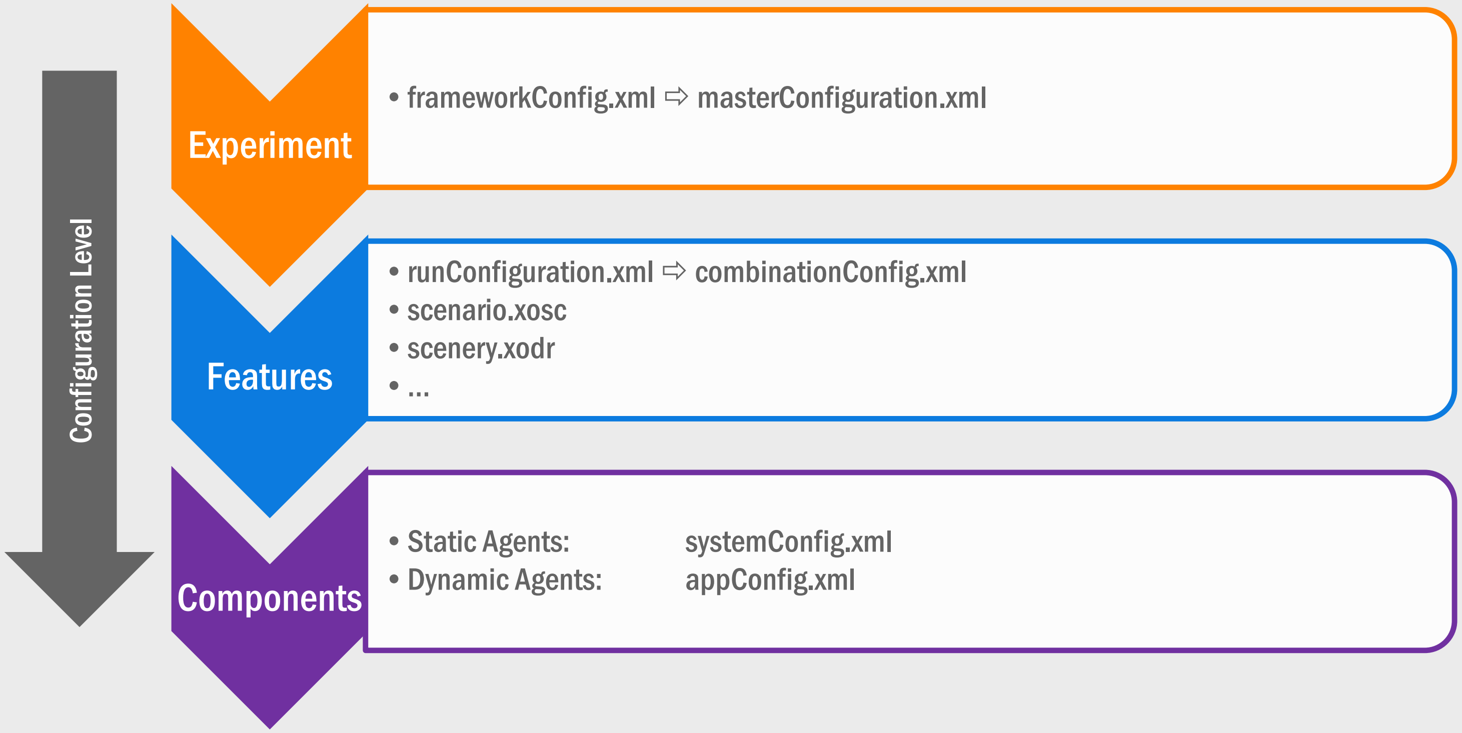
Changes of the Configuration Files

openPASS Release 0.6 PR

04.07.2018 – René Paris, on behalf of BMW AG



- frameworkConfig.xml ⇨ masterConfiguration.xml

- runConfiguration.xml ⇨ combinationConfig.xml
- scenario.xosc
- scenery.xodr
- …

• Static Agents:	systemConfig.xml
• Dynamic Agents:	appConfig.xml

Levels of Configurations

Task

- Configuration of Master
- Configuration of Slave Execution and Experiments

Name Framework

- Generic placeholder for the **Controlling Components** within Master and Slave, respectively

Issues

- Historically grown structure
- Very close to a specific use case
- Every change make modification necessary
  E.g.: New configuration file necessary
- Increasing load for keeping up compatibility
- E.g.: Some configuration files not necessary anymore

Wish

- Separation of Concerns:
  Framework Configuration vs. **Experiment Configuration**
- Open for Extension:
  Very high level of abstraction
- Closed for Modification:
  No need for code modifications on changes

Structure

```
<?xml version="1.0" encoding="UTF-8"?>
<frameworkConfigurations>
  <SlavePath>...    </SlavePath>
  <LogFileMaster>...</LogFileMaster>
  <LogLevel>...     </LogLevel>
  <frameworkConfiguration>
    <LibraryPath>...       </LibraryPath>
    <AgentConfigFile>...   </AgentConfigFile>
    <LogFileSlave>...      </LogFileSlave>
    <ResultPath>...        </ResultPath>
    <RunConfigFile>...     </RunConfigFile>
    <ScenarioConfigFile>...</ScenarioConfigFile>
    <SceneryConfigFile>... </SceneryConfigFile>
  </frameworkConfiguration>
 <frameworkConfiguration>
    infos for second slave
 </frameworkConfiguration>
</frameworkConfigurations>
```

Note

If root tag is `FrameworkConfiguration`, only a single slave configuration is loaded directly from beneath the root tag

Analysis PCM-UseCase

Framework Configuration

intech

Task

- Configuration of Master
- Configuration of Slaves Execution

Changes

- Separation of concerns: Execution / Experiment
- Separation of common/individual Slave Configurations
- Removal of experiment information for slaves:
  *E.g. Where are the libraries, **but not** what libraries are needed for the experiment*
- Results: Experiment related changes
  do not change config of the master

Slave related control information

- Each entry is a string passed to the Slave via command line
- Slave decides what to do with that information
  (see next slide)

Structure

```
<?xml version="1.0" encoding="UTF-8"?>
<masterConfiguration>
  <logLevel>...       </logLevel>
  <logFileMaster>...  </logFileMaster>
  <slave>...          </slave>
  <libraries>...      </libraries>
  <slaveConfigurations>
    <slaveConfiguration>
      <logFileSlave>...    </logFileSlave>
      <configurations>...  </configurations>
      <results>...         </results>
    <slaveConfiguration>
    <slaveConfiguration>
      infos for second slave
    <slaveConfiguration>
  </slaveConfigurations>
</masterConfiguration>
```

Note

The log level is used by the master but also the slaves

Framework Configuration ⇨

Master Configuration

Configuration files are not specified anymore

- The slave now load files from a relative path (current state)
- Or could do something completely different, e.g.
  <Configurations>192.168.0.5:2256?id=5</Configurations>

Results files are not specified anymore

- The slave now write results to a relative path (current state)
- Or could do something completely different, e.g.
  <Results>192.168.0.5:2257?id=5</Results>

Other Stuff

- Omitted tags are automatically defaulted,
  e.g. logFileSlave in Example on the right
  (see next slide)
- At least a single SlaveConfigurations/SlaveConfiguration needs to be defined

Example

```
<?xml version="1.0" encoding="UTF-8"?>
<masterConfiguration>
  <logLevel>2</logLevel>
  <slave>openPassSlave</slave>
  <libraries>lib</libraries>
  <slaveConfigurations>
    <slaveConfiguration>
      <configurations>experiment1</configurations>
      <results>results1</results>
    <slaveConfiguration>
    <slaveConfiguration>
      <configurations>experiment2</configurations>
      <results>results2</results>
    <slaveConfiguration>
  </slaveConfigurations>
</masterConfiguration>
```

Calls

```
> openPassSlave.exe --logLevel 2
  --logFile OpenPassSlave.log --lib lib
  --configs experiment1 --results results1
> openPassSlave.exe --logLevel 2
  --logFile OpenPassSlave.log --lib lib
  --configs experiment2 --results results2
```

MasterConfiguration/SlaveConfigurations/

SlaveConfiguration

Generally, parameters specified within the masterConfiguration are forwarded to the slave as command line parameters

Master

--config	(masterConfiguration.xml)	Path to config

Note: Omitted parameters are defaulted to values in braces

Slave

--logLevel	(0)	
--logFile	(OpenPassSlave.log)	
--lib	(lib)	Path to the libraries
--configs	(configs)	Path to the configuration files
--results	(results)	Path where to put the results

Note: Omitted parameters are defaulted to values in braces

Minimum masterConfiguration.xml

```
<?xml version="1.0" encoding="UTF-8"?>
<masterConfiguration>
  <slaveConfigurations>
    </slaveConfiguration>
  <slaveConfiguration>
</masterConfiguration>
```

Calls

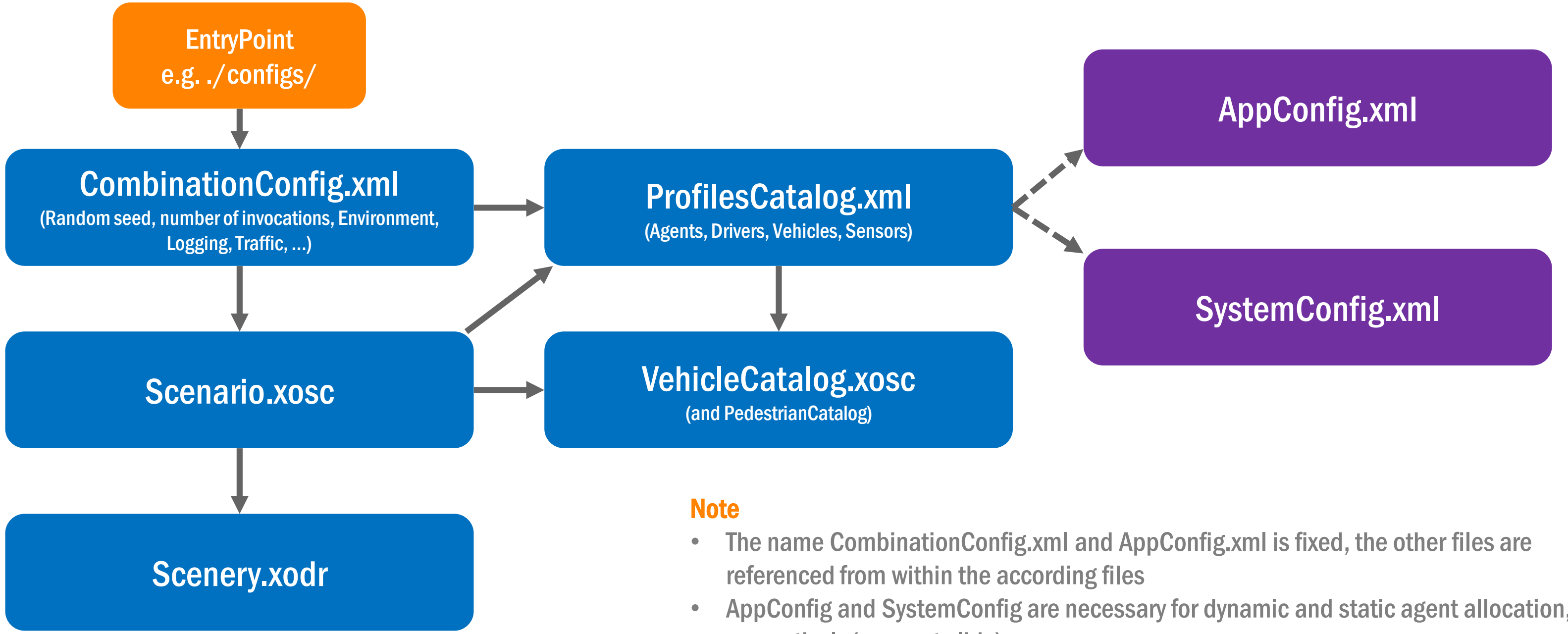
```
> OpenPassSlave.exe --logLevel 0
  --logFile OpenPassSlave.log --lib lib
  --configs configs --results results
```

Note

Due to the matched default values, this call is equivalent to calling openPassSlave.exe directly **without** parameters.

Master and Slave

Command Line Parameters

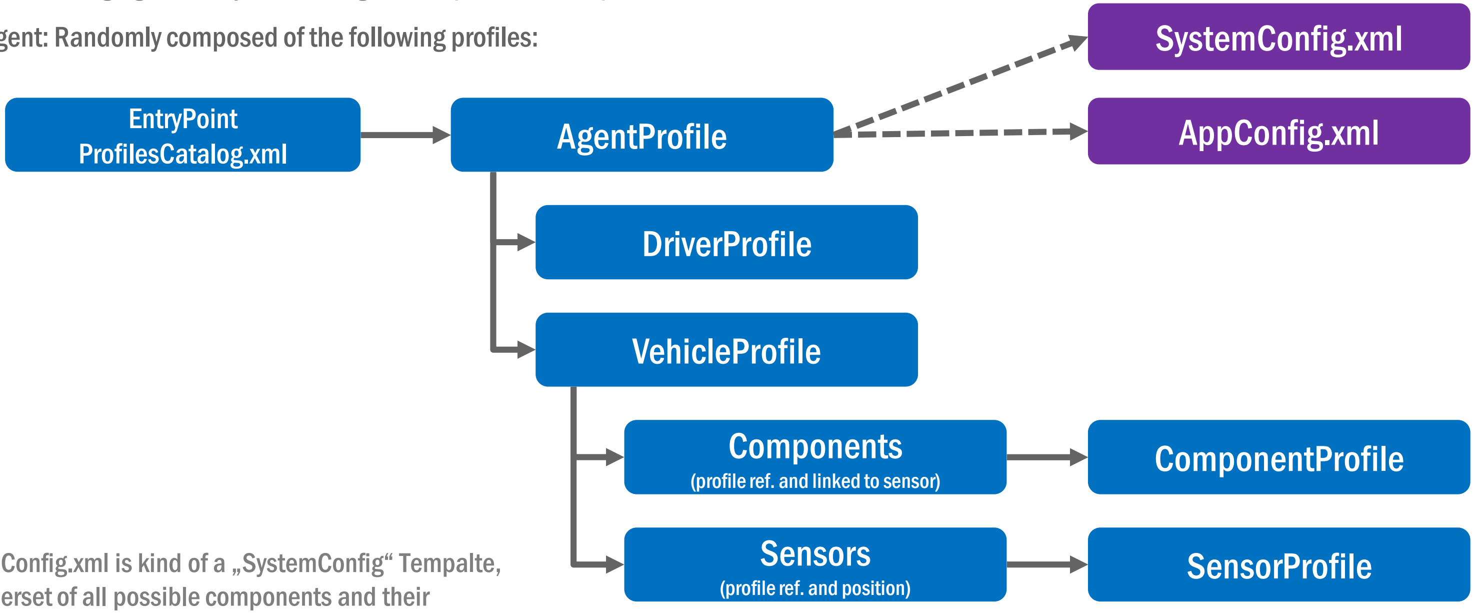


Note

- The name CombinationConfig.xml and AppConfig.xml is fixed, the other files are referenced from within the according files
- AppConfig and SystemConfig are necessary for dynamic and static agent allocation, respectively (see next slide)

Configuration Dependencies

- Static Agents: Linking against a system configuration (see next slide)
- Dynamic Agent: Randomly composed of the following profiles:



Note
Currently, AppConfig.xml is kind of a „SystemConfig“ Tempalte, defining a superset of all possible components and their connections

ProfilesCatalog

Profile Types

```xml
<AgentProfiles>
    <AgentProfile Name="EgoAgent" Type="Static">
        <System>
            <File>SystemConfig.xml</File>
            <Id>0</Id>
        </System>
        <VehicleModel>VehicleModelX</VehicleModel>
    </AgentProfile>
    <AgentProfile Name="MiddleClassCarAgent" Type="Dynamic">
        <DriverProfiles>
            <DriverProfile Name="Regular" Probability="1.0"/>
        </DriverProfiles>
        <VehicleProfiles>
            <VehicleProfile Name="VehicleModelA" Probability="0.4"/>
            <VehicleProfile Name="VehicleModelB" Probability="0.3"/>
            <VehicleProfile Name="VehicleModelC" Probability="0.3"/>
        </VehicleProfiles>
    </AgentProfile>
</AgentProfiles>
```

ProfilesCatalog

Static and Dynamic Agent Definition

Catalogs

VehicleCatalog, PedestrianCatalog can be imported
(pedestrians are currently handled as vehicles)

RoadNetwork

Reference to scenery file is imported from RoadNetwork/Logics

Entities

- Can be imported
- Special entity object **Ego**
- Objects specify catalog reference and catalog entry name
  ⓘ **Deviation from standard:**
  Reference of custom catalog „ProfilesCatalog.xml“
- Selections (groups) of entities can be defined, but currently the special selection „ScenarioAgents“ is used for spawning

Storyboard Parsing

Init

- Import of initial dynamics of agents
  (position, velocity, acceleration)

Story

- Actor Entities can be referenced
- Maneuvers can have a UserDefined action named
  ComponentStateChangeManipulator
  Command: *SetComponentState*
  <ComponentName> <Max. ComponentState>
- StartConditions parsed partially

Condition/ConditionGroup

- SimulationTime condition („ConditionalEventDetector“)
  → can be used in *Maneuver StartConditions* and
  Storyboard EndConditions
- Only condition type *currently* supported

Current State

OpenSCENARIO Importer