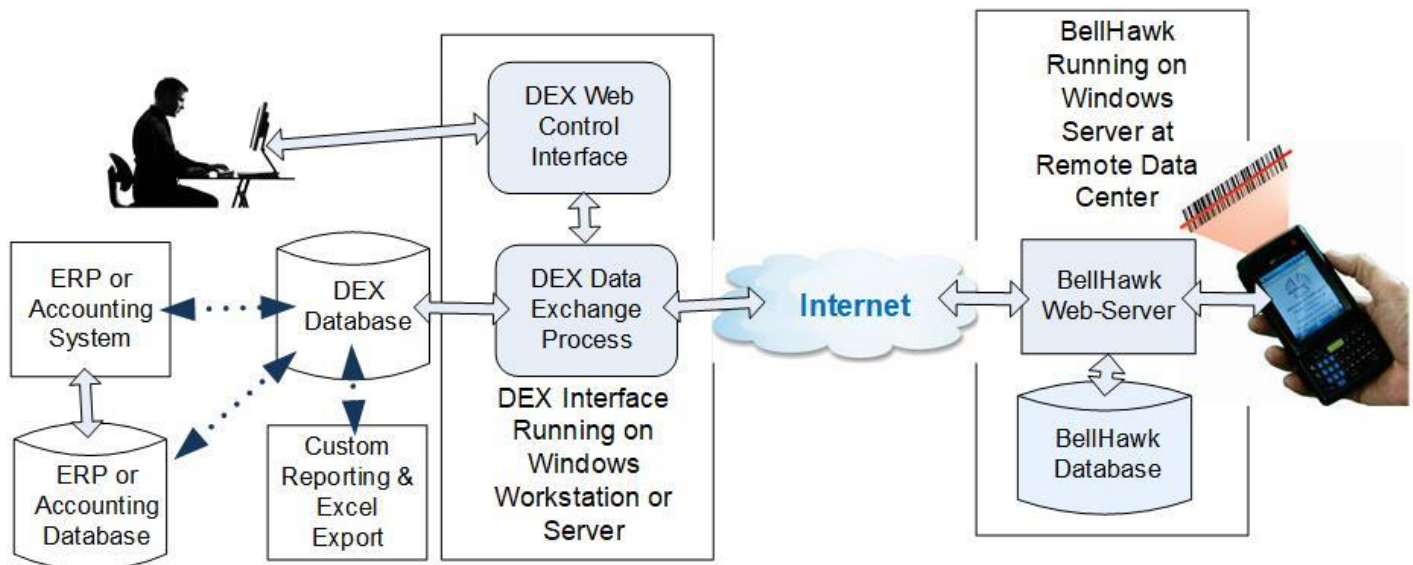


BellHawk Data Sheet **Exchanging Data with BellHawk**

While a BellHawk materials tracking and traceability system can be run stand-alone, there is often the need to exchange data between BellHawk with other systems to avoid duplicate data entry. There is also the need to generate custom reports and the like from BellHawk.

BellHawk, as standard, supports two interfaces for this:

1. Excel Imports and Exports, which are performed manually using the standard web-server based system using a browser web-browser running on a PC or similar device.
2. The DEX data exchange interface, which uses a local SQL database, and runs on a Windows Workstation. The DEX database mirrors the contents of the main BellHawk database, except in a simpler format for data exchange and the creation of custom reports. Data can be transferred to BellHawk running at a remote data center by writing into the local database. Also, any-time BellHawk captures transactional data, such as receiving, transforming, or shipping materials, this history data is transferred to the DEX database for use in data exchange or creating custom reports.



Data that can be sent to BellHawk through Excel or the DEX interface, include:

1. Item Master records, including routes, BOMs, and standard-times
2. Work Orders, including routes, BOMs, and standard-times
3. Purchase Orders
4. Pick Orders
5. Ship Orders

Data that can be read from tables in the DEX database, include:

1. Containers of materials entered, moved, or returned or have the quantity of their contents adjusted or withdrawn.
2. Materials received, picked, packed, and shipped
3. Materials consumed and produced by manufacturing operations
4. Quality control test results
5. Labor and machine/equipment time consumed in manufacturing operations
6. Nightly inventory snapshot

This same data is available as a set of Excel export "reports" from BellHawk.

Please note that the data that can be exchanged, with either method, depends on the BellHawk options licensed.

The DEX interface uses a SQL Server database, which can be a free SQL Server Express database. The DEX interface software and database can be run on a separate Windows Workstation computer or can be installed on the same Windows Server as BellHawk, if needed.

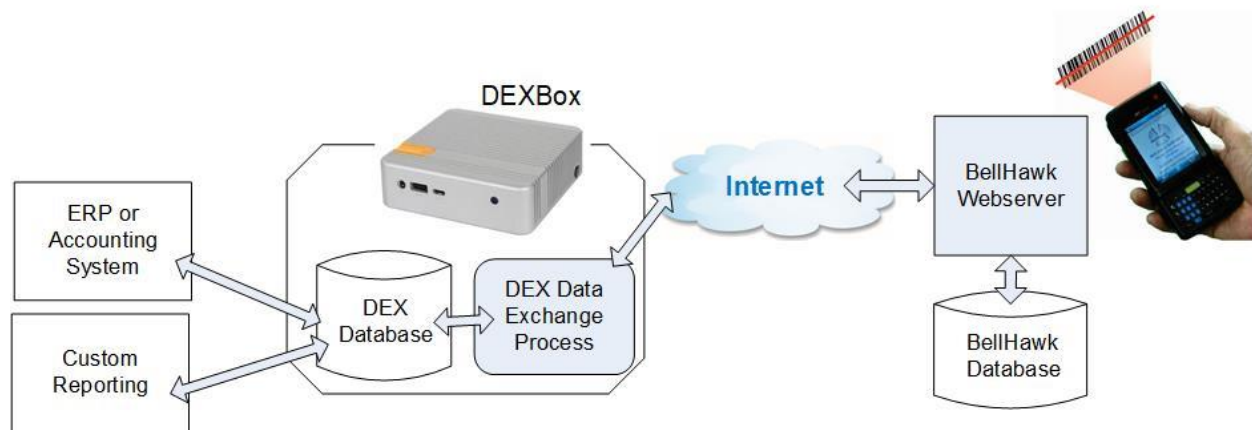
There can be multiple copies of the DEX interface running, one in each plant or warehouse, to provide local access to the BellHawk database. Each one of these requires a single BellHawk device license.

Users of DEX can link Microsoft Access to the DEX database and simply treat it as an Access database. Users can also link report generation programs, such as Crystal reports, to this database in order to generate custom reports. More sophisticated users, can integrate this database into an SSRS reporting scheme using SQL Server Standard.

DEX comes with a Web-browser interface, which can be used to schedule and monitor transfers between the DEX database and BellHawk. This interface also has the ability to alert an IT person by Email or Text message if a transfer fails. The IT person can then remotely access the DEX control web-site, determine the source of the problem, and remotely fix it.

DEX installation, while well documented, is quite complex and requires the services of an IT person who is familiar with setting up IIS, SQL Server, and other services on the Windows Workstation on which DEX is installed. However, once installed, this interface will run 24x7 without user intervention, unless there is a computer or network system malfunction.

To make installation of DEX easy, KnarrTek Inc. provides a service to install the software for clients on a standard configuration industrial windows workstation computer, such as the OnLogic CL100, which is drop-shipped by the client to KnarrTek. This rugged industrial computer is physically small and can easily be drop-shipped to KnarrTek for installation of the software. Then, when what we call a "DEXBox", is delivered to a client, all the client needs to do is to plug the DEXBox into their local area network and it will establish communications with the BellHawk Server they are using. This DEXBox has a DEX database ready installed running on a solid-state "hard-drive"



There is no need to setup any special "holes" in the network firewall of the plant or warehouse in which DEX is installed, as DEX uses a standard "outbound" Internet connection, just like any other PC on the network. This avoids a major security risk and a need to involve IT in the installation.

The concept behind DEX is to make exchanging data with BellHawk and producing custom reports as simple as if BellHawk were running locally in each plant or warehouse or other facility. But this method retains all the benefits of running BellHawk at a secure data center, on computers managed and maintained by IT professionals, where BellHawk can be accessed by many different users at many different locations over the Internet.

There are other interfaces available with BellHawk, but access to these is limited to systems integrators, using BellHawk as a platform, who have an in-depth knowledge of developing software in a .Net environment.

For more information about the DEX interface or using Excel imports and exports, please see the BellHawk User Manuals on www.BellHawk.com.