Pairing Optimization

Course description

Audience
This course addresses expert users and developers with Jeppesen Crew Pairing experience

Prerequisites
Pairing I and six months of experience using Jeppesen Crew Pairing.

Duration
2 days

Course goals
This course gives you an understanding of:

- Pairing optimizer, structure and process
- Column Generation
- Deadhead handling
- How to analyze and change the behavior of the optimizer
- Optimizer support for Crew Pairing concepts

Course topics

- The crew pairing problem
- The process in the pairing optimizer
  o Connection table
  o Pre-processors
  o Matcher
  o Generation
  o IP-solver
  o Post-process
  o Solution analyzer
  o Feedback – optimizer report and Scenario Analyser.
- Column Generation
  o Model definition
  o Duty network
  o Generating good trips
  o Stop criteria
  o Parameters
  o Global constraints
- Illegal sub-chains.
- Misestimates.
- Exhaustive mode

- Deadhead handling in the optimizer
  - Sources
    - OAG plan legs
    - Ground transports
    - Local plan legs
  - Flow
  - Parameters

- Crew Pairing concepts in the optimizer
  - Retiming
  - Variable crewing
    - General
    - One-shot variable crewing
  - Crew augmentation
  - Fly below/above rank
  - Crew imitation
  - Dynamic aircraft rotations

- Analyzing and tuning results

- Benchmark
  - In the end of the course the attendants compete with each other in an artificial pairing benchmark – topics covered in the course are practiced.

As in other Crew Academy courses there is a mix of presentations and exercises. In all demonstrations and exercises a Crew Pairing system with a generic customization layer (OTS) and flight data from OAG is used.