering the mouse pointer over a field shows user-specific help messages. This class of help message is often referred to as Tool Tips or Balloon help.
- Edit Masks – Specify the format of valid entries in fields. A U.S. Social Security Number has a particular format, ###-##-####, that is often used for employee IDs. This can be different from the employee ID used in Canada, or France or Argentina. Depending on where DataPipe users are based, they may want to be able to have different edit masks for different fields.
- Colors and Fonts – The character font and the colors used for labels and data fields on a form can be customized.
- Easily add Custom triggers to forms. They can be field level or form level triggers that fire based on choices you make.

### ***Organization Flexibility***

We've developed a method to allow information in DataPipe to mirror the structure of your organization. DataPipe has up to 10 fields that can be dedicated to matching an organization's actual structure of hierarchical management-responsibility levels and/or physical locations (i.e. region over facility over department over rooms, etc). Each organization can decide on the names of these fields and which is arranged under which. That is, how your divisions, plants, sites, areas, departments, jobs, warehouses, clinics, etc. are associated. The basic arrangement only needs to be set up once, but DataPipe gives you the ability to define different arrangements for different date ranges, so you can deal with reorganizations or other structure changes when necessary. Of course, custom labels and access, as described above, apply; so different users could see different subsets of the same structure, with different field labels, as appropriate. User-specific versions of forms and database "views", combined with the ability to customize organizational set up, provides unparalleled system flexibility in an off-the-shelf data management system.

### **Reports**

There are three primary classes of reports available within DataPipe, Ad Hoc, Crystal and Advanced. Many modules come with ready-made Advanced Reports. For example, the Injury & Illness module includes the OSHA 300 Log and Summary report as well as the OSHA 301 Incident report.

#### ***Crystal and Advanced Reports***

These report types offer powerful tools for combining any and all information in DataPipe. Crystal Reports™ is a well-known reporting tool provided by Business Objects. DataPipe has a built-in interface for running reports developed with this tool, as well as for running reports in the form of compiled .NET executables (dll or exe files). However, there are additional capabilities for advanced reporting from DataPipe without the need for third-party applications. Any text editor can be used to produce report files in the VB.NET, C#.NET or JScript.NET language, as long as a standard format is followed. The reporting interface in every DataPipe form will also run reports of this type. Advanced Reports can output to other applications like Microsoft Excel, or send emails. They can also insert information into

word processing files or into graphics and statistical programs. We provide the programming code for developing Advanced Reports and additional tools and training courses are available. We can also develop reports for you, if you would like, but we don't hold you hostage to that option.

### ***Ad-Hoc Reports***

Ad Hoc Reports offer simple "point and click" capability where the user defines the columns of output by clicking on the fields to be included. Available features include:

- Basic statistics (averaging, maximum, standard deviation, count, etc.).
- Sorting output by multiple fields.
- Filtering output data.
- Grouping capabilities (by any fields).
- Ability to define calculated columns.
- Formatting capabilities.
- Selectable output designations.
- And joining data from multiple related modules or forms.

### **Scalability**

This term refers to a program's ability to efficiently handle the possible addition of large numbers of new concurrent users. Web-based applications ideally can be "scaled" by adding additional application servers (the "middle tier") when better response is needed for more users. However, an application has to be designed to use a "server farm" or it won't take good advantage of the added hardware. DataPipe is designed from the ground up for optimum scalability.

### **Performance**

Response time has been a critical part of the DataPipe system development process. Consequently, we've done a lot of testing to optimize how information is retrieved. We see considerably different response times from different DBMSs because of the record retrieval tools they employ. Our performance testing process has included using large amounts of data, not just a few records. For example, our test personnel database has 500,000 employees. Available bandwidth/connectivity issues often play a major roll in whether or not users experience satisfactory response times.

### **Data Validation**

Many Web-based forms require that an entire page be filled in before "submit" is clicked. Only then does the user find out whether there is a problem with the data that was entered. In DataPipe, field-level validations that act immediately when data is entered into each field are a reality. This provides for instantaneous feedback. We also do immediate "lookups" into referenced database tables. Like other parts of DataPipe, lookups can be customized; the selection, order, and labelling of the reference data shown (which may include database "views") are all up to you. When combined with the use of custom form versions, lookups may even act differently for individual users of the same form.

### **Spelling Check**

DataPipe has the ability to have text fields “spell checked,” with support for multiple languages.

### Quality Assurance

DataPipe software quality is achieved and maintained by several methodologies used in various parts of the software development and delivery process. Depending on which aspect one is interested in, one or more of the following items apply:

- Requirements and component design are developed using various commercial software tools, including Power Designer.
- Source code control systems are used.
- Finished code is independently QA tested against requirements by someone other than the person(s) who developed and tested the code
- Object oriented methodologies are built in to DataPipe’s Core, so reporting tools, importing and exporting data, data validation dialogs, menus, etc. do not need to be coded over and over. The extremely stable Core has a heritage extending back over 10 years of testing and use.
- Copies of each customer’s various systems, by version, are maintained here Software updates are individually tested against each customer’s system, both the update itself and the update process.
- We are continually analyzing and improving our project management and software QA processes.

### Technical Support and Maintenance

The 6 months of technical support and maintenance is included with the initial system license. Then a technical support and maintenance agreement is available for an annual fee for providing continuing technical support and updates. Changes to in-place DataPipe systems are typically made by providing update processes to the customers. These updates may add or replace files (in the case of program, form or regulation changes) or make database modifications (in the case of changes to the underlying database). We historically have not removed fields of information from the database, only added new fields. Ongoing, routine support is typically handled by telephone, e-mail and/or direct connection (with appropriate security). In this way, we have been able to reliably support customers around the world, from Europe to the Americas to the Pacific Rim. With appropriate access permissions, we also sometimes remotely access customers’ systems to “look over their shoulder” at a running system to assist in analyzing problems.

### Data Conversion

Conversion of existing data to DataPipe, whether it comes from a customer’s current database system, Microsoft Excel or Access files, or a data collection instrument, is a service we offer. Some customers choose to do these themselves, utilizing tools provided in DataPipe and other applications. However data conversion is rarely a matter of just taking a file and importing it. Knorr Associates was founded in 1979 to interface small computers to EH&S instruments. We have considerable experience in data importing and conversions. Someone knowledgeable in the content, the customer’s subject matter experts (SMEs), must be involved in the process to make decisions about what data in the old system(s) are to go where in the new system. Individual data fields may need to be re-formatted, split apart, combined or otherwise manipulated before they can be inserted into the new system. A conversion should be viewed as an opportunity to make needed changes to processes as

well as data, perhaps not simply continuing in “the way we’ve always done it.” In an integrated data system converging many different kinds of EH&S information, things will be changing, if only by allowing integration of information formerly maintained in separate, unconnected systems. The schema – database fields, etc. – of a DataPipe system can be provided to the customer in several formats. Typically an ER model of the entire database, DataPipeERModel.html, is provided initially and also at every system update. Simple field-to-field mappings may allow directly importing the old data into appropriate locations in the new system. More complex processing on the data may require one-off programs to do the necessary manipulations on the data as part of importing it into the new system. Nearly every customer deals with data conversion issues; it is something we are accustomed to, and we work towards a solution that meets the customer’s needs.

### **Installation and Training**

A joint Knorr Associates Inc. - customer team typically installs DataPipe systems. This is usually done as part of the initial System Administrator (SA) training. DataPipe SAs are people who will typically maintain the system by adding new users to the security module and providing access to the database, making updates and otherwise generally supporting Users. SA training is typically followed by two to three days of training for a core group of users. Hands-on access to the system, PowerPoint presentations and handout materials are utilized in the training process. Source materials for the PowerPoint presentations and handout materials are available to the customers who want to do their own training, or Knorr Associates Inc. can conduct training classes at locations and dates chosen by the customer. We have provided DataPipe installation and training throughout the world. In addition to the training materials, DataPipe documentation consists of on-line, cross-referenced manuals – with many “screen shots” and examples – for System Administrators, DataPipe End Users, and users of the DataPipe Form Designer.

### **New Modules**

New Modules come about due to new or modified regulations, or a desire to deal with new kinds of information. The design of DataPipe is such that additions or changes were anticipated, so the underlying engine was built for these contingencies. Change (including new forms for existing modules, as well as completely new “from-the-ground-up” modules) typically takes place by exchanging information on a regulation, report and/or customer needs. In the latter case, experienced DataPipe users will submit a spreadsheet describing data to be included (in their estimation) and a screen mock-up based on DataPipe design details. A task force of interested users is often formed to review proposed forms and to provide feedback. DataPipe did not start out with its current module selection. The extensive DataPipe module list has evolved over more than a 20-year period based on user input and regulatory demand.

### **DEMO**

Contact Levitt Training & Consulting to an on-line (webinar) demonstration.