



Customizing and Integrating Your BellHawk System

BellHawk software modules will work right “out of the box”. Most users, however, want to customize their BellHawk system to meet their specific needs. We provide the source code for all the customizable parts of BellHawk so that users can do their own customization or they can have the staff at BellHawk Systems help them with the customization.

The BellHawk PC client software is written in Microsoft Access with a significant amount of embedded VBA (Visual Basic) code. The database back-end is Microsoft SQL Server with most of the work of data manipulation performed by stored procedures. The PCs typically run XP-Home or Professional edition and the servers run Windows 2000/2003 Server. The mobile computers run the Pocket PC interface on top of a Windows CE operating system. They are programmed in Visual Basic.

The only part of the BellHawk software that is not customizable is its communications backbone, including the BSAF software. This software interacts with the encrypted license key on the server to detect whenever PCs or mobile computers that do not have BellHawk licenses are in use. It also detects which software modules are in use and only allows communication of data appropriate to the licensed software modules.

Some of the typical customizations performed by users are:

- Generation of special reports. BellHawk provides a starter set of reports for each module but most users want their own customized reports. It is easy to start with the existing reports and to use these as the basis of generating new Access reports that can be incorporated into BellHawk.
- Export of data to Excel spreadsheets for subsequent analysis. BellHawk keeps its data in time tagged records that can be accessed to generate graphs of performance changes over time.
- Changes to the scan sequences. The scan sequences are controlled by a scan sequence table in the database. By changing this table, the scan sequences can be changed or combined to be the most efficient for your workers.
- Adding extra data validation to the scan sequences. By inserting VBA code into the sequence screens it is possible to use situation specific knowledge to detect and correct errors as they occur. This can help avoid getting bad data into an ERP system.
- Adding code to stored procedures to detect specific problem situations and to send Email or voice mail messages to supervisors or managers when specific events occur.

Many of the commonly made customizations are already parameterized so that minor changes to the code will result in a feature being enabled or disabled.

Many clients generate their own reports. This is in recognition of the fact that it will cost at least \$1,000 in professional services to have a BellHawk staff member write the report for you. If the

system has a 100 or more special reports (which is not unusual) then the cost of these reports could be much greater than the cost of the rest of the system. By writing these reports yourself, using the report features of Microsoft Office and Access, this cost can be avoided.

BellHawk is an excellent basis from which to develop a customized barcode tracking and/or factory floor data collection system. All the hard work of structuring the architecture, the data base, and the communications has been done. It is much quicker and less expensive to buy BellHawk modules than to develop the same code yourself. Well over \$2 Million and many years of hard won practical applications experience have been invested in the development of the BellHawk software modules. By starting with BellHawk you do not have to reinvent the wheel to get a system that is tailored to your needs.

An important aspect of BellHawk is its DEX data exchange interface. DEX enables external applications, such as ERP and accounting systems, to communicate with BellHawk without programmers having to understand the details of BellHawk's internal database structures. DEX currently supports ODBC/SQL and flat-file data exchanges. Message based and XML data transfers are under development. With DEX, an external application can send BellHawk every data object that it understands. Also the external application can request DEX to send any of its data objects upon demand. This makes it easy to interface BellHawk to a wide range of applications using both real-time and batch communications.

BellHawk Systems provides training and assistance in the modification and customization of BellHawk. Training starts with about a day of classroom lectures and code walkthroughs. This is typically followed by guided hands-on customization work for a few days in a small group setting with a BellHawk Systems instructor helping clients to customize their systems. Thereafter members of BellHawk Systems' staff are available to provide assistance or consultation as customization activities progress.

An alternative to performing the customization yourself is to have BellHawk Systems staff members perform the customizations for you. Typically this process will start with the submission of a detailed list of customizations required by the client. This will be reviewed by BellHawk Systems' staff and they will estimate the number of hours required for each task. These hours and the estimated cost will be returned to the customer for approval before work is started.

To save out-of-pocket cost, it is expected that each BellHawk customer will perform their own operational testing to make sure that their systems are fully operational after customization, to their satisfaction, before deploying the system operationally. Any problems found and fixed are considered part of the normal software development cycle until the system has been fully operational for 30 days or more. Thereafter bugs in code created or modified by BellHawk will be fixed free of charge for a period of 12 months. Specifically excluded from this, is the time taken to investigate bugs, which is charged to the customer.

Naturally, BellHawk is not responsible for any code modules modified by its clients. We will, however, work with your staff, on an hourly rates basis, to help find and fix problems in this code.

Some BellHawk Systems' clients have performed extensive customizations themselves to BellHawk modules. Others have chosen to have all the customization performed by BellHawk

Systems' staff. Most choose a path in between. Whichever path you choose, our experienced staff is there to help you get the systems you need operational in a speedy and cost-effective manner.

BellHawk staff members are also there to help with other important aspects of the system, such as network performance and security issues. Some of the services we provide are:

- Network cable testing – to find defective cables that rob your network of performance.
- Network traffic issues due to hub-flooding and similar phenomenon – we can evaluate your network to find how to restructure your network for optimum performance.
- Wireless surveys – to find where to locate wireless access points for optimal coverage.
- Wireless security evaluations – we “war drive” your facility to find any weaknesses that would enable a hacker with a PC and a “Pringles” can antenna to break into your network and destroy your data from as much as a mile away.
- Internet security evaluation – we probe your firewall for weaknesses that could enable a hacker to break into your system or use your computers as the base from which to attack US Government and financial institution computers.
- Employee security – we probe your LAN and WAN to detect where employees have access to sensitive data they do not need to know and recommend how to close the security gaps.
- Installation and upgrades of network servers, databases, and operating systems.
- Custom software development, including systems architecture and detailed design assistance.

BellHawk Systems sells PCs, servers, network switches, routers, and wireless access points as well as inter-building wireless access links. It also sells mobile computers, barcode scanners, and printers and provides service, support and training for all of these. BellHawk Systems is also an excellent resource for standard and specialized barcode labels and printer ribbons. In each case you will pay little or no more than buying from cheap discount website but will get products backed by people who really know about these products and how to use them.

For more information please call sales at 508-865-8070, Email sales@BellHawk.com or see www.BellHawk.com.