EM IT Insight

by Jill Barson Gilbert

EMIS Data Interfaces

Computers are easy to use, right? Maybe for a hacker or a "techie," but the average user would probably beg to differ. The more difficult a system is to navigate, the more the user fights the system. No matter what your comfort level is with technology, it seems there's always room for improvement with the user interface—the lifeline between you and your valuable data.

Simply put, an interface is what you see when you open a software package. It may range from a blank blue screen (remember the old IBM WordPerfect software?) to a simple data entry table to a sophisticated form with lots of navigation buttons, written in Visual Basic, Java, or HTML.

This column discusses the tools and technologies that truly can make your life easier with regard to getting data *into* your EH&S Management Information System (EMIS). April's column will discuss how to get data *out* of the system.

MORE THAN MEETS THE EYE

EH&S software is in its fourth generation, and the interfaces have improved with each generation. First, mainframe applications. Then came stand-alone PC-DOS applications. More recently, client/server systems. Today, applications delivered via the Web. With these sweeping technology changes, what holds users back when it comes to EMIS interfaces? Often the issue is not the "look and feel" of the interface so much as the ease of getting data into the system.

Most off-the-shelf EMIS packages offer Web screens and data loaders. This holds true for client/server applications, as well as those delivered via the Web. Sometimes for effective data entry, however, you need a more user-friendly or more powerful interface than what is delivered standard with the software. First, commercial interfaces often are difficult to use and are not tailored to the needs of data entry personnel. For example, you may have to navigate several screens to input a single data record. Second, data import tools that ship with off-the-shelf packages often are too complex for day-to-day use, and not robust enough for the initial phase of data population. Third, sometimes you need to be able to dump data into an intermediate database for quality assurance and quality control (QA/QC) before sending it into the EMIS. Finally, you may need data validation (e.g., drop-down lists to limit possible entries) or automated data population features that are not available with the commercial software package.

DATA INTERFACE TOOLS AND TECHNOLOGIES

Custom tools can be built to work with commercial off-the-shelf packages to import data efficiently and accurately. Beyond the interface that is packaged with the EMIS, the four most common means for entering data are data loaders, automated data interface tools, Web screens, and handheld devices.

Data Loaders

Most off-the-shelf client/server and application service provider EH&S offerings include a data-loading function. The loader takes information stored in a spreadsheet-like database, and uploads it to the system using an import routine. Although easy-to-use and cost-effective because it requires no additional customization, most off-the-shelf data-loading functionality is not very robust. Data loaders may be good for uploading small pieces of data, but generally cannot handle vast amounts of data in complex relational databases.

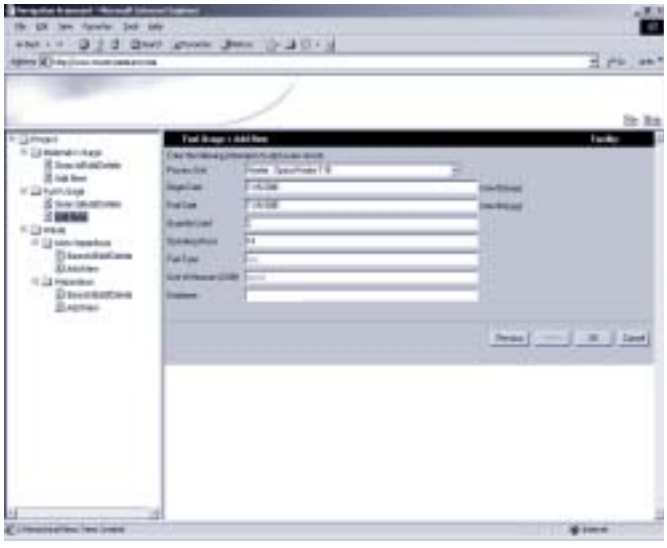
Also, most standard data loaders cannot perform the important function of "data cleansing." If you choose to perform a bulk data upload, be sure that you have the means to validate

and standardize the data coming into your system. The cleansing process flags bad data before it contaminates your system and compromises the accuracy of reports that are subsequently generated. Remember: garbage in, garbage out!

Automated Data Interface Tools

Odds are that you already collect data in other systems, and want some of it in your EMIS. You can build custom interfaces between your EMIS and other enterprise business systems to avoid duplicate data entry. Custom interfaces allow you to link to data in a variety of systems, such as plant historians, Material Safety Data Sheet systems, and inventory control systems. Automated data interface tools can be of the active, "hands-on" variety or the more seamless, "hands-off" variety. The hands-on interface involves mapping "source" data from enterprise systems to "target" EMIS fields. An IT professional develops an application that grabs data from the enterprise system and populates the desired fields in the EMIS. The systems administrator controls when and how often to grab the data, based on business needs. The hands-off interface involves data transfer via an Intranet using eXtensible Markup Language (XML). This "scheduler" software periodically reaches into the appropriate enterprise system and retrieves data according to the business' data needs. Scheduler applications require good design, but little effort on the part of the end user.

Using both hands-on and hands-off data interface tools is faster than entering data line-by-line into a typical EMIS form. These tools are effective for bulk-loading data, such as waste container storage and disposal or wastewater outfall discharge monitoring data. And, with either method, the administrator can place data into intermediate tables for QA/QC before data moves into the EMIS.



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Web Screens

Web screens literally have changed the face of many software applications over the past two to three years. They are an effective interface because most people know how to use standard Web browsers or can learn with a little instruction. Today, several client/server applications ship with Web screens and use the Internet or an Intranet to transfer data. And the recent application service provider EH&S packages employ Web screens for data entry, reporting, and all other functions.

If a particular software package does not offer a user-friendly interface, consider customized Web screens to gain user acceptance. Web screens remove the "fear factor" often associated with complex interfaces that are difficult to navigate. Custom Web screens using tools like Java, Active Server Pages, and .NET technology allow for data entry forms that are tailored to the end user's job. The end user sees only what they need to see to complete the data entry task. Users do not have to worry about hundreds of complex forms or tables that don't relate to their day-to-day activities.

Handhelds

More and more companies have trashed the pen-and-clipboard approach, and are using handheld devices to streamline their enterprisewide business processes and improve the accuracy and availability of mission-critical data. Personal Digital Assistants (PDAs) have improved not only the quality of life for many professionals, but the quality of data imported to EMISs (see "Data to Go—Handhelds in the Enterprise," *EM* October 2001, p 12).

Handheld applications can make a broad range of tasks faster, more efficient, and ultimately less costly for EH&S professionals. Users can capture all types of data from visible emissions or inspection data to fugitive emissions monitoring or occupational health data. Using the Palm OS or Pocket PC platform, handheld software can make collecting data simple and reduce redundant data entry or transcription errors.

Sometimes you need custom data interface tools—you need more than meets the eye. Most businesses choose to use a combination of the four tools discussed in this column: custom data loaders to import initial data, automated interfaces to periodically pump pertinent data into the EMIS, and Web screens or handhelds to perform everyday data entry. Whatever means of data population you choose, keep your goals in perspective. Make sure that the interfaces are easy-to-use and navigate and maintain the integrity of your data.

About the Author

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