The function of the Schedule module is to efficiently schedule work orders through a production facility, using finite capacity scheduling (FCS) techniques, to arrive at predicted completion times for each of the orders.

The following are components of the Schedule module:

Trial Schedule

The Trial Schedule takes each work order, assigns it a priority, looks at the route to build it, reserves time on the work centers it will use, and predicts a date when it is expected be done. With this method there is no need to manage queues as every step on a job has time slots assigned on work centers.

Both "Forward" and "Backward" scheduling methods are employed. Forward scheduling is most commonly used when the order has a start date and the objective is to know when it will be completed. Backward scheduling often occurs when a customer wants the order by a certain date. The objective is to know when to start it. Individual orders can be set to use either method. Both forward and backward work orders are simultaneously scheduled.

The scheduler can be set to have a resolution of one minute or one hour. At one minute, the next job is scheduled to start within one minute of the ending of the last one. At one hour, the next job is scheduled to start within one hour of the ending of the last one. The resolution that will be right for you will depend on the type of jobs that are scheduled. In either case, the scheduler is amazingly fast. Thousands of route steps can be processed per minute.

An advantage of using the scheduler is that even if the recommended start and finish times for the jobs are ignored, there is still a listing of those jobs, in priority order, to act as a guideline.

A major feature of the scheduler is that it permits route steps to overlap. What this means is that the next step can start working while the current step is still finishing parts. Used correctly, this can significantly compress the time it takes to process a job and, more importantly, it can increase the utilization of expensive machinery that might otherwise sit idle waiting for an operation step to complete.

The scheduler supports *Synchronous Manufacturing*, a very advanced way of tying the production schedule to MRP planning. The key is that the components on a bill of material can be matched up to the route operation steps on which they are used. When the steps on work orders are scheduled you are, in effect, also scheduling when the material is needed.

The Trial Schedule does not automatically replace the implemented production schedule.
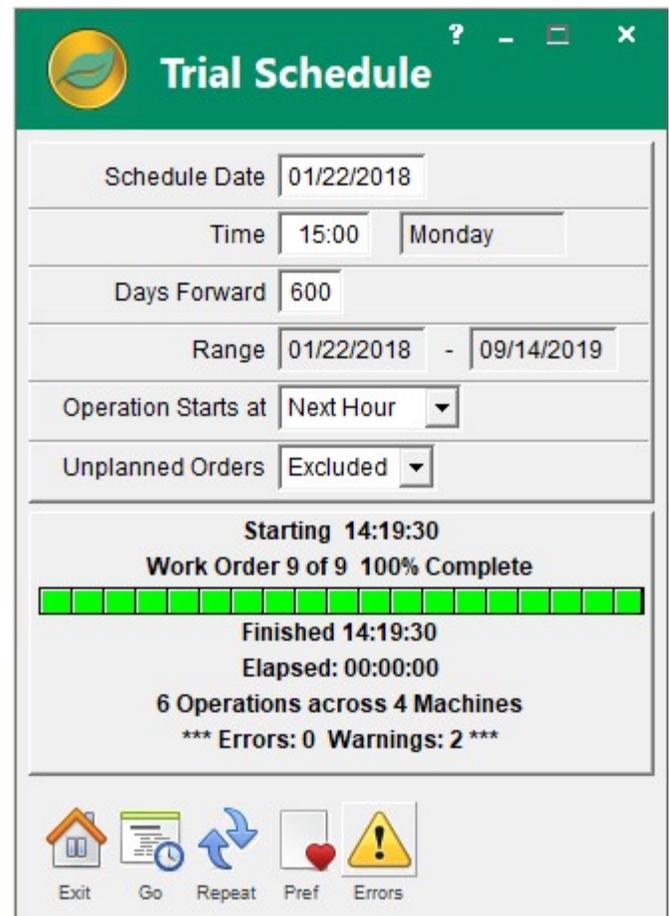
## Implement Schedule

A manufacturing facility requires a stable schedule from which to work. The desirable minimum period of time varies by company. During that time new work orders are entered, the progress of current work orders is recorded, priorities are revised, trial schedules are run and reviewed, etc.

When it is time to update the current production schedule, it is replaced by the last calculated trial schedule.

## Unlock Order Schedule

Work orders become locked when their operations are manually changed or entire orders are marked as "locked". Orders which are locked are excluded from the trial schedule. This function lists those orders and allows individual ones to be unlocked and rescheduled.

## View Schedule

This is a graphical overview of how work orders and work centers are scheduled. A "zoom bar" allows a couple months or a few hours to be viewed out of a day of the schedule. For example, using the options and filters provided, a specific job
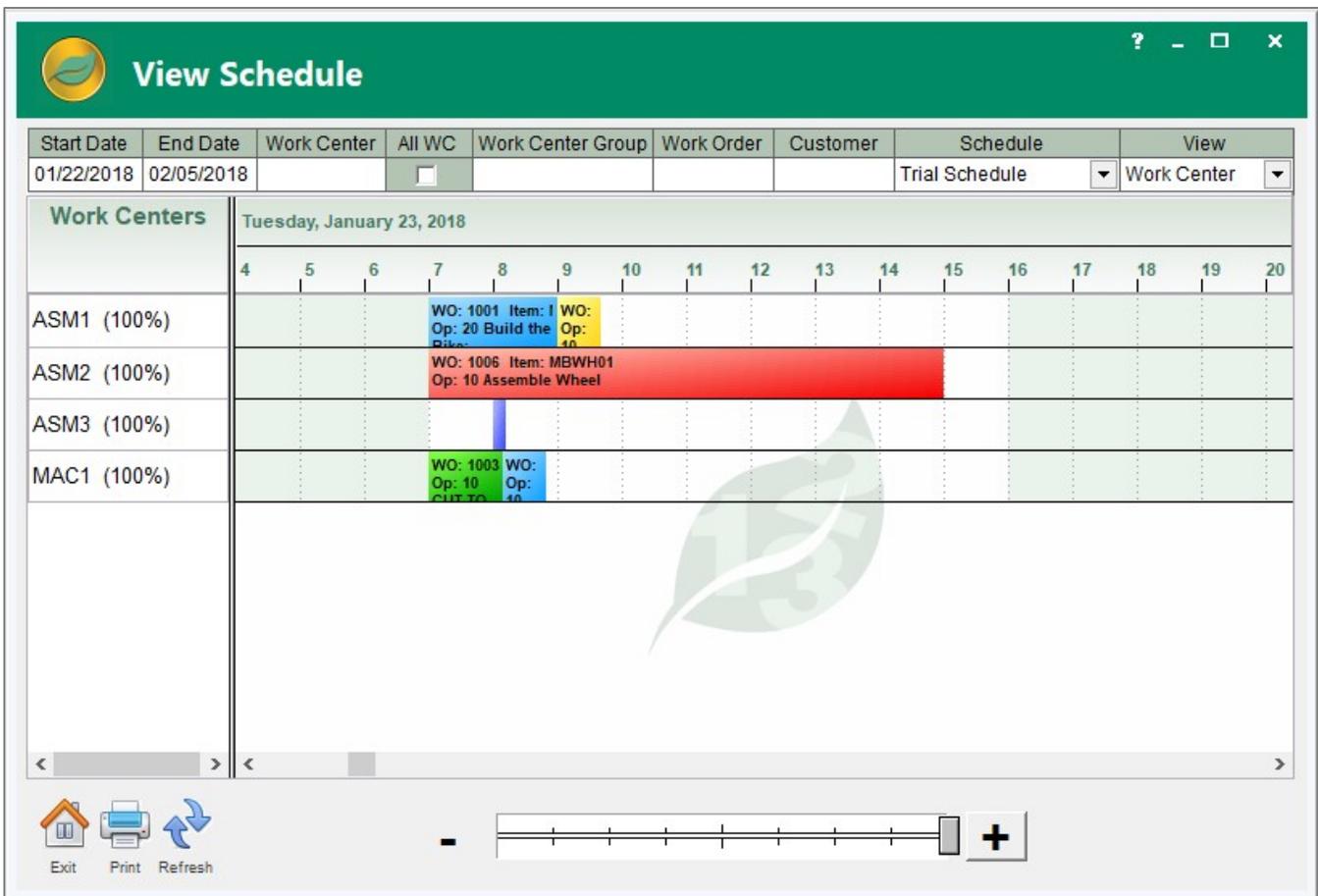


can be zoomed in on to show how it will proceed through the shop.

The color-coded bars, representing the individual operation steps, can be rearranged by dragging and dropping them as permitted.

Drill down to the actual work order by double clicking on any step.

## Schedule Inquiry

Schedule inquiry supports drill down to detailed information on the loads in the shop, the schedule of individual jobs, the number and status of customer orders, and the quantity and projected completion dates of finished goods.

All of this information is tied to 3D charts that are dynamically updated to graphically display the information being viewed.

Click on the bars on the chart to pop up a window with further details.

Trial or implemented schedules can be viewed starting with any date set.

Errors in Schedule

Anytime a trial schedule is run it is possible errors may occur. The problems may be error messages, which directly affect the work orders involved, or they may be warning messages, which can indirectly affect scheduling.

All errors are summarized on a screen where they should be reviewed and corrected as necessary to ensure the integrity of the schedule when it is planned.

Schedule Reports

A wide range of reports are readily available. There are process reports that include pick lists and material order.

There are process reports that show work order and work center schedules.

There are also control reports to list completion dates, show errors encountered during scheduling, provide information on group work center loading, and do comparisons between implemented and trial schedules.

All these reports may be viewed on a screen, printed, exported to a spreadsheet, or turned into a PDF file for distribution.