



## **Why BellHawk Uses Importance Values and Not Priorities for Work orders**

Importance values are numbers, typically from 1 to 10, with 10 being the most important and 1 being the least important. They are values that can be given to work orders based on factors such as the closeness to wanted date. Thus, a work order may start out with an importance of 5, which is the standard importance value in BellHawk and increase in importance as the work order gets closer to its wanted date before it is completed.

Priority is an ordering amongst work orders. There can only be one work order that has a priority number 1. We can have work orders with Importances of 6, 7 and 8 and then create a new work order with an importance of 9. This immediately changes the priority of the previous work orders from 3, 2 and 1 to 4, 3, and 2 respectively.

In BellHawk, we do not attempt to ascribe a priority to work orders. If we have three work orders of importance 10, the system would require an enormous amount of additional knowledge to prioritize between these. People are typically able to make this choice easily based on their general situational knowledge (such as one of these work orders is for a customer with whom the company President plays golf) but even systems with deep artificial intelligence knowledge have difficulty making such decisions correctly.

In the BellHawk work center scheduling module, we present the work orders in importance order, with the most important work orders at the top of the list. There may be multiple work orders with the same importance but we rely on people's general knowledge to prioritize between them rather than having the system try to pick the Priority order.

Importances are analogous for how neural networks in our brains add up sensory inputs. Importances are logarithmic in nature so I can have a customer with an importance of 3 and ascribe an importance of 6 to how close to the wanted date the work order is and then add them together to get an importance of 9 for the work order. This makes it very simple to incorporate a number of factors into computing the importance of a work order.

Importances are attributes of each individual work order and not of the relationship between them, which is needed to set priorities. This enables users to adjust the importance of work orders, or to have this done automatically, on a work order by work order basis without consideration for the importance of other work orders.

In BellHawk, we typically use a 1 to 10 scale for importance because human factors studies have shown that most people cannot distinguish between levels of importance such as "poor, fair, average, good, outstanding" with more than a 5 point scale. In BellHawk, importance values can be given names such as "low, standard, and rush" to facilitate choices, when people are making the choice of importance for a work order.

Finally, it is important to recognize that, just because a work order is the most important, does not mean that it will always be worked on first. A required machine may be down or a person with the needed skills may be unavailable, making some lower importance work order the number 1 priority.