

# Misc. Topics

**Java Main Classes, Custom Scoring Functions**

# Java Main Classes

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## RunMatsim vs MATSimGUI vs main()

Any Java class that has a main-method like this:

```
public static void main(String[] args) { ... }
```

can be started as an application (`Run ...` in IntelliJ).

Then the code within that main-method will be executed.

**RunMatsim:** expects the config-filename in `args[0]`, configures and runs the controller.

**MATSimGUI:** shows the GUI. When the Start-button is clicked, it calls `RunMatsim.main(configFilename)`.

So if we modify RunMatsim, these modifications are also in place when we use the GUI.

If RunMatsim ignores `args[0]` and uses a fixed `configFilename`, the GUI no longer works correctly.

# Custom Scoring Function

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In MATSim, every agent gets its own instance of a scoring function.

To create a scoring function for each and every agent, we use a "Factory":

```
controller.setScoringFunctionFactory(new ScoringFunctionFactory() {  
  
    @Override  
    public ScoringFunction createNewScoringFunction(Person person) {  
        SumScoringFunction sumScoringFunction = new SumScoringFunction();  
  
        // Score activities, legs, payments and being stuck  
        // with the default MATSim scoring based on utility parameters in the config file.  
        final ScoringParameters params = new ScoringParameters.Builder(scenario, person.getId()).build();  
        sumScoringFunction.addScoringFunction(new CharyparNagelActivityScoring(params));  
        sumScoringFunction.addScoringFunction(new CharyparNagelLegScoring(params, scenario.getNetwork()));  
        sumScoringFunction.addScoringFunction(new CharyparNagelMoneyScoring(params));  
        sumScoringFunction.addScoringFunction(new CharyparNagelAgentStuckScoring(params));  
        return sumScoringFunction;  
    }  
});
```

The default scoring function is defined in

`org.matsim.core.scoring.functions.CharyparNagelScoringFunctionFactory`.

# Custom Scoring Function

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Additional custom terms can be added to the SumScoringFunction.

Examples are available in [matsim-code-examples/src/main/java/tutorial/scoring](https://github.com/matsim/matsim-code-examples/src/main/java/tutorial/scoring)

## **kindergartenActivityScoring**

- There is a kindergarten on line 8142.
- An EventHandler (KindergartenArrivalHandler) remembers all persons that arrive on link 8142 with a car.
- A custom activity scoring term (KindergartenActivityScoring) checks for each activity to be scored if it is a kindergarten-activity and if it takes place on link 8142.

If yes, it tests if that person arrived by car using the KindergartenArrivalHandler.

If yes, a penalty is added to the score, otherwise the scoring term is 0 (= no penalty is added).



# Via Use Cases

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- XY Plotter
- Aggregation
- OD Aggregation
- Animated XY Plotter
- Network: Aggregate Vehicle Attributes
- Scripting
- Movie Recording





# Thank you!

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