



# Preferential bidding

Carmen's preferential bidding caters to the specific needs of the airline and the crew rather than dictating what they should be satisfied with.

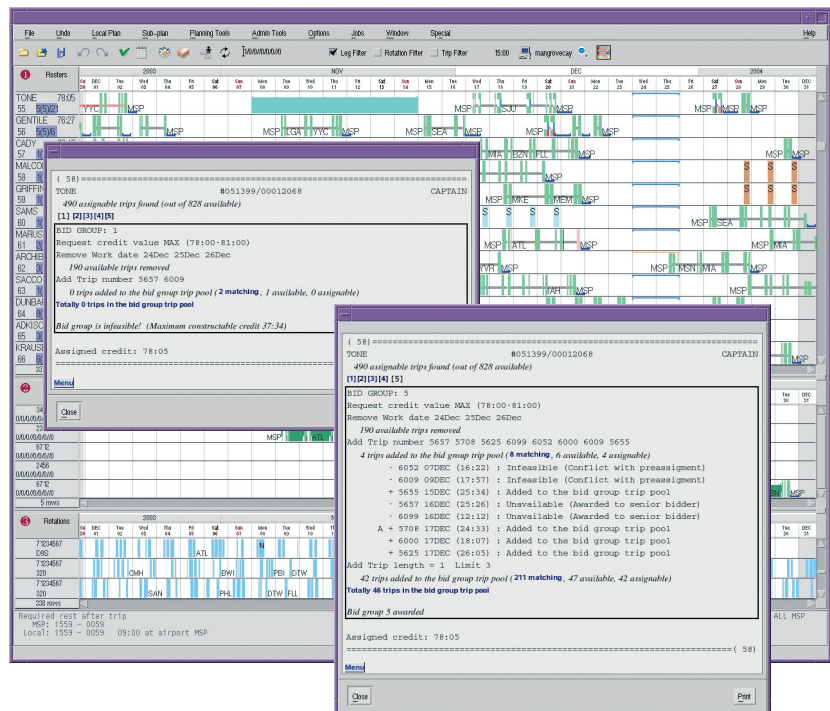
Lifestyles are as individual, as the people who live them. People have different tastes, prefer different flavours and have different preferences. Similarly, groups of people have their own customs and values. This individuality is reflected in airlines having their own business processes and pilots and flight attendants having unique agreements.

Preferential bidding follows this general trend supporting individuality and personal crew members' preferences. Carmen appreciates varying requirements from airlines in general, and pilots and flight attendants in particular. Carmen's preferential bidding is developed as a flexible system that adapts to the unique needs of users rather than forcing them into a fixed process and a fixed set of bidding options.

## Optimization

The preferential bidding problem is a complex puzzle where the trips are the pieces that need to be put together in the best possible way. Carmen preferential bidding uses unique optimization technology that can solve even the largest and most complex bid award problems. The best available schedules are awarded at all seniority levels with constant consideration of contractual rules and company targets, such as open time constraints.

The optimizer keeps track of multiple, equally good schedules for each crew member and it always chooses the one that even the junior crew member will have the maximum benefit from, as long as it does not affect the satisfaction of a more senior crew member. Keeping track of all the restrictions at each step also means that overall limits are intact throughout the process and eliminate the need for re-building the schedules for example due to stacking problems.



The reasoning report provides information that makes it easy to understand why a bid was denied or not. Details-on-demand functionality is provided through an expandable report interface.

## Transparency

Although Carmen's preferential bidding system applies advanced optimization methods, the principles are very simple. Schedules are awarded sequentially in strict seniority order. The best obtainable schedule, given available trips and contractual limits, is always constructed. The simplicity of this approach makes the entire process intuitive and understandable throughout its whole life cycle.

## Comprehensibility

The transparency of Carmen's approach, combined with the use of unique optimization technologies, makes it straightforward to reason and to understand why certain bids have been granted or denied. The system publishes schedules with detailed reasoning reports that include all necessary information needed to answer any how- or why-questions that might arise. Customized and user-friendly reports offer an easy overview of properties of both individual schedules and the entire solution.

## Predictability

The more feedback given to crew members during the bidding, the better is their chance to influence and appreciate the awarded schedule. The crew member is offered immediate feedback about effects of each bid via Carmen's bid entry interface, InterBids. It is also possible to provide advanced what-if information. For example, illustrate how the schedule would look if the crew member was the most senior one or if the overall constraints were ignored.

## Flexibility

What is a preferential bidding system really? The answer is actually not as straightforward as one might believe. The key property of a preferential bidding system is that it allows the crew members to express and prioritize their lifestyle preferences and by the addition of the built-in flexibility Carmen's preferential bidding can be practically whatever your operation requires.

The most important factor for a successful use of a preferential bidding system is to understand and capture the uniqueness of a specific airline and its crew. With Carmen's proprietary rules and modelling language Carmen Rave, we can customize and configure the system according to very detailed and unique requirements. Available bids and their interpretation, legality rules, costs and other constraints are implemented with Carmen Rave and separated from the core of the system. This means that any aspect of the bid system can be timely changed whenever labor agreements and contracts require changes.

Bids can describe anything from detailed flight numbers to a complex combination of layover station, minimum rest-time, late checkin, minimum credit time, etc. There are also various ways to express bids.

Each crew population requires its own bidding model. The main difference between

*The customized bidding system showing the bids profile for one crew member. It is possible for each crew member to rate bids differently. Free weekends can be a top priority for one person, while early checkouts or specific layover stations are more important for others.*

these models is how a crew member expresses personal preferences and how these preferences relate to each other. The most common bid models are weighted bids, strictly ordered bids and bid groups. Different bid models use the same basic optimization approach, ensuring maximum transparency, comprehensibility and predictability.

### Weighted bids

Numerical or descriptive weights are attached to each bid. Weights are relative, i.e. are only relevant for comparison and ordering of the crew members' own preferences.

### Strictly ordered bids

Bids are prioritized in strict order with each bid being infinitely more important than any possible combination of less important bids.

### Bid groups

Bids are grouped together and the groups are then processed in priority order. If it is not possible to create a schedule with bids inside one group then all bids from that group are disregarded and the next bid group is processed.

## Summary

Carmen offers a customized bidding system that crew members easily embrace and it improves the company's productivity. The system allows all stakeholders to strike a balance between lifestyle allocation and operational efficiency.

*If you have any questions about preferential bidding or Carmen Crew Rostering please contact us at [carmen@carmensystems.com](mailto:carmen@carmensystems.com)*



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