

KnowledgeBase Article 2069

MRP in Guardian

The Guardian Foundry System is an integrated Enterprise Resource Planning (ERP) which includes Material Requirements Planning (MRP). This article provides a review as to what MRP is and how it can benefit a company. In addition, the setup and use of MRP in Guardian is described. *Portions of this document have been adapted and/or extracted from <http://www.inc.com/encyclopedia/material-requirements-planning-mrp.html>*

There are three basic requirements for successful use of MRP in Guardian. The first is a thorough understanding of what MRP is and does. The first three sections of this article explain this. The second requirement is how to setup MRP in Guardian. This is what the fourth section of this article addresses. The third requirement is to review MRP reports on a daily basis. This is the sole responsibility of the user. Finally, all parts and routings **MUST** have accurate standards for lead times and/or time (hours/piece)(pieces/hour).

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MRP Definition

Material Requirements Planning (MRP) is a production planning, scheduling, and inventory control system used to manage manufacturing processes. Its purpose is to assist production managers in scheduling and placing orders for items of dependent demand as well as independent demand. Dependent demand items are components of finished goods—such as raw materials, component parts, and subassemblies—for which the amount of inventory needed depends on the level of production of the final product. Independent demand, for example, in a plant that manufactures bicycles, dependent demand inventory items might include aluminum, tires, seats, and bike chains.

An MRP system is intended to simultaneously meet three objectives:

1. Ensure materials are available for production and products are available for delivery to customers.
2. Maintain the lowest possible material and product levels in store
3. Plan manufacturing activities, delivery schedules and purchasing activities.

MRP works backward from a production plan for finished goods to develop requirements for components and raw materials as well as notifying planners where inventory is not available... MRP begins with a schedule for finished goods that is converted into a schedule of requirements for the subassemblies, the component parts, and the raw materials needed to produce the final product within the established schedule. MRP is designed to answer three questions:

1. What is needed?
2. How much is needed?
3. When is it needed?

MRP breaks down inventory requirements into planning periods so that production can be completed in a timely manner while inventory levels—and related carrying costs—are kept to a minimum. Implemented and used properly, it can help production managers plan for capacity needs and allocate production time. The information that comes out of an MRP system is only as good as the information that goes into it. **Companies must maintain current and accurate bills of materials, part numbers, and inventory records if they are to realize the potential benefits of MRP.**

MRP PROCESSING

Using information culled from the bill of materials, master schedule, and inventory records file, an MRP system determines the net requirements for raw materials, component parts, and subassemblies for each period on the planning horizon. MRP processing first determines gross material requirements, then subtracts out the inventory on hand and removes the safety stock in order to compute the net requirements.

The main outputs from MRP include three primary reports and three secondary reports. The primary reports consist of:

- Planned Order Schedules: which outline the quantity and timing of future material orders
- Order Releases: which authorize orders to be made
- Changes to Planned Orders: which might include cancellations or revisions of the quantity or time frame.

The secondary reports generated by MRP include:

- Performance Control Reports: which are used to track problems like missed delivery dates and stock outs in order to evaluate system performance
- Planning Reports, which can be used in forecasting future inventory requirements
- Exception Reports: which call managers' attention to major problems like late orders or excessive scrap rates

Although working backward from the production plan for a finished product to determine the requirements for components may seem like a simple process, it can actually be extremely complicated, especially when some raw materials or parts are used in a number of different products. Frequent changes in product design, order quantities, or production schedule also complicate matters. The importance of computer power is evident when one considers the number of materials schedules that must be tracked.

BENEFITS AND DRAWBACKS OF MRP

MRP systems offer a number of potential benefits to manufacturing firms. Some of the main benefits include helping production managers to minimize inventory levels and the associated carrying costs, track material requirements, determine the most economical lot sizes for orders, compute quantities needed as safety stock, allocate production time among various products, and plan for future capacity needs. The information generated by MRP systems is useful in other areas as well. There is a large range of people in a manufacturing company that may find the use of information provided by an MRP system very helpful. Production planners are obvious users of MRP, as are production managers, who must balance workloads across departments and make decisions about scheduling work. Plant foremen, responsible for issuing work orders and maintaining production schedules, also rely heavily on MRP output. Other users include customer service representatives, who need to be able to provide projected delivery dates, purchasing managers, and inventory managers.

MRP systems also have several potential drawbacks. First, MRP relies upon accurate input information. If a small business has not maintained good inventory records or has not updated its bills of materials with all relevant changes, it may encounter serious problems with the outputs of its MRP system. The problems could range from missing parts and excessive order quantities to schedule delays and missed delivery dates. At a minimum, an MRP system must have an accurate master production schedule, good lead-time estimates, and current inventory records in order to function effectively and produce useful information.

Another potential drawback associated with MRP is that the systems can be difficult, time consuming, and costly to implement. Many businesses encounter resistance from employees when they try to implement MRP. For example, employees who once got by with sloppy record keeping may resent the discipline MRP requires. Or departments that became accustomed to hoarding parts in case of inventory shortages might find it difficult to trust the system and let go of that habit.

The key to making MRP implementation work is to provide training and education for all affected employees. It is important early on to identify the key personnel whose power base will be affected by a new MRP system. These people must be among the first to be convinced of the merits of the new system so that they may buy into the plan. Key personnel must be convinced that they personally will be better served by the new system than by any alternate system. One way to improve employee acceptance of MRP systems is to adjust reward systems to reflect production and inventory management goals.

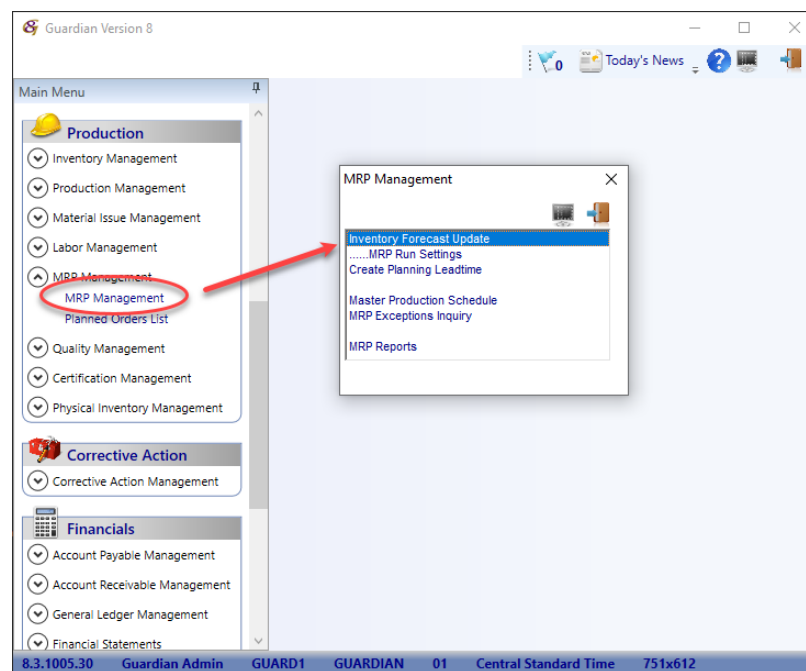
MRP SETUP

Guardian uses Sales Orders and Work Orders to determine the demand. The dependent demand is based on the Bill of Materials (alloys, raw materials, component parts, sub-assemblies, etc.) required for the Sales and Work Orders recorded in Guardian.

Guardian Support will setup a scheduled nightly task to run on the Guardian server. This task will run GS501.exe which will pull the data from throughout Guardian to accurately develop MRP plans and reports.

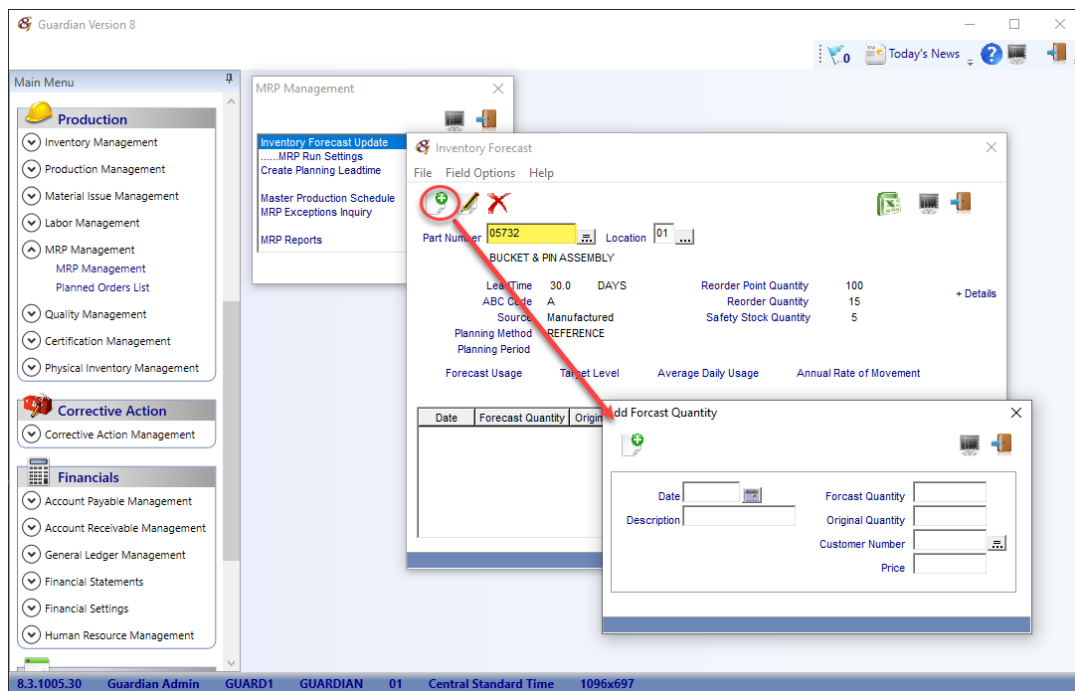
Once the MRP program is running regularly, the user can review the MRP menu...

Guardian > MRP Management

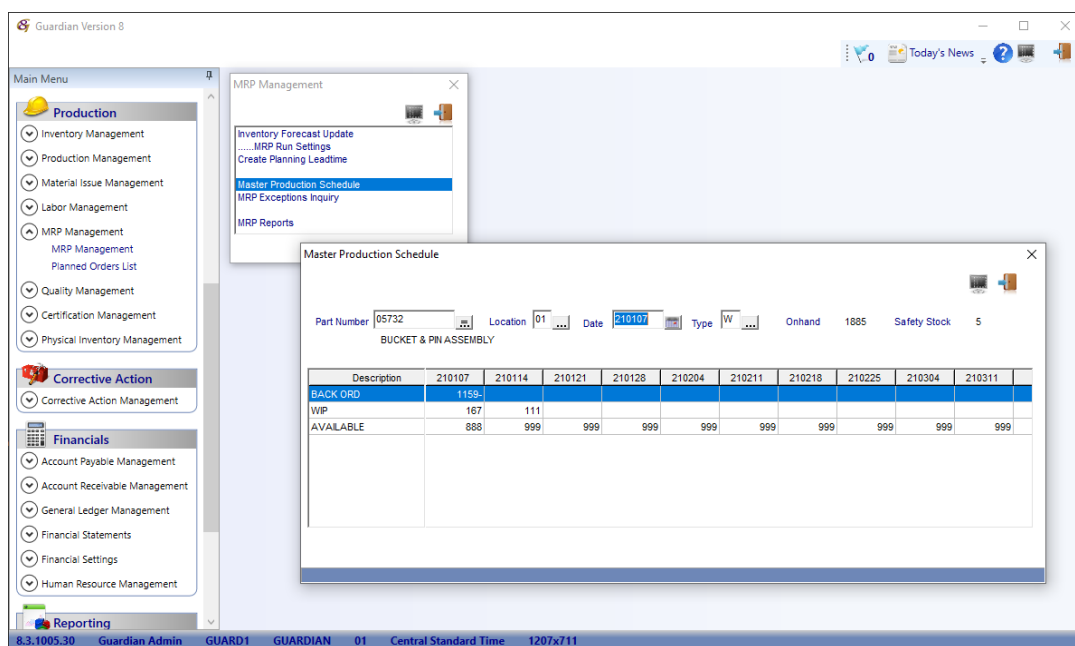


The MRP Management Functions include:

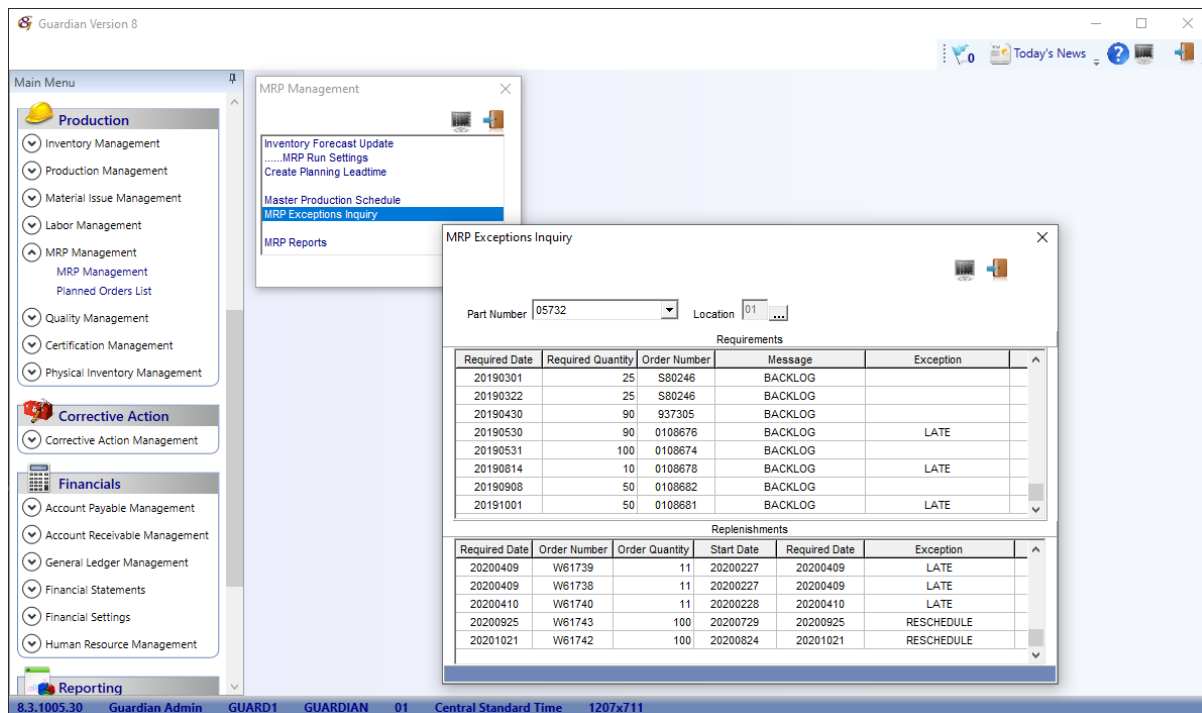
1. **Inventory Forecast Update:** allows the addition of forecasted orders that are neither in the system as Sales Orders nor Work Orders. MRP will then calculate dependent demand based on all backlog, including forecasted orders.



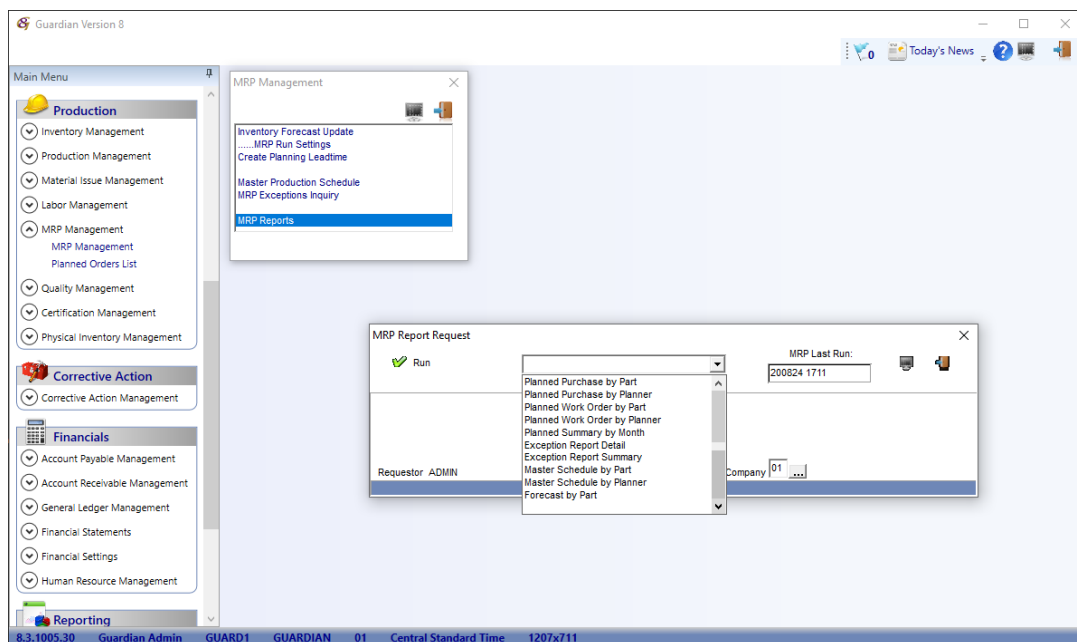
2. **Master Production Schedule:** providing a week by week forecast of a given part number including available inventory, forecasted orders, back orders (sales orders) and work in process (work orders)



- The MRP Exceptions Inquiry provide information regarding major problems such as late orders or excessive scrap



- The MRP Reports provide information on Planned Orders, Material Requirements, Master Schedules and Forecasts



- The MRP Requirements Planning Report can be setup to run nightly. This report will provide a listing of all the material requirements currently in demand and when they are required. This report can be setup on a local computer to provide the report every morning at the start of the day. It can even be scheduled to print on a local printer.

