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Introduction

This guide has several goals. It is aimed to be a quick and gentle introduction to the Realtrac ERP system. Over the course of this guide, a Realtrac system will be set up, and we will follow a job through a typical, but simplistic lifecycle. We will take a job through the estimating stages, promoting it to an actual job, purchasing material, running the job, shipping, invoicing and checking out our costing. Hopefully this guide is the first step of many for the user in learning how the Realtrac ERP system can make their business grow and succeed.

This guide will not solely focus on the nuts and bolts of the Realtrac software. In addition, we will discuss general business principles and systems that can be put in place. For users at established companies, much of this discussion may already be old hat. We hope we can bring some fresh perspectives to the ideas we discuss, but we hope this discussion will be of great use to smaller, younger companies. We want Realtrac to grow with you, and help you succeed in the business race.

This guide will use some optional Realtrac modules (estimating, purchasing) and not others (complex jobs, loading). This was a decision based on brevity, and an attempt to make a document that is approachable for a user. We hope a new Realtrac user can go over this document over the course of a day (or a handful of sessions) and feel like they have a handle on the basics of both Realtrac specifically and Enterprise Resource Planning as a whole.

After a user has worked through this document, we provide additional resources for training. A Realtrac Reference Manual is installed along with the Client software. In addition, we have several training videos available online, and are constantly adding more. As always, please feel free to reach out to us directly if you have specific questions. We’d love to help you and your business succeed.

Best Business Practices and Realtrac Enterprise Resource Planning

Realtrac is founded on a series of best practices. Implementing the program will help you drive those best practices through your shop. Some best practices are done outside of Realtrac, as the program is focused on great shop management. Many best shop management practices though are in the racing lane with where the program takes you. The Quick Start Guide will emphasize many of those practices even if they are not highlighted as such.

Best practices for a successful shop include:

- Knowing your strengths and core competence as a business
- Building and executing an annual business plan
- Establishing and constantly executing on your quality philosophy
- Encouraging a team atmosphere in the work environment
- Fostering good relationships with your customers and asking for referrals
- Implementing programs, processes and practices which grow the competence in your organization and build customer confidence
• Planning your work for customers so that you can deliver on time, at the price quoted, and generate a profit for your shop
• Sharing work/job plans with your team members engaged in producing the work
• Tracking job performance and comparing it to estimates
• Adapting to changing conditions and managing work loads
• Maintaining accurate job and financial records
• Keeping a constant view of the work flow in the organization and being available to manage changes whether they are opportunities or challenges

Many of these habits will be fostered in your implementation of REALTRAC, including logically analyzing cost and pricing structures for your organization; planning jobs and work; accurately tracking quality, cost and time performance; actively monitoring jobs; completing, maintaining and protecting your job records, managing for quality delivery to customers; and managing changes in a most constructive manner.
System Setup

Before we dive into the production of parts, we do have to do a little basic setup of the Realtrac system. We won’t discuss all the settings available within Realtrac, and really, there are some settings that while outside the scope of this document that you should visit.

In this section, we will discuss:

- Work Centers and Work Stations. The dynamic relationship between these two concepts.
- Customer and Vendor setup.
- Employee setup – Both shop floor personnel and Realtrac software users.

Work Centers and Work Stations

The Realtrac ERP system relies heavily upon the concept of Work Centers and Work Stations. These two concepts are inextricably bonded together.

If you log in to your Realtrac ERP system, under the menu button is the System Setup option which will launch the System Group. Within Realtrac, we have bundled common functions together in a single window, and let the user navigate amongst those functions via a tabbed interface. So the System Group contains tabs to manipulate the Employees, Customers and Vendors, Work Centers, Work Stations, Client Settings and Server Settings. We will be discussing Work Centers and Work Stations in this immediate section, but this Group and Tab concept is pervasive throughout Realtrac.

In the most general sense, a Work Station is an individual unit of machinery on your shop floor. An individual grinder, CNC machine or deburring station would be a Work Station. If your shop has stations designed for hand labor, these too should be work stations you add to Realtrac.

A Work Center is a grouping of like Work Stations. So a grouping of similarly sized CNC Machines could all be grouped together under a Work Center called “Small CNC Machines” (in a shop that had two or more distinctly sized Work Centers).

Why the distinction? Why abstract out the individual Stations in to a Center? This concept is a very powerful one and brings a lot of benefits to Realtrac users. During the estimation stage, the Realtrac user doesn’t need to worry about which individual work station a job should be processed on. As long as they have a rough idea of which centers the part will need to travel to during it’s production cycle, that’s enough to estimate the part accurately. When the part is promoted to a job, the Realtrac user can decide how many of the Stations within the Center the user wants the production to run on. A site with
3 similarly sized CNC machines can tell the operators to run that part on 1, 2 or all 3 machines simultaneously. The Realtrac loading and scheduling system allows for this flexibility.

We will discuss routing, costing, scheduling and much more later, but for now let’s focus back on the work centers and work station. There are 2 critical questions that a Realtrac user needs to define in adding centers and stations to the system:

- Which stations should I group in to centers?
- How should I cost my centers and stations?

The typical criteria to determine how to group work stations in to work centers has to do with the capacity of each station. If two work stations can generally be used interchangeably for operations, then those stations should be grouped into a work center. If a customer has purchased the loading module the software will visually indicate that the load is being spread across the multiple stations in a center. Combining the stations in work centers will allow a user to tell the Realtrac software to use more than one station when for specific router operations if the Realtrac user creating the router chooses to do so.

Costing of both work center and work stations is absolutely critical for a successful business. Before engaging in a discussion specific to determine the dollars, we need to take a moment to examine the relationship between the costing of a Work Center and costing of a Work Station.

The first important concept to keep in mind is that Work Center costing is loaded. By loaded, we mean that it needs to include not only the costs associated with running a typical machine in the center, but it also needs to capture the average costs of an employee running that machine. So in determining the center costs, we need to identify both an average station and an average employee that runs that station. This may not be a trivial exercise, but it is one that is essential to running a profitable business.

Realtrac requires these averaging of employee and station costs since when a user is estimating a job, we can’t tell the true costs of the station that the job may end up on, nor can we tell the rate of the employee that will work on it. In a typical manufacturing environment, these variables will change depending on the flow of the part throughout the shop, and the personnel that is assigned the operation on that day. When estimating and quoting a part for a customer, profit margins of 10% or lower are often seen on the quotes. It’s easy to see how if a user has underestimated the true work center costs by a mere 10%, we have lost the profit from our jobs, or worse, we are essentially paying our customer to make these parts for them.

This cost analysis is vital to winning the business race. Accurate costs for machine operations may not just include the cost of the machine divided by the operating hours in the machine life, it should include the maintenance costs, the repairs, the utilities used, the floor space deployed and sometimes the overhead (front office) costs. Realtrac’s consultants can offer insights from years of working with manufacturing organizations on these calculations. A similar series of considerations can apply to employee costs: how much are benefits and employer taxes, paid time off, employee training and more.
When these costs are captured and factored into your quoting you have much greater surety of performing work at a profitable pace. You will have a view of the kind of work that best fits your shop, you will know what jobs are best to quote on and which to avoid.

The best shops will update these amounts as they learn more about their cost structure and as conditions change in the marketplace or economy. We suggest a review of these amounts no less frequently than twice a year. A problem we see from time to time in many machine shops is that users set these costing rates during the initial setup, and then never challenge and change these assumptions. Even revisiting the rates yearly to adjust for inflation is not enough to really ensure success. It’s essential to measure your true costs against the assumed costs input in both the Work Center and Work Stations. Since these rates are critical to both estimating costs as well as reporting profitability, we can see that making bad assumptions at this stage can lead to a situation where jobs are quoted expecting profits, the Realtrac costing system will tell the user they are making money, but the organizations bank account is empty at the end of the year.

**Customer and Vendor Setup**

The set up of customers and vendors is for the most part a very straightforward process in Realtrac.

We require that each customer or vendor have at least one billing and one shipping address on file in the system. Users are able to add multiple addresses of each type, and when issuing an invoice or a purchase order the user can freely select amongst the various addresses that are available for that customer. It is possible to assign an organization as both a customer and a vendor within the system.

**Employee Setup**

Even though it’s only labeled Employee, the tab itself has two purposes:

- Establish a list of Employees that work in the organization
- For the employees that you wish to have access to run a Realtrac client, determine what permissions those employees should have within the system.
To highlight the main features of the interfaces shown in Figure N, the left side of the screen will present employees that currently exist within the Realtrac system. The “Add New/Update Employee” section is used to add or update details on employees, and the Employee Permissions section displays the privileges that a selected or new user has.

In order to add a new user, type their full name in the Employee Name section and assign them an Employee Number. The Employee Number is for reference purposes (many customers match this number up with a value in another system, for example, a time and attendance package) but the Realtrac software itself does not use this value internally (though the employee number is required). The Employee Rate section should be the employees fully realized costs per hour. This value generally is higher than their hourly rate alone.

Realtrac consultants can offer suggestions on these cost calculations. Some shops use a rate that exactly matches the pay rate and cover the rest through their overhead factor. Others bring all the employee costs into the rate, the benefits, employer taxes, paid time off, supplies provided and other employee costs and then use a smaller overhead factor.
The Employee Role list box is a shortcut of sorts for the Permissions. We defined a few common roles that occur in most organizations – that of Office (IE: Program Managers), Sales Persons, Shop Floor Employees and Realtrac Administrators. You’ll notice as you click on each of these Roles, that the Permissions list box below changes.

Users can mix and match the roles and the permissions. Just because a role assigns specific permissions, doesn’t mean you can’t further customize the permissions for that user.

It’s important to note that the SHOPFLOOR role does have a special purpose. In order for an employee to be able to log in and out of jobs (IE: create work sessions, log time against a job, log pieces and scrap) that user must have the SHOPFLOOR role enabled. When selecting the SHOPFLOOR role for an employee, the role will automatically allow that user some additional permissions, namely access to the Job, Shop Floor and Loading (if the Loading module is purchased) groups. As previously mentioned, you are free to remove these permissions, the Employee will still be able to use the Shop Floor Interface in order to log in and out of jobs.

Many of the specific permissions are fairly self-explanatory and map directly to the groups in the toolbar. Disabling access to the Estimating group would mean that user would not be able to access Estimates (the button will be disabled when that user logs in to the Realtrac software). The last 5 permissions probably require a little additional discussion:

- Allow Add Files – This permission will allow the user to add files (multimedia) to the various file strips within the system. In Realtrac 10, we allow users to attach files to parts, jobs, estimates, inventory lots, item masters, routers and bill lines. Users with this option disabled will not be able to add files to these objects.
- Allow File Changes – This permissions locks down the files that have been added to Realtrac. Users will be able to see the files, but will not be able to make changes to those files and save them back to Realtrac. If you wish to allow only certain users to edit important prints and drawings, pay attention to this setting.
- Allow Edit on Job Order Entry Screen – This setting determines whether a user is able to make changes to the Job Order Entry screen. Users will still be able to see jobs, but will not be able to make and save changes to them.
- Shows Costs on Job Order Entry – Users with this permission will see costing information in the Job Group. If you wish a user to see Job information (part details, router) but not the costs associated with the job, disable this permission.
- Show Router Estimated Times – Users with this enabled will see the estimated times associated with each router operation. This permission will apply to both the router times on the screen as well as those that the user will print in reports.

With a new employee added, the Administrator has a few additional choices to make. If the Employee is a sales person or will be involved in creating Jobs, Invoices or Purchase Orders, the “Name Tag” field is used in conjunction with an external accounting package. Currently, Realtrac supports QuickBooks and
Sage 50. When exporting information to the external accounting package, the Name Tag lets the package know which Employee is responsible.

The Print on Reports flag is for companies that use bar code readers. Enabled employees will print up on the Employee Bar Code list so Employees are able to scan their bar code to log in and out of work sessions.

For accounting and auditing purposes, Realtrac doesn’t allow employees to be deleted. Instead, we allow users to deactivate Employees. We still maintain a record of all the employees transactions (their interactions with the Realtrac software, along with their history of work sessions). It’s important to remember, when deactivating an employee, to change their password for security reasons.

To summarize what we’ve learned here:

- After install, you will have to add all your employees to the Realtrac system.
- Employees that log in and out of jobs on the floor will need to at least have the SHOPFLOOR role assigned to them.
- It’s important to consider the full hourly costs for employees that work on the shop floor, not just their hourly wage.
- Users that need to use the Realtrac software will have additional roles and permissions assigned to them.
Estimate Group

The Estimate Group is an optional module in the Realtrac software, but we believe estimating is an essential part of any business, be it a young upstart or an existing mature business. The key to a profitable job starts with a solid quote.

We’re first going to cover the basics of the Estimate Entry form. This is the interface that Sales and Office folks will use to create both the Estimate and resulting Quote to provide to the customer.

![Estimate Entry Screen](image)

**Figure N. Estimate Entry Screen**

Figure N above shows us an Estimate Entry Form that has some legitimate data. We’ll discuss each of these fields using the reference above, but if you’ve read the previous chapters, and have added Employees, Work Centers and Work Stations to your Realtrac system, then we encourage you to hit the “New Estimate” button and follow along. Your Realtrac system is ready to be used for the first time!
The Estimate Number follows a pattern YYSNNNN, where YY is the year the Estimate was created (in this case, 2013), S being the separator character (‘E’ for estimate, ‘J’ for job, ‘S’ for sales order) and NNNN being an automatically incrementing serial number. When the user clicks the “New Estimate” button they will be provided with the next serial number, but the user can choose to override the number and supply their own if they so choose.

The description field can be used as a description of the part, the customer or the estimate. It will appear on internal reports, and can be used for search purposes, but it will not appear on the final quote report that is prepared for the customer.

Users are able to search and attach a customer to this estimate using either their full company name or the company code. Using mouse or the tab key to enter in to either the long field (search for company name) or the shorter one (search for company code) and begin typing (as you do this, note that the field is a light green color; the light green color is an indication that a field is searchable). As you type in the field, Realtrac will bring up a customer selection window. Similar to web or mobile phone technologies, as you continue to type, Realtrac will narrow down your search results in real time.

![Customer Search Interface](image)

**Figure N. Customer search interface, thus far with only the letter ‘N’**
Once I found my customer in the list, I can either click on the customer or use the keyboard arrow keys and the enter key to select my customer.

If my customer has multiple billing addresses or contacts, I can choose which of those contacts I am building this estimate for.

Now we need to attach a part to the estimate. Realtrac uses a parts catalog that keeps track of parts that have been estimated or have jobs created for them. So, at this point we need to use the parts catalog to either select an existing part from the catalog, or create a new part.
In the two examples below, I have initially entered the number “7” for my drawing number, returning lots of results, then continued to type to get “7036-” to get significantly less results.

<table>
<thead>
<tr>
<th>Drawing Number</th>
<th>Part Number</th>
<th>Part Description</th>
<th>Draw Rev</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1407-23</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1407</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AZ-08-171-015</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A987</td>
<td></td>
<td></td>
<td>B3</td>
</tr>
<tr>
<td>46-2576</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Z110887</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X667-00211561</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>33987AA30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12579</td>
<td>12579a</td>
<td>widget</td>
<td></td>
</tr>
<tr>
<td>138704</td>
<td>138704</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Newron927</td>
<td>222</td>
<td>333</td>
<td>a</td>
</tr>
<tr>
<td>JBF337860</td>
<td>JBF337860</td>
<td>JBF337860</td>
<td>2</td>
</tr>
<tr>
<td>7036</td>
<td>7036</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
At the point I reach “7036-“ in Figure N+1 above, I am free to choose from one of my existing entries, or if this is a new part with a new drawing number, I can continue to type and create a brand new part. For this example, I will continue to type and make a brand new part. I finish my drawing number, then use the tab key or my mouse to move to part number and description. As soon as I have my part information input in the system, I hit the enter key to tell Realtrac I am ready to make a new part in the system.
**Figure N. At this point my new part has been created in Realtrac**

With the new part created hit the enter key a few more times to confirm the new part and we will be returned to the Estimate Entry form with our newly created part in place.

**Figure N. Our estimate now has our part attached.**
It’s important to understand the concept of a part in the Realtrac ERP system. In addition to the basic part details shown in the Estimate Entry screen above, we can attach other bits of data to the part. We are able to attach files to the part. This means we can attach copies of our blueprints, drawings and other part related files (Realtrac supports any file type, images, documents even movies) to a part. Every time you make an estimate or a job for this part all of the files associated with the part will be immediately accessible within the Job or Estimate. We also support versioning of documents, so if a Realtrac user makes a change to a file associated with a part, we automatically update the document and the updated files will be shown on future jobs and estimates.

In addition to files, users are able to build a Bill of Materials (BOM) for a part. A BOM is a list of materials and services that are used to build a product. A BOM is great for a part that a business makes on a repeated basis. Realtrac is able to offer a great deal of business insight when using a BOM, we can track the costs of the materials that are purchased and warn the user when costs have changed since the last time a job was run with the part or the part is estimated. In addition, a BOM allows a user to have much more reliable information when estimating and quoting a job, allowing the user to feel confident they will be able to run the job quickly and profitably. Building a BOM is a bit beyond the scope of our Quick Start Guide, but we encourage you to read up on the BOM in the Realtrac Reference Manual.

With the part attached to the Estimate, we are now able to add some additional basic information to the Estimate. We can assign a reference number or RFQ number to the estimate if we so choose.

The Notes field is a free text field that the user can add tags to describe the part, the estimate, the customer or really any piece of information the user may wish to sort or organize groups of estimates by. A gear shop may put a few descriptors of the type of gear in this field (helical, worm, spur, etc.). The Realtrac List Estimate interface allows users to search and group estimates by these tags, and users are able to run reports on just those specific sets of estimates. This field is truly free text, and each Realtrac user will choose to use this field differently.

The Status field is typically used to make notes on the current status of the quote. “Quoted”, “Awaiting Approval”, “Rejected”, “Accepted” are common values, but again, the user can use this field however they choose. This field is searchable and sortable in the List Estimates screen, which allows users to quickly group estimates and see which ones they are winning and which ones they are losing.

The Comment field is self explanatory, but note that that field cannot be searched upon in the List Estimates tab.

The Buyouts section is important to understand. The Buyout section is used as a way to quickly present costing information to the user. As an estimate, the buyout information can come from 3 different sources:

- **Bill** – On the Bill tab within the Estimate Entry form, users are able to estimate pricing for the materials and services that will be required in the production of the part. Users also have the option of sharing this pricing information on the final quote when it is produced. This option is great when you have specific costing in mind, and want to keep track of those costs closely.
• **Bill of Materials** – If the part assigned to this estimate has a bill of materials, and BOM is selected from the Buyout section, then the part will automatically be assigned costing information based on the BOM. Realtrac recommends using the BOM selection if the part has a BOM.

• **Manual Entry** – Manual Entry is used to quickly estimate the costs associated with the part. Users can type in a basic description on the Material, Subcontract and Other costs directly in to the Buyout section. This section is used if the estimator is confident in the costs, and doesn’t need to share the specific details with the customer.

When we’re building an estimate, we don’t necessarily know how many pieces we are going to build. We may end up quoting 2 pieces or 1000 pieces. Because of this, the Buyout section treats the Materials and Subcontract sections as though the costing is for each unit that is produced. An entry of $1 for Materials and $.50 for Subcontract means we expect to spend $1.50 in Material and Subcontracts for each part we produce.

If you’re following along in building an estimate, click on manual entry and ball park some material and subcontracting costs for the part you are building.

The Other field however is treated as a total cost, regardless of the order size. So a $1000 Other cost means we expect to spend a flat $1000 regardless of the size of the order.

The final interface element on the screen is the file strip along the bottom. This file strip is a drag and drop capable window where a user can drag and drop any file they wish to attach to this estimate. Some examples of potential uses:

• Print and drawing information provided by the customer.
• RFQ document provided by the customer.
• Copies of RFQ’s produced for material required for the production of the job.
• Emails from the customer pertaining to the estimate and part (drag and drop right from your email client).

After a user attaches a file, they will be prompted to create an association with the file.
Assigning the part the “Drawing (for part)” or “Part” association means we will attach this file to the part. All future estimates and jobs will see and get this file automatically. The other associations will stick with this estimate only. So when we create a duplicate of this estimate or promote the estimate to a job, the new estimate or job will not get the Reference, RFQ, Description or Other files.

At this point we have the basic information on the Estimate Entry screen filled out. At the bare minimum we will cover the process of building a router, and then prepare a quote for our customer.

**Router**

A router is a list of required operations necessary to produce a part. Each work center that the part will need to visit should be listed, but it’s also important to list other steps as well, such as ordering materials and preparing the shipment as the parts complete production. To ensure costs are being captured and we’re making parts profitably, and can ship the parts on time, it’s critical to document each step carefully.
Looking at the Router tab, we should first discuss the meaning of each of the columns.

- **OPR** – Operation Number. This is typical a number, starting at 100, spaced 10 apart, that can be used as shorthand to describe where a part is in the manufacturing process. The numbering is left up to the user, but duplicated numbers are not allowed by the client.

- **Route Code** – The type of operation this is. The Route Code is also important for costing purposes. Realtrac will categorize the costs associated with employees work sessions based on the route code of the operation. (In other words, we’re able to show the costs associated with building a fixture, setting up a process, and running the job.) The selected Route Code plays an important role with the Estimated Time associated with the step. We will discuss that more momentarily.
  - The default is **Run**, meaning this step is a production step where the machine operator is working on each piece individually.
  - The **Count** code should be used at any step where an operator should perform a counting operation to make sure the expected number of pieces matches the actual
number of pieces. Realtrac recommends that every router have at least one Count operation, typically at or near the end of the router when the manufacturing is complete and the parts will be shipped or transferred to inventory.

- **Fixture** will track time required to build, prepare and test a fixture. Typically, this step will be placed immediately preceding the Run operation that requires the fixture.

- **Program** is used to capture the time required to program the machine for a Run operation. Similar to Fixture, a router line with a Program code will typically have a Run operation immediately following.

- **Rework** – Rework operations may or may not be present on an initial router. They often times are added to a router during production or even after the part has shipped. If a flaw has been detected in a part or process and additional work is required, insert a new router operation after the faulty process, and assign it the Rework classification. Doing so will allow the Realtrac user to capture the costs of quality associated with the flawed part or process.

- **Setup** – Capturing the time required to set up an operation. Like Fixture and Count, this code will generally precede the actual Run operation that was setup. In Figure N above, note OP 120 is setting up Work Center 3, and then OP 130 is running the part on Work Center 3.

- **Other** – If none of the above categories fit, and you wish for an operation to based on an aggregate time value as opposed to a per piece time value, use the Other code. (See the Est Time Min Ea field below for additional details.)

- **Description** – A description of the operation. This description will be present on the router reports (AKA “traveler”) that is distributed to the work floor.

- **Work Center** – The work center that it is expected that the shop floor personnel will use to complete the router operation. Realtrac will allow users to log on to a different work center, but will warn the user before doing so.

- **Est Time Min Ea** – For operations added with Router Code of Run or Count, this value is the number of minutes it is expected to process (Run or Count) each piece that is produced on the floor. An entry of 3 means it is expected that each part will take 3 minutes. Router lines with any other Router Code, the time values are an aggregate time value. In the example, OP 100 and 120 are both Setup operations. It is expected that, regardless of the number of units quoted and ordered, the ordering of 4140 Bar (OP 100) and the Setup for operation 130 (OP 120) are going to take 3 minutes and 150 minutes, respectively.

- **Est Time Hrs Tot** – For users that prefer, or large jobs that are easier to estimate in hours than minutes, this column is also available. The column is simply another representation of the Est Time Min Ea column. Changing one column will immediately reflect in the other.

- **Work Sta Cnt** – If a work center has more than 1 work station within it, you can instruct Realtrac that you intend to run the job on more than one work station at the same time. This setting will come in to play as the estimate is promoted to a job and is scheduled. An operation that is scheduled for 2 stations will take half as long.
Overlap % - By default, Realtrac waits for all pieces to be complete at an operation before releasing them to the next operation. The user can choose to release the next operation early with this setting. Setting it to 50% means that once 50% of the pieces are complete in a router operation, it’s expected the next work center will begin working on it. Changing this will speed the schedule in Realtrac, but make sure that you intend to follow through on the floor when changing this setting. Else, Realtrac will calculate a schedule that is more aggressive than you are able to deliver, thus causing a potential late shipment.

The most important concept to understand with the router while it’s an estimate is that the times for Run and Count are “per piece”, and the times for the other Route Codes are “per job”. In Figure N above, we see the Estimated Time for the router for Estimate 14E4488 is 16.21 hours. This would be the estimate if the customer orders 1 unit from us. However, if the customer orders 2 units, the estimated time would not simply double. The Run and Count operations would double, but the other operations on the router will remain the same. When the user prepares a quote for a specific number of units, the Realtrac software will automatically perform this calculation.

For those of you following along in your office, go ahead and build a simple router with some Setup and Run operations.

Quote

Thus far, we’ve done the bare minimum in order to prepare a quote for our customer. We’ve filled out the basic details on our Estimate Entry form (including attaching a part to the estimate, and estimated some material and subcontract costs in the buyout section) and we’ve produced a router. At this point Realtrac has the information required to estimate the cost for the production of your parts; We’re ready to build a quote.

Within the Estimate Group, we have a Quote tab. A sample quote for my Estimate 14E4488 would look like the following:
When staring at an empty quote screen, there are at least 3 columns the user will want to fill out:

- Quantity to Order
- Labor / Overhead Markup
- Buyout Markup

With those values in place, the user can click the “Calculate Based on Router Estimates” button. Realtrac will automatically calculate the following:

- Weeks
- Cost Each
- Sell Each

The **Weeks** calculation takes in to account the router, including the time required to process the operation and the queue times associated with the work centers. (For more on queue time, please see the work center section in Chapter 1.)
**Cost Each** takes into account the expected labor and work stations costs (via the Work Center Rate) along with the buyouts of materials, subcontracts and other costs required to produce the parts. All those variables are factored together in order to arrive at the estimated costs to your business to produce a part. Hopefully this step is useful in understanding the importance of properly gauging the work center rates. Since the work center rate needs to include not only the costs of the running an average work station in the center, it also needs to include the average fully loaded costs for the employee running it. Underestimating these costs will lead to the Cost Each being too low, and there being no profit left for the job.

Realtrac calculates the **Sell Each** value based upon the markups for labor / overhead and buyouts.

Realtrac 10 supports quoting up to 10 different quantities.

**Promotion to a Job**

You’ve done your part. You built a router that correctly reflects the labor required to build the part, you’ve researched the material and subcontract costs well, and you’ve prepared a quote with a mark up to make sure you’re going to remain a profitable business.

And your customer accepted the quote! It’s time to promote the estimate to a job.

As you return to the Estimate Entry Form, you’ll note a “Create Job from Estimate” button on the Estimate Entry Form.
In Figure N. above, the user has clicked the Create Job from Estimate button and is being prompted to select which quoted quantity to produce in the job. The user can select any of the quoted quantities, and also choose what they wish to do with the bill. Users can choose to duplicate the bill directly (including all costing information), duplicate the content of the bill but clear the costing information or clear the bill entirely. None of these choices have an effect on the estimate itself, this only determines what happens in the job that is being created in the system.

Our newly promoted job will have our router (with estimated time that now reflects the quantity to manufacture), our bill, price each and many other values all set and ready for work.
Job Group
The Job Group provides the interfaces to input and edit job details (via the Job Entry Form tab), along with the searching and browsing from the list of jobs within Realtrac (via the List Jobs tab).

**Figure N. Estimate 14E4488 has been promoted to Job 14J4495 in Realtrac 10**

Figure N above shows us Job 14J4495 which was promoted from Estimate 14E4488 which we created in the Estimate Group section. Since this is a quick start guide, we won’t discuss all the Job Entry Form tabs in depth, but we will go over the basic tabs required to run a simple job.

If you’ve promoted an estimate (as discussed at the end of the Estimate section) many of the fields are going to be prepopulated with information. We will discuss these fields briefly, but for a more thorough investigation, we recommend reviewing the Estimate Entry section.

Over the course of this section, we will cover the following topics:

- Review the Job Entry Form and update fields as required
- Use the file attachment system to attach documents, drawings, emails, PO’s, etc..
• Review our router and make any adjustments
• Schedule our job
• Purchase materials required by the job

**Job Entry Form**

A job that originates from an estimate is going to have many fields pre-populated. It’s a good idea to review them and make sure everything meets your standards before officially launching the job.

After promotion, Realtrac will set the Quantity Ordered and Quantity to Manufacture fields to the quantity that was originally quoted. Some shops will alter the Quantity to Manufacture field to produce additional units. This may be required to produce some units for stock, or if some units are going to be destroyed or harmed during testing or external subcontract operations. It’s important to adjust the Quantity to Manufacture number as Realtrac calculates the estimated times for Run and *COUNT operations based on the number of pieces.

It’s important to note the Buyout section. As a job, Realtrac allows the user to manually adjust the buyout values, or use the values on the Bill section to control the Buyouts.

The Buyout values have a direct impact on the costing calculations (which both change in real time and along with the cost of labor and overhead yields the cost each and cost extended calculations by the software).

If set to **Manual Entry**, it is up to the user to capture costs on their own, and update the Materials, Subcontract and Other Costs directly. As a job, these fields are all cumulative – the total costs for the entire job (which is different than how the Buyouts fields work in Estimates – since as an Estimate, we don’t know how many units will be produced in the resulting Job).

Setting the Buyouts to **Bill** will automate the process of capturing costs. As purchase orders are received and material is consumed by the job, the costs from the purchase orders will be automatically transferred to the bill. This means the job will have a true real time view in to the materials and costs consumed by the job. Users are able to manually add bill lines for costs that may not be captured by purchase orders (or for users without the Purchase Order and Inventory module).

As a best practice, unless the project manager for the job plans to closely monitor the costing, Realtrac recommends setting the Buyouts to Bill. Then, we recommend using Purchase Orders to purchase material, and using the Inventory module to move the material to jobs as the floor needs the material. This will guarantee that your costs are up to date in real time and truly reflect the out of pocket costs involved in the production of the parts up to that point.

*We’re not quite ready for scheduling yet (the process of setting a due or start date). First, we going to finish preparing our job and review our router.*
File Attachments

We briefly discussed the Realtrac file attachment system in the Estimate section, but it’s worthy of another mention. Every job is going to have some digital files pertaining to it. This will often take the form of:

- Blueprints pertaining to the part
- Photos of the finished part
- Photos and documentation pertaining to inspection steps / final inspection
- Purchase Orders from the customer
- Emails from the customers with instructions and authorization to begin work
- Etc...

All of these documents can be attached to the job.

Documents can be attached to the job by dragging and dropping on the file strip (bottom of the screen) or by clicking on the Folder button in the middle of the Job Entry Form.

When a file is attached, a copy of that file is automatically transmitted from the Client PC to the Realtrac Server. If possible, the Realtrac Server will automatically make a thumbnail of the document (most image formats and PDF files), else Realtrac will show a generic icon for the file.

All users with appropriate access will be able to see, download and even change and update the files attached to the job. Let’s run through a fairly typical scenario; Our customer has provided us with a
Word Document that provides details on how they want the parts inspected. I will save this document to my computer, and then drag and drop that file from my computer on to the file strip.

In Figure N above, the user has the customer provided inspection routine document open in WordPad in the upper right. In the lower right, the user has selected this document from their “My Documents”, and has dragged and dropped it on to the Realtrac file strip.

When this happens, Realtrac asks the user to classify the attachment. The most important thing to understand of this process is that attachments classified as “Drawing” or “Part” will be attached to the part; Every time this part is made as a job or estimate, the user will see the attachments. Attachments classified with the other categories will remain with the job, but will not appear in future jobs or estimates for the part.

Since this inspection routine involves the part itself, I categorize the document as being for the Part.

At this point, a copy of the document is made and transmitted to our server. My file strip is automatically updated with the new document.
Jumping ahead in time, some day in the future, our customer calls us and wishes to change the frequency with which we will inspect the parts we are producing. In order to update this document, the user should load up the Job in Realtrac, and right click on the document and choose “Get File”. This will automatically download the latest version of the file, and launch the document in the default viewing application on the user's computer. In addition, Realtrac automatically opens the “Realtrac File Checkout List” window.

As soon as we edit and save the document (or drawing, blue print, etc..) the Realtrac File Checkout List will turn that file name red. Realtrac has noticed that the document has changed, and needs to be uploaded and synced with the Realtrac server.

After closing out of the editing application, the user can click the Check In button in the Realtrac File Checkout List window, which will update the server to the latest version. Using this method to
manipulate files insures that everyone looking at the job will have the very latest and greatest files at their fingertips.

In addition to documentation that the user can attach to the job, Realtrac will automatically attach certain documents to the job as well. All Invoices, Credit Memos and Purchase Orders pertaining to the job that are printed, previewed or exported will be automatically attached to the job as PDF documents. All Realtrac users will have instant visibility of these documents and have a great idea where the job stands (Users don’t have to look any further than the Job Entry Form to answer questions like “Have we ordered material?”, “Have we invoiced the customer?” or “When did we last ship units to the customer?”).

**Router**

The majority of the Router entry screen was covered in the Estimate Group section. Understanding routers is critical for success, so please review that portion even if you do not have the Estimate module in your Realtrac system. Here we will discuss only the fields specific to job’s interpretation of the router interface.

Within the columns in the body of the router, the additional fields are:

- **Qty Comp** – The number of completed pieces. As your shop floor employees log out of jobs, they are prompted for the number of completed pieces. An accurate count will be beneficial for Employee Summary reports (where we compare the Employees actual pace versus the expected pace based on the estimate).
- **Qty Scrap** – The number of pieces that were scrapped in the operation.
- **Actual Time Hr Tot** – The actual amount of time that has been logged on this operation. If this exceeds the total estimated time, this value will turn red.
- **Date Complete** – If the operation has completed, then this is the date it was closed. Shop floor employees are given the option to close an operation during the log off process, but the operation can also be closed by right clicking on the line in the router and choosing “Close Router Line”.

The interface in the lower right portion of the Router tab differs a bit.

![FIGURE N. JOB ROUTER TOOLS](image)

The **Logon** button will allow a user to quickly log on to whatever router operation is selected in the grid. It’s a shortcut to speed the logon process without having to open the shop floor client.
The **Dup Job Router** and **Dup Est Router** buttons will allow a user to pull in an existing router from a previous job or estimate. As a best practice, we recommend using tried and true routers as a starting point for new routers. Users are able to examine past routers and compare the estimated versus actual times, which makes it more likely will be able to profitably make a part in the future.

Highlighting on an operation and clicking the **Work Session** button will bring up the Work Session review screen, showing you all the individual Work Sessions (a work session being a block of time an employee worked on the job) for that operation. If you notice an operation that ran particularly long or short, it may be worthwhile investigating who worked on the part, when.

The **Reports** button will open up the Report Window, allowing the user to generate a variety of router reports (AKA “travelers”).

The **Update** button will change color and pulse when changes are made to the router. It’s not necessary to push this button in the normal course of building/editing a router.

The **Allow Router Additions from Shop Floor** checkbox means that shop floor employees will be able to add new router lines to the router from the shop floor. With this unchecked, the employees will need to talk with someone with greater access in order to modify the router. By default this is not checked, meaning only “full” Realtrac users will be able to modify routers.

If we’ve promoted an estimate to a job, Realtrac does the math to figure out the total estimated time (since when we’re estimating a job, we do not yet know the number of units we’re going to manufacture). It’s still a good idea to review the times that have been calculated, and see if any adjustments are made.

If you’re making a new router for a new job, then please review the Router section of the Estimate Entry Form section for details on Router tab.

**Scheduling**

For the majority of users, we’ve reached the time to schedule the job. The only reason a user may still hesitate to schedule the job is if the order or lead times for material for the job is unknown, or likely to be a long time. If that’s the case, then you may wish to investigate and begin the ordering process first (see below, the Purchase Orders section). Assuming you have stock on hand, or can receive the required materials in relatively short order, we should set our due or start dates and officially launch the job in Realtrac.

Realtrac supports both forward and backwards scheduling. Backwards scheduling is more common; Your customer tells you when they want the order complete by, and Realtrac will calculate backwards what day the job should start in order to meet the deadline. When a job is backwards scheduled (the default), the user can set the Due Date, using the router and work center queue times, Realtrac will automatically calculate the Start Date for the job. (This is why when Backwards Schedule, the user cannot alter the Start Date.)
If making the parts for stock, or the delivery date isn’t sensitive, a user can choose to forward schedule a job. When choosing forward scheduling, the Due Date is locked (Realtrac will calculate it) and the Start Date can be manipulated.

After selecting a date, Realtrac will calculate the Start or Due date, and also calculate the **On Time** value. The **On Time** value, visible from the List Jobs screen, tells the user how many days they have left until they should start the job (colored green), or how many days behind the job currently is (colored red). In addition to calculating this value when the user first sets or changes the Start / Due dates, Realtrac will automatically recalculate this value every night. This means that even if a job slips behind, it is still possible to catch up and meet the delivery date.

It is possible that after setting or changing the Start/Due date, that Realtrac will refuse to properly schedule the job. The most common causes of this are:

- The Quantity to Manufacture is set to 0.
- The router has no operations.
- We’ve already shipped enough units from this job to satisfy the Quantity Ordered value.
- All the router operations are marked as closed.

If the Loading module is enabled, a tremendous amount of information is available on the status of your facility. Loading allows for quick and easy identification of where the constraints are in your shop, insights in to which jobs are having the biggest impact on your constraints, and even features a calculator that lets users model what would happen to their loads and shipments if they added extra capacity (additional machines, running second shifts, etc.). The Loading module is beyond the scope of this document, but it can really illuminate what is going on in a shop.

**Purchase Orders**

**Buying Items**

The Purchase Order and Inventory groups are a separate module, but to get the most out of an ERP, it’s important to be able to track costs, vendors and especially the lots of your inventory. Users without the PO/Inventory module should use the Jobs’ Bill tab in order to manually track costs.

Building a proper purchase order is a cocktail with 3 ingredients:

1. Vendor added to Realtrac (making sure the system has proper Billing and Shipping contacts)
2. The Item added to the Item Master
3. Building the purchase order itself

In some respects, step (2) is optional, but we will discuss using the Item Master as it is what we recommend, and the Realtrac ERP system can provide some great business intelligence insights based on the purchase habits of items within the Item Master.
We covered the process of adding Vendors in the System Setup section. Please review that section if you need help in adding Vendors to your system. Realtrac also offers a utility to pull Vendor information from QuickBooks, if you already have Vendors within that system.

So, let’s dive right on in to building an Item Master. When we’re purchasing an item for the first time, fire up the Inventory Group by clicking on the Inventory button in the Realtrac ERP toolbar. Within the Inventory Group, click on the Item Master Entry tab.

![Image of Item Master Entry tab within the Inventory Group]

**Figure N. Item Master tab within the Inventory Group**

Clicking the **Add Item Master/Class** button will let us add a new item master. Select an Item Class from the list on the left (or, add a new Item Class if none are appropriate) and input an Item Name and Description in the lower right hand part of the window. An entry for a 1 quart can of green paint may look something like:
Once we have an added an item master, we can add additional details about the material we have added. One important field to change is the **Bill Type** field. Setting the type to **Material** tells Realtrac that you expect to receive physical items that will need to be checked in and added to inventory. **Subcontract** good on the other hand, do not involve the receipt of materials and will be handled differently.

If we are adding a metal, we can add a density value to the “lb/cu. in.” edit box, which will let us use the Material Scratchpad (in the Estimating module) to help us estimate the costs of the material. We can also add a unit of measure (which will appear on PO reports) and reorder points to help in ordering materials for stock.

The last step in the Item Master is to add vendors for the material. Along the bottom of the Item Master screen the software lists the current vendors, and lets users add and remove vendors for the material.

With our vendor and item master in place, we’re ready to build a purchase order for our new job. I’m going to buy a few cans of our newly added Green #12339 for our newly created job.

Within the Job Group, navigate to the PO tab and we can commence building our new Purchase Order. Within the PO, we can click the New PO button to start our new invoice. Our new PO will be assigned a number and the PO date, and we can begin to assign a vendor and our items.
All edit boxes that are light green in color are fields that bring up a search interface. So if we click in the company name field and begin typing, the Vendor Search interface comes up. As you continue to type the name of your vendor, the result set will shrink, letting you hone in on the vendor you are creating this PO for.

![Vendor Search interface](image)

**FIGURE N. VENDOR SEARCH SCREEN, THUS FAR I’VE ONLY ENTERED THE LETTER H, AS I CONTINUE TO TYPE, THE RESULTS WILL GET MORE FOCUSED.**

I select my vendor, *Haus of Paint*, and hit the enter key or click the Select button. My Ship To value will fill in automatically with my default company information (which can be set in System Group under the Server Settings tab).

Next, we can fill out the basic PO information: Expected Date, Close Date (close the PO after receiving all the items), Terms (IE: “Net 30”), FOB, Ship Via and the name of the buyer.

Next, we need to add the items to the Purchase Order. For each item we wish to add, we need to click the Green + button in the item list. This will activate the PO Item line, and let us add an item.
Next, we need to add the specific item to the PO. Within the Item Name field, begin typing the name of the item we wish to purchase; In this case, it’s my Green #12399 paint.

As I begin to type the word green, the Master Item Search window will appear.

As we can see in the Figure N, this Realtrac ERP system currently has 2 Item Master entries for Green paint. The top row is colored green, which indicates that Green #12399 is an Item Master currently offered by my Vendor, Haus of Paint. Green #311, our second row, is an item we can purchase, but we do not currently show Haus of Paint as a vendor of the item. Realtrac lets the user choose items not currently available at a vendor, but it will **not** automatically add that item that vendor to the item’s official vendor list.

As soon as I choose Green #12399 and hit the enter key or click the **Select** button, the item will be added to the purchase order.

Since I’ve created this PO within the Job Group, while looking at my Job #14J4495, the PO will automatically choose that the destination for the material is a Job, and it’s for Job #14J4495. It’s possible
to create PO’s that are destined for jobs, inventory (IE: stock) or non-inventory. Changing that value is done by clicking on the Dest column.

Marking an item as for a job ties a virtual string around the item when it arrives, saying “This item is destined to be consumed by a job when it’s needed”. It essentially reserves the item in inventory until it is officially moved and consumed by the job.

Marking an item for inventory means that once it arrives, it is fair game to be used in any job. Users can go in to the Inventory Group and choose to allocate it for a job (“tie a virtual string around it”) or move it to a job (consume it immediately).

An item set for Non-Inventory will not have an entry created in the Inventory module after it is received. The purchase order itself will be the only record of the item in the Realtrac ERP system.

The Quantity Ordered and Cost Each fields can be manipulated. The Cost Each value will default to the existing vendor cost from the item master. If the user changes it, they will be prompted asking if they wish to change the costing in the item master.

Once the purchase order is created, we need to officially issue the invoice in some manner. Issuing the invoice tells Realtrac that we’ve submitted the invoice and prepares Realtrac to receive the items when they arrive. Users can issue the purchase order in two different ways:

- Clicking on the Verbal checkbox near the top of the purchase order. This indicates that we verbally issued the order to our vendor, and they have begun processing the order.
- Previewing, printing or exporting the purchase order via a report. After these actions, the user will be asked if the purchase order printed correctly. When the user clicks Yes, the PO will be marked as printed and issued, and the items can be received.

Additionally, once we issue the purchase order, Realtrac will automatically create a PDF version of the purchase order and attach it to the job’s file strip.

**Receiving Items**

Items can be received individually or in their entirety (being all various items on the PO, and all the quantities therein). If an individual item is received, or partially received, select the item from the grid and click the **Receive Item** button. This will bring up the PO Receive Items window.
Within this window, we can add a lot number and a location. In addition, Realtrac allows certifications and other files to be attached to specific lots of material. This is essential for shops or projects that require high levels of traceability. Combined with the Realtrac Where Used functionality, if a certain lot of material ends up being faulty, Realtrac can quickly show the user all jobs that may be affected by the defect.

As an item marked as a Material is received, it is immediately allocated for the job, but not yet moved (or consumed) by the job. This means that the mere receipt of the item is not enough to trigger the Material item being added to the Bill. This is important to achieve a true real time view of the costs associated with the job.

Once the job reaches the point where the material is required, open the Inventory Group, and in the Inventory tab, use the search boxes to focus in on the material we wish to move to the job.
In Figure N above, we have used the search facility to find our line of Green #12399 paint that we have ordered via a purchase order and have since received the shipment. Note in the Figure that both the Quantity on Hand and Quantity Allocated to Job values are 1 unit. Additionally, the Job No. value, filled out as 14J4495, shows the user that this item has been allocated for the job, but not yet consumed (the virtual string is tied around it reserving it).

With the inventory item selected, clicking the Move to Job button will bring up the Move Inventory to Job window.

![Move Inventory to Job](image)

**FIGURE N. MOVE INVENTORY TO JOB CONFIRMATION WINDOW**

Here we confirm the dollar amounts we wish to push on to the jobs bill. If a different dollar amount if required, cancel the move operation, and open the Adjust Inventory tab by double clicking on the inventory item. From there, the cost, price and other values can be adjusted.

When the Move button is pressed, the items are considered consumed by the job. The bill tab for the job is automatically updated with the details on the material. Additionally, the costing is automatically adjusted to reflect the new costs for the job.
<table>
<thead>
<tr>
<th>Material</th>
<th>BR No.</th>
<th>Description</th>
<th>Unit</th>
<th>Date</th>
<th>Unit Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1114</td>
<td># miesią #12391</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Run the Job!
In this section, we will discuss how the Shop Floor module works, and the tools Realtrac provides to review work sessions.

A work session is the basic building block of labor in the Realtrac ERP system. A work session consists of an employee that logs in to a specific job’s router operation at a specific work station. The user logs in to the session as they begin work, and when they complete their task, they log out and note the completed number of pieces and scrap.

The Shop Floor interface is the tool that employees use to log time on jobs. As described in the System Group discussion, only employees with the Shop Floor role will be able to log in to jobs (this means even the purchasing managers should have the Shop Floor role, since Realtrac recommends building router lines for the purchasing of materials).

Realtrac provides the Work Sessions interface to allow office personnel the ability to monitor and change the work sessions in Realtrac.

Shop Floor
At this point, we’ve built an estimate, promoted it a job, purchased some material for our job, and we’re ready to get started working the job throughout our shop floor. We need to get our employees logging in and out of operations.

Best Practice: Realtrac recommends creating a router line for the purchasing operations. So technically, an employee may have already logged in to the job to record their time purchasing the material, and to close that operation to signal to both management and workers that the purchasing phase of the job is complete.

The Shop Floor interface consists of two tabs, Workstation Status and Employee Status. Employees can initiate the login and logout procedure from either. (In addition, Realtrac offers a mobile client which allows employees to log in and out of operations via their mobile device. This product lies beyond the scope of our Quick Start Guide.)

![Figure N. Workstation Status Tab](image-url)
In order to log in to a router operation, the user can click, or on a touch screen enabled display, touch, the Logon Router Operation button on the bottom of the screen. This brings up the Logon to Router Operation window (Figure N above).

Browse or search for a job from the list. Selecting a job will cause the Operation list to fill with all the router operations for the job. Selecting a router operation will cause the default work station to be selected from the Work Station list. Any work station, even one not necessarily from the appropriate work center can be selected (and the user will be warned if selecting a work station outside the assigned center). Lastly, the employee clicks their name from the list, and pushes the Accept button to log in to the router operation.

The WorkStation Status tab provides a grid based view in to each active work session. Within the grid, users can click, or on a touch screen enabled display, touch, on the status value to switch between running the job and going on a break. In order to log out of the operation, the user clicks or touches on their name in the grid, which brings up the Logon to Router Operation window yet again. The employee is asked to confirm the completed piece and scrap count and will be logged off the router operation.

<table>
<thead>
<tr>
<th>Active Jobs</th>
<th>Operation</th>
<th>Work Station</th>
<th>Employee</th>
</tr>
</thead>
<tbody>
<tr>
<td>144458 Job for 100 ps for Fuerst LE</td>
<td>100 ORDER 4140 BAR</td>
<td>D1</td>
<td>Angelo</td>
</tr>
<tr>
<td>144459</td>
<td>120 *SETUP FOR OPERATION 130</td>
<td>D1</td>
<td>Angelo</td>
</tr>
<tr>
<td>144461 Hi Matt</td>
<td>150 MILL INNER FLATS &amp; DRILL</td>
<td>D1</td>
<td>Angelo</td>
</tr>
<tr>
<td>144462</td>
<td>140 *PROGRAM SL-4B FOR OPR 180</td>
<td>D1</td>
<td>Angelo</td>
</tr>
<tr>
<td>144463</td>
<td>150 *SETUP SL-4B FOR OPR 180</td>
<td>D1</td>
<td>Angelo</td>
</tr>
<tr>
<td>144464</td>
<td>180 TURN FACE AND CUT RING GROVE 1.096+.005</td>
<td>D1</td>
<td>Angelo</td>
</tr>
<tr>
<td>144465</td>
<td>500 INSPECT</td>
<td>D1</td>
<td>Angelo</td>
</tr>
<tr>
<td>144466</td>
<td>510 *REWORK AS REQUIRED</td>
<td>D1</td>
<td>Angelo</td>
</tr>
<tr>
<td>144467</td>
<td>520 HEAT TREAT</td>
<td>D1</td>
<td>Angelo</td>
</tr>
<tr>
<td>144468</td>
<td>540 GRIND TO FINISH OD</td>
<td>D1</td>
<td>Angelo</td>
</tr>
<tr>
<td>144469</td>
<td>900 *COUNT &amp; INSPECT</td>
<td>D1</td>
<td>Angelo</td>
</tr>
<tr>
<td>144470</td>
<td>910 PACK &amp; SHIP</td>
<td>D1</td>
<td>Angelo</td>
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<th>Qty to Min</th>
<th>Pieces Scraped</th>
<th>Operation Completed</th>
<th>Accept</th>
<th>Cancel</th>
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<td>100 ORDER 4140 BAR</td>
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<td>144462</td>
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<tr>
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</table>

**FIGURE N. LOGON TO ROUTER OPERATION WINDOW**
The Employee Status tab provides the same data as the Workstation Status tab, but presents the data in an employee centric manner. Users are able to log in and out of jobs by clicking or touching their name.

The Employee Status screen provides some additional feedback to shop floor employees and management.

Both the employee name and the timer box are color coded to provide immediate feedback to someone looking at the screen.

**Name Color Guide**

- **Gray** – Employee is not logged in to an operation.
- **Green** – Employee is logged in to an operation and in the **Run** status.
- **Dark Red** – Employee is logged in to an operation and in the **Break** status.

**Timer Color Guide**
- **Green** – Router operation has run from 0 – 90% of the Total Estimated run time.
- **Yellow** - Router operation has run from 91 – 110% of the Total Estimated run time.
- **Red** – Router operation has exceeded 110% of the Total Estimated run time.
- **Black** – Router operation had no estimated time input.

This information can be a great management tool to quickly ascertain which router operations have already, or are in danger of exceeding their estimated run time. Going over the estimated run time will have a negative impact on the scheduling of the job, meaning that it may not finish in time unless corrective actions are taken.

**Work Session Review**

The Work Session screens are designed to monitor, alter, and if necessary, manually create work sessions in Realtrac.

![Figure N. Work Session Review Screen](image)

The maize edit boxes along the top indicate these are search fields. Input in to these fields will dynamically change the results in the window. By default, the window will show the most recent 1 month of work sessions, but that window can be widened to include a wider date range.

All cells colored light green indicates that the values can be changed. In order to change the value, double click on the cell you wish to change and the appropriate interface will appear to let you change the values.

![Figure N. Manually Adding a Work Session Record](image)
If an employee has forgotten to log in to an operation, this interface can be used to create work sessions. Use the interface elements along the bottom of the window in order to set the date, job, router, workstation and employee information. Don’t forget the piece count and scrap count in order to make sure the job has an accurate reflection of the status and how complete the job may be.
Shipping and Invoicing

Well, we’ve finished the production of our part. Now it’s time to ship, invoice and get paid for all the hard work. Before we dive in to invoices and packing list, we’ll briefly review the role that a router plays in the final steps of the job and with inventory.

As the job finishes its final stages of the router, Realtrac is ready to transfer the produced units to inventory. Realtrac has a set of rules to determine which router operation will trigger the transfer of parts to inventory. Those rules are:

- If there is one or more router lines with a route code of COUNT, then the final COUNT operation on the router.
- If there are no routers with the COUNT route code, then Realtrac will use the final line of the router operation.

There will be only one router operation that will trigger the transfer of the finished parts to inventory.

It’s important to understand this as it makes an accurate piece count for this operation essential to make sure inventory has enough pieces to cover the shipment. Without the pieces finished and transferred to inventory, when a packing list is generated the user will get a warning that there are no enough completed pieces to cover the shipment.

Onwards and upwards to shipping and invoicing our product!

Shipping
As soon as a job is scheduled, Realtrac will automatically produce a simple shipping schedule for the job. By default, the shipping schedule will schedule to ship the entire quantity ordered value the weekday before the due date. The ship schedule is very flexible, but is beyond the scope of our document. Still, please familiarize yourself with the Ship Schedule tab within the Job Group if you wish more flexibility in scheduling product will ship.

Assuming we’ve completed our parts and they’ve been transferred to inventory, we can begin producing our packing list for the product. Within the Job Group, navigate to the Invoice tab to create the initial invoice.

Clicking the New Invoice button on the screen will set up our basic invoice with most of the fields populated with default values.
The most important number on the screen is the Quantity to Ship / Invoice value. This is where we input the number of units that we plan to ship, and eventually charge our customer for. Realtrac has a 1:1 relationship between invoices and packing list. Every packing list will be for a set number of units, and the corresponding invoice will be for the same number of units.

As the Quantity to Ship / Invoice is changed, the form will automatically calculate the total price. These values can be overridden, they are not written in stone. Comments can be added in the field which will appear on the invoice and packing list reports when printed.

With the Quantity to Ship / Invoice set, we can issue a packing list. Click the reports button, uncheck the Invoice / Credit Memo Report Type, and check off the Packing List / Label Report Type. Realtrac offers different formats of Packing Lists (Plain Paper, Pre-printed Form, Window Envelope) so select a report format from the drop down list that suits your needs.

Since Realtrac helps to manage your inventory, when creating a packing list, Realtrac is going to require some additional information on which units you are shipping to your customer.
Since we are at the stage of actually shipping products, Realtrac expects that you have enough completed pieces in order to meet the shipment (see the beginning of the Shipping and Invoicing section for a description of how Realtrac knows how many completed pieces there are for the job).

If that’s not the case, Realtrac, will let the user create a virtual inventory of the items. This will in effect create a negative inventory for the item being produced by the job. As the items for the job are completed, they will be diverted to cover the negative inventory until equilibrium has been reached.

If you have inventory to cover the shipper, then your Packing List Inventory Select window will look similar to the following:

![Packing List Inventory Select window](image)

**Figure N. Packing List Inventory Select confirmation window. We have inventory to cover the shipment.**

In Figure N above, we see that 2 units have been produced by our job and are available for shipment. In we had created this part in the past and still had units in inventory, then we could also choose to ship those units to our customer as well. (And, keep in mind, behind the scenes, Realtrac is keeping track of which specific lots of materials went in to the production of each of these parts.) We are shipping 1 unit, out of the 2 currently on Hand, and we can click the **Ship Item(s)** button in the lower right.
Figure N above is the interface we see if we don’t have any units, or not enough units, to cover the shipping of our product. The Create Inventory button on the right of the screen illuminates, which lets us create the virtual negative inventory for our product.

With the negative inventory created, we are free to print the packing list for our product. In the case above, we’re shipping 1 unit of the product to our customer. As the job completes its first unit, the deficit will be erased, and all additional units will automatically be transferred to inventory.

**Invoicing**

Finally, time to get paid from our customer. Since we’ve shipped our product, we’ve already created an invoice. We need to revisit this invoice, and produce a formal invoice to present to the customer.

As we return to our invoice, we note that the header for our invoice has changed slightly.
Our header gives us some information. We know that the packing list has been printed (“Pck Lst Printed” in green) but the invoice has not been printed (“Not Issued” in red). Since my invoice has not been printed, there is still have a chance to review the pricing, additional charges and tax and freight information.

If we’re happy with the invoice, we can print our invoice. The Reports button on the screen will bring up the Realtrac Reports window, and the user can choose a specific report format from the drop down list next to “Invoice / Credit Memo”.

![Figure N. Choosing a specific report from the drop down menu](image)

After choosing a report, the user can choose their action: Preview (show a preview of the report on screen), Print (send to a printer of your choosing) or Export. Reports can be exported to PDF, Excel, HTML or PNG (image) format.

After previewing / printing /exporting, Realtrac will ask the user if they wish to mark the invoice as printed.

![Figure N. Mark invoice as printed](image)

This is question has ramifications on the invoice. An invoice marked as issued is treated as a legally binding document and for this reason Realtrac attempts to lock down the invoice. So please make sure that the contents of the invoice are correct before answering Yes to this question.

*If an issued invoice has been found to have a bug, the best practice recommendation is to void out the incorrect invoice, and issue a new invoice with the proper data.*
Winning the Race
Hopefully you love your job, but in order to stay in business, you need to make money. We need to make sure the parts we are building for our customers are done right, done on time and are produced in a profitable manner.

Luckily, Realtrac provides tools to help make sure you become profitable and stay profitable.

Before we discuss the various client screens and reporting options that are available, we will take one last moment to reflect on the importance of the work center, work station and employee costing in Realtrac. Realtrac uses these values (set in the System Group, discussed earlier) both in estimating what a particular job should cost, as well as analyzing what a job has cost. Without a true reflection of the costs of an employee (which should go well beyond just the straight hourly wage they are being paid) or work station (which goes beyond just the payment to the bank) then you are operating in the dark.

That said, let’s look at the tools Realtrac provides.

Realtrac Business Intelligence
The Realtrac ERP system has business intelligence (also known as “BI”) built in to the base package. The Realtrac BI system is constantly monitoring parts, jobs, estimates and work stations to look for inefficiencies and will warn you as early as possible.

These warnings come in the form of our System Messages panel. When you are looking at any window in Realtrac, you will notice there is a button in the upper right labeled Options. That button, normally beige in color, will illuminate a green color when a System Message has been automatically generated. Click on the Options button, then select “System Messages” in order to read the warning or informational message from Realtrac.

Some example of situations Realtrac is constantly on the look out for include:

- When producing a job for a part, Realtrac will examine past jobs for that part. Realtrac will warn you about the profitability of those past jobs. It’s a great idea to review particularly profitable or unprofitable jobs to see what went right, or wrong in the past making this part.
- When scheduling a job, Realtrac will warn you if any of the work centers that the part needs to visit are overbooked. Overbooking a work center can lead to missing ship dates.
- If the part has been made before, Realtrac will examine past routers, and compare the estimated router times to actual. Realtrac will warn the user they may need to adjust certain router operations based on past performance.
- If a Job has a bill of materials, Realtrac will automatically inform the user about which materials they have already in stock, and which materials they will need to order to produce the lot.

This is just a sample of the messages you will receive in the Realtrac system. Keep an eye out for that Options button turning green!
Profit and Loss Reports
Realtrac offers reports that will give you an overview of the costs and income on a large number of jobs. Many users will use these reports to pinpoint specific jobs they should look closer at. To access these reports, open the List Jobs tab within the Job Group. Use the Realtrac search functionalities in order to pare down the list of jobs to just the jobs you wish to examine.

The maximum number of jobs that Realtrac shows in the List Jobs screen is set in the System Group -> Server settings (default 200). However, reports will always show all jobs matching the search criteria, regardless of the setting.

The Work In Progress report (directly within the Work in Progress report type) offers a glimpse into the status of existing jobs. This report is intended to be run against open jobs (as opposed to jobs that have been closed). This job is also of use during the end of year, if your accounting resource needs information on the value of jobs currently on the floor.
Realtrac offers 2 different Profit and Loss reports under the All Jobs / Ests Detail report type tab. These reports are intended to be used on both currently open as well as closed jobs. Both reports feature information on the expected value of the order, the dollar amounts shipped and invoiced; Additionally both include costing information and a profit calculation.

The basic Profit and Loss report includes information comparing the job to the originating estimate, if the job was originally created as an estimate.

The Profit and Loss Buyout Breakout report does not include any estimate information, and in it’s stead it breaks down the internal costs a bit further than the basic report does.

Try all the reports, and see what gives you the information you need to run your shop.

Costing Screen and Reports
You’ve used the Work in Process and/or Profit and Loss Reports to see which jobs need a closer inspection. Load the Job Group, and navigate to the job you wish to examine closer (either use the search facilities in the List Jobs screen, or input the job number directly in to the light green Job Number edit box on the Job Entry Form tab). With the job loaded, click on the Cost tab.

**Figure N. Profit and Loss Buyout Breakout report**
The costing tab provides a further breakdown of the costs incurred in the production of the job. Using
the router codes in the router, Set Up, Run, Rework, Programming and Fixture costs are segregated out.
In addition, this tab shows a distribution of costs – Labor vs. Overhead (machine costs) vs. Buyouts.

The Report tab provides access to 3 additional job specific reports.

**Job Cost Detail** – This report breaks down all the work sessions that went in to the production of a part.
So if an employee logged in to 8 different sessions over the course of 5 work days, the details on each of
those 8 work sessions are present on the report. This report also breaks down the actual hourly costs,
along with a comparison of the good pieces and scrap produced by the operations.

**Job Cost Summary** – This report provides a broader overview of the labor and overhead costs of the job.
Each router operation is summarized, as opposed to the Cost Detail report that shows you all individual
work sessions.
**Overall Cost Summary** – A printable report that provides similar information to that of the Costing tab. This report includes pie charts with information comparing:

- Router Code operations, IE: Run vs. Fixture vs. Program
- Material vs. Subcontract vs. Other buyout costs
- Labor vs. Overhead vs. Buyout costs

**Employee Performance Reports**
In addition to the costing for jobs, Realtrac provides a performance report for you employees. We have provided a new Grouped Employee Time Summary report.

This new report will group together all the various sessions your employee performed on a jobs operation. Instead of trying to track their performance in many work sessions across many days, all those sessions get grouped together for a concise look at their performance.
This report makes it easier to both compare employees performance against each other, but also to compare the employees performance to that of the estimated router. Testing and evaluating the performance of the employees producing router estimates is as important as monitoring the production floor personnel.