MIRPLib: Data Only Format Instructions

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Data Only Format

Each instance is given in three formats: a "data only" format, LP format, and MPS format. LP and MPS file formats are standard in the MILP computational community as they provide a common format for reading LP and MILP models. Although LP and MPS formats are useful for comparing solver performance, they are somewhat limiting as they impose a specific MILP model on the user, a model which may not be ideal for generating good solutions or bounds. Since other models and techniques may be superior, we also provide instance data in a "data only" format. Each data set consists of four data objects: metadata, port data, vessel class data, and vessel data. When an instance is stated in "data only" format, five files are provided corresponding to each of the aforementioned data objects, but with port data further broken down into loading port data and discharging port data. A discussion of each data object is provided below.

Metadata

```
numPeriods                          360 // int
numCommodities                      1   // int
numLoadingRegions                   1   // int
numDischargeRegions                 2   // int
numLoadingPorts                     1   // int[]
numDischargePorts                   1 1 // int[]
numVesselClasses                    2   // int
numTermVesselsInClass               3 3 // int[]
hoursPerPeriod                      24  // int
spotMarketPricePerUnit              100 // double
spotMarketDiscountFactor            0.999 // double
perPeriodRewardForFinishingEarly    0.01  // double
constantForSinglePeriodAlphaSlack   1.0 // double
```

Note: `int[]` implies a succession of one or more `int` values are specified (delimited by a space).

Vessel Class Data

```
name                    Vessel_Class_0   // string
index                   0                // int
capacity                300              // int
avgSpeedInKnots         15               // double
travelCostAsTermPerKm   0.090            // double
discountTravelingEmpty  0.20             // double
name                    Vessel_Class_1
index                   1
capacity                200
avgSpeedInKnots         15
travelCostAsTermPerKm   0.075
discountTravelingEmpty  0.20
```

Vessel Data

```
name                 Vessel_0                // string
index                0                       // int
vesselClass          0                       // int
type                 Term                    // string
initialInventory     0                       // int
initialPort          LoadingRegion_0_Port_0  // string
firstTimeAvailable   1                       // int
name                 Vessel_1
index                1
vesselClass          0
type                 Term
initialInventory     0
initialPort          LoadingRegion_0_Port_0
firstTimeAvailable   5
name                 Vessel_2
index                2
vesselClass          0
type                 Term
initialInventory     300
initialPort          DischargeRegion_0_Port_0
firstTimeAvailable   0
```

Loading Port Data

```
name                LoadingRegion_0_Port_0    // string
index               0                         // int
type                Loading                   // string
regionIndex         0                         // int
x_coordinate        11941                     // int
y_coordinate        12113                     // int
fixedPortFee        71                        // int
numBerths           1                         // int
maxAmountPerPeriod  618                       // int
minAmountPerPeriod  45                        // int
capacity            576                       // int
initialInventory    288                       // int
production          72 73 …                   // int[]
```

Discharging Port Data

```
name                DischargeRegion_0_Port_0  // string
index               1                         // int
type                Discharge                 // string
regionIndex         1                         // int
x_coordinate        16780                     // int
y_coordinate        13284                     // int
fixedPortFee        45                        // int
numBerths           1                         // int
maxAmountPerPeriod  385                       // int
minAmountPerPeriod  45                        // int
capacity            490                       // int
initialInventory    245                       // int
consumption         35 35 34 …                // int []
revenue             0 0 0 …                   // double []
name                DischargeRegion_1_Port_0
index               2
type                Discharge
regionIndex         2
x_coordinate        8985
y_coordinate        20942
fixedPortFee        82
numBerths           1
maxAmountPerPeriod  210
minAmountPerPeriod  35
capacity            370
initialInventory    185
consumption         37 36 37 …
revenue             0 0 0 …
```