BellHawk® Systems Corporation
Real-Time Work-in-Process and Materials Tracking Systems
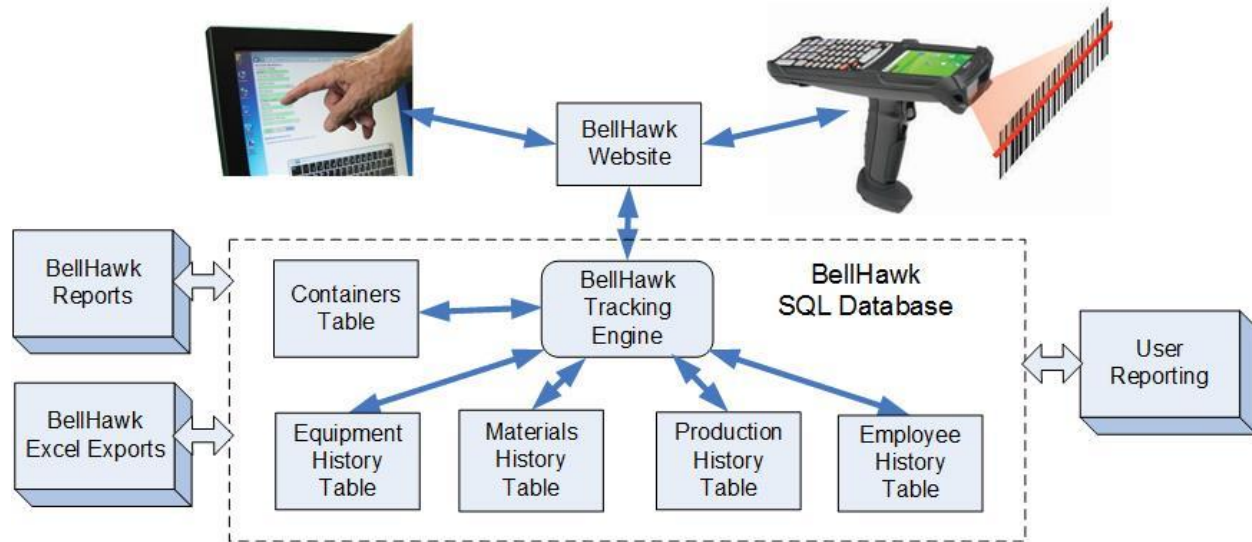www.BellHawk.com   508-865-8070

Creating Custom Reports from BellHawk

Introduction

BellHawk comes with a set of reports that cover most standard operations and materials tracking requirements. Also "reports" such as barcoded receiving and picking sheets, as well as purchase, work, and ship orders can be customized in a limited way, such as by using the client's logo instead of the BellHawk logo, and by adding fields to the header and lines on these "reports".

These standard reports, along with related Excel exports, usually meet the requirements of most organizations, until they start using User Defined Parameters, such as length, width, and color as attribute parameters for items. Then users start requiring reports, such as for the number of square feet of red product was made last month, which are not standard reports.

In this document we explain how users can generate their own custom reports, including custom versions of travelers, picking sheets, and the like.

Alternatives for Generating Custom Reports

1. Directly access the BellHawk database and use tools such as SSRS (SQL Server Reporting Service), Access, or Crystal Reports to develop you own reports.

2. Augment the report generation code website in BellHawk with your own report generation website to integrate your reporting with that provided in BellHawk.

3. Have BellHawk Systems technical staff or some third party organization create the reports for you.

Directly Accessing your BellHawk Database

Over the years many BellHawk clients have developed extensive sets of custom reports directly from the BellHawk database using a wide variety of reporting tools, often with minimal support from BellHawk Systems' staff. Some have also developed their own custom web-portals to provide their users with charts and graphs and other operational displays.

The BellHawk SQL database is an open architecture database with an extensive set of views to assist in retrieving data from the database. Most of the tables from which reports are produced are self-explanatory and are also well documented in the form of HLDO (High Level Data Object) descriptions. Please see user manuals on HLDOs on the BellHawk website for details.

If you have BellHawk installed on your own Windows Server on the same local area network (LAN) as your PCs then you can simply link your reporting tool to the ODBC driver for the local SQL database.

If you are running BellHawk in the Cloud on a server managed by BellHawk then BellHawk Systems can provide you with your own instance of SQL Server that you can remotely link to over a secure Internet link to produce your own reports.

Please note that, while there is no licensing fee for directly accessing the BellHawk database, in order to generate your own reports, BellHawk Systems does charge for any and all support services needed by the client in generating their own reports. This includes the time to setup remote access to a BellHawk SQL Server database running in the Cloud.

Architecture of BellHawk V78 Internal Report Generation Mechanism
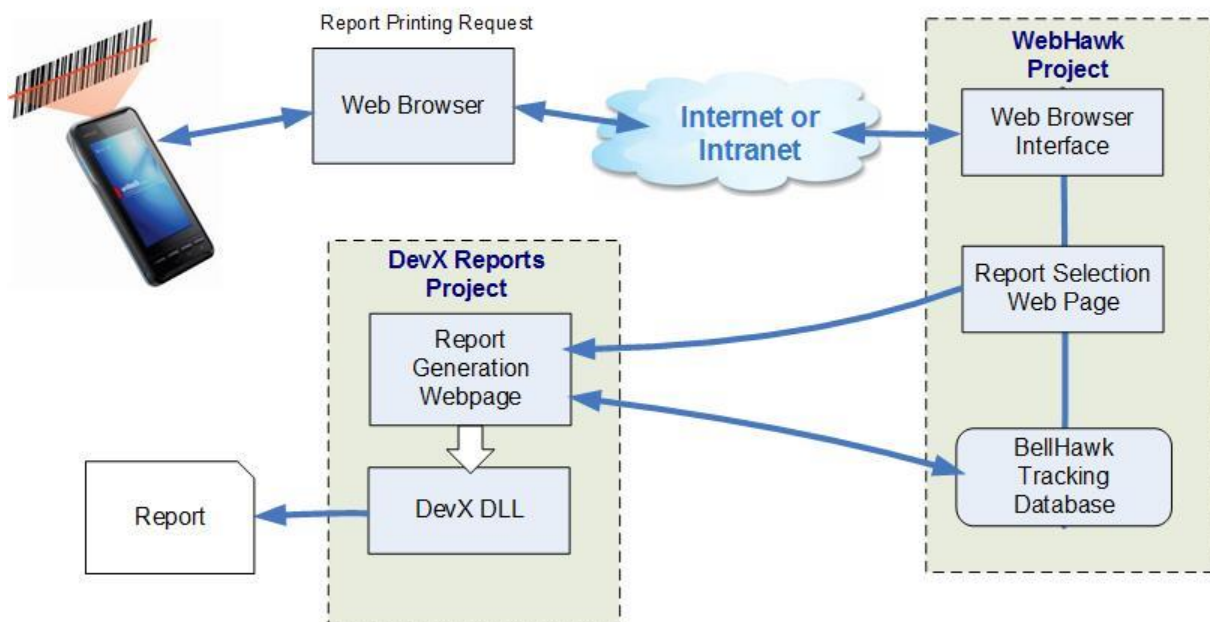
In BellHawk V78, the reporting mechanism was changed to use a separate website application to produce reports. The purpose of this was to enable users to replace the report generation website with their own custom code for specific reports. It also enables BellHawk Systems technical staff

to easily customize reports for specific clients without needing to modify the main body of the BellHawk code.

When a user, on a web-browser based device, makes a request for a specific report, they are first taken to a screen from which to select the parameters for the report (such as reporting inventory at a specific facility and/or material type). The selected report parameters are then placed in a print queue entry and an Internet link (in a separate web-browser tab) is made to the website URL specified to handle that specific report, with the index into the report queue as a parameter of the link.

The report website then retrieves the print queue entry (either by direct access to the SQL database or using the BellHawk SOAP/XML web services interface) and then generates the report.

In the case of BellHawk's own reports, the Developer Express (DevX) reporting DLL is used to generate the reports based on directly accessing the BellHawk database (as both BellHawk and the reporting website application are installed together, running under IIS).

The same mechanism is used for producing other "reports" such as Purchase Orders, Barcoded Pick Sheets, Work Order Travelers, Ship Order Acknowledgements, Packing Slips, and Bills of Lading.

Providing Alternate Reports for BellHawk Reports

The reports are setup in tblReports, which can be imported and exported using DEXEL as the HLDO with keyword "Reports".

The key fields in tblReports are:

1. Report Name

2. URL to link to page generating reports

3. Template - report template to be used - such as a SSRS rdl file or the corresponding template file used by DevX or Flexel - optional

4. Dataset - dataset name - may be used for reporting - optional

5. Printer Name - optional

Users can replace the URL and other data with a link to their own reporting website, such as one generated using SSRS.

The contents of the reports print queue entries are:

1. Report Name - corresponds to setup data in tblReports

2. UDP - report parameter values in a JSON UDP field

3. Status - W (waiting), P (being processed), E (Error), C (Completed)

4. Date-Time request entered

5. Error Message - for reporting print error

Note that it is expected that the website handling the report will not only read the print queue but also update its status once the report is completed. This can be done by accessing the BellHawk database or using the BellHawk web services interface to read and write the queue entry.

The parameter values are specified in BellHawk standard JSON format with the parameter names being those for the HLDO being reported on.

There is currently no mechanism for users to change which parameters can be selected for report generation. This page is currently hard coded to perform the following functions:

1. Presenting the user with just the reports that they are allowed to view and enabling report selection.

2. Collecting parameters for the lookup to pass to the report generation web page

3. Writing the report name and its parameters into a print queue

4. Sending to the reports web page the value of the index in the queue as the value of the form data for the submission.

The reports web page will then get the report name and its parameters from the print queue in the BellHawk database and then display the report in a new browser tab.

The user will be responsible for closing the report tab when they are done.

Commentary

The new mechanism used by BellHawk to create its reports has the benefit that the reports appear in a separate tab enabling the user to continue to enter data into BellHawk while being able to view one or more reports in separate tabs.