

Structure of (D)PDPTW – Files (*.pdp)

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Each of these files describes a single instance of the static or dynamic Pickup-and-Delivery-Problem with Time-Windows, in short PDPTW or DPDPTW, respectively.

1. Line: filename

NAME: <TAB> LC102_a100_q010_2.pdp

The parameters used to create this instance are encoded in the filename as follows (NOTE: Names of files containing benchmark data for the static PDPTW are without parameters!): LC102 is the filename of the original static PDPTW problem file.

The following three digits denote a percentage number (parameter a, representing varying degrees of urgency): 100 means 100%, indicating that the dynamic requests in the instance at hand arrive at the latest possible arrival time (t_{latest}). On the other hand, 010 indicates that the dynamic requests arrive at a time which is a 10% fraction of t_{latest} .

q010 means that 10% of the requests are static (known in advance / ex ante, parameter q, representing varying degrees of ex-ante knowledge). q0 means that all the requests in that instance are dynamic.

Because the static requests have been selected at random, a number of different instances has been created using the same parameter values for stochastic reasons (except for the q0 case).

These instances are distinguished by an index (last digit before file extension). Here, “2” marks the second file of this set.

The file extension pdp is short for Pickup and Delivery Problem.

2. Line: Number of requests comprised by the DPDPTW instance.

This number is often used as an upper bound for the number of available vehicles.

DIMENSION: <TAB> 51

3. Line: maximum capacity of a vehicle

CAPACITY: <TAB> 700

4. Line: maximum time a vehicle may travel before returning to the vehicle’s home location.

MAX_ROUTE_DURATION: <TAB> 3390

5. Line: Beginning of the coordinates section.

The coordinates of all the pickup and delivery locations are defined following from here. All transportation requests defined in the demand section refer to these locations.

NODE_COORD_SECTION:

Structure of the following lines:

LocationID <TAB> X-coordinate <TAB> Y-coordinate

Location no. 0 is the depot and home location of all vehicles.

Example:

```
0      40      50
1      52      75
2      45      70
```

... and so on.

Start of the request definitions:

DEMAND_SECTION:

Structure of the following lines:

Order-No. <TAB> PickupLocationID. <TAB> DeliveryLocationID<TAB>

PickupTimeWindowOpen <TAB> PickupTimeWindowClose <TAB>

ServiceDurationTimePickupLocation <TAB> DeliveryTimeWindowOpen <TAB>

DeliveryTimeWindowClose <TAB> ServiceDurationTimeDeliveryLocation <TAB>

QuantityToBeTransported <TAB> TimeStampOfRequestAnnouncement

Example:

```
1      1      80      311      471      90      2513      2673      90      10      139
2      2      94      213      373      90      788      948      90      30      48
3      3      90      1167      1327      90      3119      3279      90      10      994
```

... and so on.

NOTE: In (static) PDPTW instances the last column (TimeStampOfRequestAnnouncement) is omitted.

End-Of-File-Mark

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