



Property of WilloWare Incorporated

DS0134
GP Manufacturing Integration



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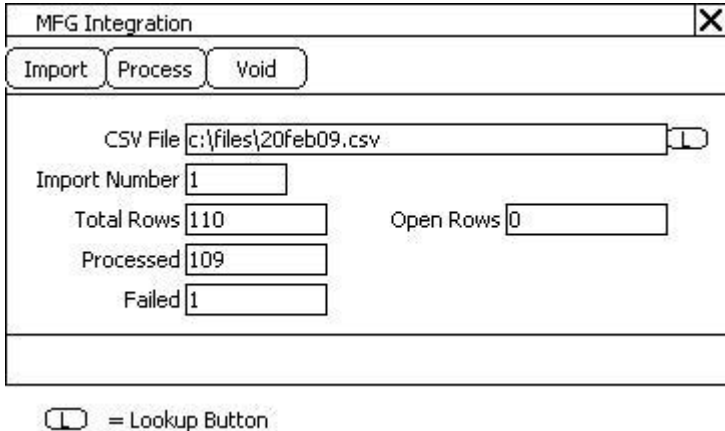
Problem Definition

<i>Problem Definition</i>	CCDA
<p>ACMECO makes a range of prosthetic feet out of carbon fiber. Each foot passes through a testing station, the results of which determine the finished good item number assigned.</p> <p>The completed Item Number is printed on a test result sheet, along with the serial number and test results. The serial or lot tracked components that are used to produce the foot are also recorded in the testing software (iTrax).</p> <p>The iTrax software can produce a CSV export file that contains information about the finished item number, serial number, components and test results.</p> <p>Currently the iTrax information needs to be re-entered in Dynamics GP Manufacturing to record production, consume raw materials, and link raw material serial/lot numbers to the finished item serial number.</p> <p>GP Manufacturing has a Bill of Materials for the prosthetic foot that has all of the raw material items needed to mate the foot, including the serial/lot tracked components as well as non-serial/lot tracked components. The routing specifies the amount of labor and overhead required to make the foot.</p> <p>While much of the important manufacturing information is being captured in iTrax, GP Manufacturing is needed to record all of the components used, as well as labor, so that correct costing can be applied to the finished items.</p> <p>ACMECO would like to automatically integrate the information recorded in iTrax to Dynamics GP, to create a manufacturing order and post it. In the process the integration will need to figure out additional components needed from the BOM, and backflush all materials, labor and overhead.</p>	

Solution Overview

<i>Solution Overview</i>	CCDA
<p>iTrax will create an export file for daily production/testing. This file will contain information about the finished item numbers produced, the serial numbers, some test results, and information about some of the serial or lot track components used to create the prostheses.</p> <p>A new window will be added to Dynamics GP that allows the user to select the CSV file from the local hard-drive, or a network share.</p> <p>The Integration window will read the “raw” data into SQL tables so there is always a permanent record of the source data. This process will also read test results from the file and store those in a SQL table that can be referenced elsewhere in GP.</p> <p>The Integration will then perform error checking on the data. Records that pass the error checking will be use to create manufacturing orders, and post manufacturing receipts.</p>	

Design Features

MFG Integration	CCDA												
<p>A new window will be added to Dynamics GP called MFG Integration. It will be accessed from Tools >> Utilities >> Manufacturing >> MFG Integration.</p> 													
<table border="1"> <thead> <tr> <th>Field</th> <th>Function</th> </tr> </thead> <tbody> <tr> <td>CSV File</td> <td>The path and file name of the CSV file to be imported. User can manually enter a path (which will be verified), or select one from a lookup.</td> </tr> <tr> <td>Total Rows</td> <td>Displays the total number of rows read from the CSV file</td> </tr> <tr> <td>Processed</td> <td>Displays the total number of rows that passed error checking and resulting in new manufacturing orders</td> </tr> <tr> <td>Failed</td> <td>Displays the total number of rows that had errors</td> </tr> <tr> <td>Open Rows</td> <td>Display the total number of rows in the Open Import table when the</td> </tr> </tbody> </table>	Field	Function	CSV File	The path and file name of the CSV file to be imported. User can manually enter a path (which will be verified), or select one from a lookup.	Total Rows	Displays the total number of rows read from the CSV file	Processed	Displays the total number of rows that passed error checking and resulting in new manufacturing orders	Failed	Displays the total number of rows that had errors	Open Rows	Display the total number of rows in the Open Import table when the	
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	<p>window opens. If an integration is built to feed records out of iTrax directly into GP, the Open Integration table could have data when the MFG Integration window opens, and it would be the number of new prostheses that have been tested in iTrax. When used with CSV files this field will always read zero.</p>	
Import	<p>Reads the selected CSV file into the Open Integration tables</p>	
Process	<p>Performs error checking and creates manufacturing orders for valid records.</p>	
Void	<p>Moves all records from the Open tables to the History tables and marks them as Voided. This maintains this historical integrity of the imports, but does not create manufacturing transactions in GP.</p>	

The CSV Import File will have this layout (columns), and will NOT have column headers.

1. FG Item Number
2. FG Serial Number
3. TestResult 1
4. TestResult 2 (There will be a set number of test result columns, but the exact number isn't know now. Each has a numeric result, or may zero)
5. Component Item Number #1
6. Component Item #1 Serial/Lot Number
7. Component Item Number #2
8. Component Item #2 Serial/Lot Number (There could be a variable number of Item-Ser/Lot column pairs depending on the finished item)

Each row of the import file contains the testing and production information for one finished item.

The first step of the import will read the "raw" data into SQL tables. This will allow the system to retain a permanent copy of the data that was imported in case it needs to be referenced at a later date. The import process will translate the "flat" record into a relational database structure with an Import Header, Lines, and Test Data table. The table names and layouts will be provided in the documentation.

Another reason for providing Import Tables is that is allows for a future systems integration that sends data directly from the testing software to the GP database. The integration could then be run from inside of GP to process records in staging tables.

The integration will perform the following:

- For each Finished Good item (row) in the import file:
 - Perform the Error Checking described below.
 - The Integration will retrieve the GP Manufacturing BOM for the finished good item.
 - Components in the import will be matched against the GP BOM items. For these items the Import file will be providing a lot or serial number. There could be additional components on the BOM that are not included in the import, and these will all be non-serial/lot tracked items. The quantity consumed of all items will be the BOM Quantity (there is no recording of actual raw material consumption).
 - The Primary Routing for the Finished Item will be retrieved for labor costs.
 - A manufacturing order will be created in GP Manufacturing for the finished good item. The quantity produced is always 1, and it will always be a serial numbered item.
 - The working routing will be created, and all labor and overhead will be backflushed based on the routing.
 - Serial/Lot Linking will be created between the component items specified in the import file, and the finished good serial number.
 - The MO Receipt will be created, and posted.
 - The record in the Integration Table will be moved from the “open” table to a “history” table. This ensures that the Open table is kept small for performance sake, and that it contains only unprocessed transactions, or transactions with errors.

Additional rules and requirements:

- Quantities. The import file will contain NO quantities. It is assumed that each row in the import file is for one prosthetic foot. Each MO will be for a Quantity of 1. All raw materials will be consumed in the Quantity specified on the BOM. The use of the BOM Quantity Per and Fixed Quantity will both be supported.
- Raw Material Inventory Sites. The iTrax software does not contain Sites, and Sites will not be in the Import file. The Issue From Site must be specified in one of these locations:
 - The BOM Line Issue From site
 - The BOM Default Sites – Issue From Site
 - The Manufacturing Default Scheduling Preference “Default Site to Draw

Inventory From”

- Finished Good Inventory Site. The “Post To” site will be the Manufacturing Default Scheduling Preference “Default Site to Post Inventory To”
- Multi-bin is not supported
- GP Setup must allow Inventory Adjustments to post to and through GL
- Transactions will always post using the current date as the GL post date.
- It is assumed all finished goods are produced in the Base Unit of Measure for that item.
- Phantoms are not supported on the BOM. It is assumed that the BOM for the finished good item does not contain Phantom BOMs. No functionality will be provided to match the Import file components to a multi-level BOM.
- Manufacturing Setup (Manufacturing Order Preference Defaults)
 - all “display warning” checkboxes must be unmarked before running the import.
 - Require serial/lot linking must be unmarked
 - Allocate Inventory when MO Status becomes Released must be marked
-

There are a large number of potential error conditions that could be encountered.

- System Settings
 - Multi-bins is enabled
 - Setup does not allow inventory transactions to post to and through GL
 - Fiscal period is not open for Inventory
 - Fiscal period is not open for GL
- Item Setup
 - Invalid or missing raw material Item Number(s)
 - Invalid or missing raw material serial/lot number(s)
 - Invalid or missing finished good item number
 - Missing finished good serial number
 - Finished good item is not serial tracked
 - Raw material items (in the import file) are not serial/lot tracked
 - Inadequate raw material inventory available (unless Inventory is set up to allow inventory to go negative)
- Manufacturing Setup
 - No Manufacturing BOM for the finished good item

- The BOM contains a Phantom
- No Primary Routing for the finished good item
- Routing has a Setup Time but no Setup Labor Code
- Routing has a Labor Time but no Labor Code
- Labor code is missing Shop Rate, hour/piece setting, and/or Labor Applied account. If Overhead is included, the appropriate GL accounts must also be specified.
- BOM Issue From site is not specified, or results in an invalid item-site combination
- BOM Post To site is not specified, or results in an invalid item-site combination

Before processing each record, error checking will be performed and the results recorded in an Error Log table. All detected errors will be recorded (as opposed to skipping the document when the first error is detected), so that if a record has multiple errors, all errors will be reported. Any error will cause the record to fail, and processing will continue with the next next.

Documents with errors will be addressed manually. No method is provided in this design to fix errors. No method is provided to view the error log or the Historical Integration table. SmartList Builder objects will be created at the client site to provide visibility to this information.

