

Future directions (and some hints) [The limits of growth?]

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Overview

In my opinion ...

... MATSim conceptually reasonably good at many things that are "day2day"

... two major shortcomings:

- Too much workload centrally (in Zurich/Bln) (still)
- MATSim not very good at "within-day" replanning

A commercial arm of matsim?

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Michael Balmer and Marcel Rieser are currently (mostly) funded through non-academic channels.

MATSim will stay under GPL.

Towards a pluggable software architecture

Consider using config files only

Config file "outmost" user interface.

Many aspects *can* be configured via the config file.

See the log file for possible config options; in particular, see the comments [[Emacs]].

```
<!-- [utils/hr] marginal utility of doing an activity. normally positive.  
also the opportunity cost of time if agent is doing nothing. -->
```

```
<param name="performing" value="6.0" />
```

(Often not yet in release :- ()

If comments are missing, please write to us ...

If comments don't make sense, please write to us ...

(You may need to write code for the initial demand.)

By the way: please read the warnings

*.logfileWarningsErrors.log

WARN CharyparNagelScoringConfigGroup\$ActivityParams:489 Setting minimalDuration different from zero is discouraged. It is probably implemented correctly, but there is as of now no indication that it makes the results more realistic. KN, Sep'08 This message given only once.

WARN LinkImpl:137 [length=0.0 of link id 114459 may cause problems. Future occurrences of this warning are suppressed.]

WARN Controler\$CoreControlerListener:1125 There might be no configuration for a mobility simulation in the config. The Controler uses the default QueueSimulation that might not have all features implemented.

warnings, ctd.

WARN CountsReaderMatsimV1:78 There is already a counts object for location 112589. The counts for loc_id=112589, cs_id=ASTRA189 will be ignored.

2010-04-30 12:35:42,082 WARN QueueLink:395 Link 139389 too small: enlarge storage capacity from: 4.0 Vehicles to: 12.419999999999999 Vehicles. This is not fatal, but modifies the traffic flow dynamics.

2010-04-30 13:21:30,681 WARN CountsComparisonAlgorithm:122 Cannot find requested link: 108045

For those who need/want to write code

You cannot use MATSim and assume that everything that is accessible will remain stable.

Technically: Far too many things in MATSim are "public":

- In part because we did not know better when we started.
- In part because Java only allows package protection and that is not a very flexible concept.

Current approach: Towards a somewhat stable public API.

MATSim API

Current MATSim API:

- `org.matsim.api`
- `org.matsim.run`

Future MATSim API (subject to internal approval):

- `org.matsim.core.api.experimental`

Main purpose at this point

- Java-based access to elements that are visible in xml files.

Matsim Toplevel Containers

Matsim toplevel data containers: Population, Network, ...

Near future: Vehicles, Households, Facilities, ...

"Meta-"Container: "Scenario"

Access xml attributes via Java code.

Problem: attributes may be changed to inconsistent state. what then???

More api

Events:

- generate events
- handle events

(essentially already there)

Other elements should be functionality: Controller, Listeners, ...

Less clear (so restrict their usage to well-defined places).

Use cases for the API

API is constructed with several Use Cases in mind:

- write your own initial demand generation
- write your own analysis module
- write your own mobsim
- write your own mental module

See www.matsim.org

Use case: demand generation

Read information from arbitrary source.

Write matsim population file based on api.

See www.matsim.org

Use case: analysis

Attach events listener to controller
(or read events file).

Process incoming events for analysis.

See www.matsim.org

Use case: your own mental module

MATSim calls mental modules between mobsim runs.

Examples: ReRoute, TimeAllocationMutator.

You can write your own mental module. It will essentially:

- Listen to events during the mobsim run.
- Get plans to replan "between" mobsim runs.

See www.matsim.org

Use case: mobsim

The mobsim needs to

- execute selected plans
- write events in the process.

You can

- attach your own mobsim to the Controller.

See www.matsim.org

Within-day replanning

Within-day replanning within MATSim

Within-day replanning:

- Be able to adjust your plan (route, dp time, mode, ...) while you are en-route.
- Not possible in current MATSim since agents follow pre-computed plans.
- Includes, e.g.:
 - searching for parking

Within-day replanning, ctd.

Straightforward (and currently recommended) way out:

Write your own mobsim (see above):

- read plans; use them to start the mobsim
- replace or ignore pieces of plans. E.g.
 - new (continuation of) route
 - new departure time

With your own mobsim, you can explore what you want!

[[see Christoph Dobler talk ... but may need to do this within your own mobsim]]

Conclusion

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Consider

- using matsim based on config files
- using matsim based on the api
- maintaining a "matsim data container"

A lot can already be done in this way.

And it would help us all to be successful as a community.

[[...]]

Thanks a lot for coming here.

Next MATSim User Meeting in Berlin.