TraDemGen

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1 TraDemGen Documentation

1.1 Getting Started

- Main features
- Installation
- Linking with TraDemGen
- Users Guide
- Tutorials
- Copyright and License
- Make a Difference
- Make a new release
- People

1.2 TraDemGen at SourceForge

- Project page
- Download TraDemGen
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- Mailing lists
- Forums
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  - Discuss TraDemGen

1.3 TraDemGen Development

- Git Repository (Subversion is deprecated)
- Coding Rules
- Documentation Rules
- Test Rules

1.4 External Libraries

- Boost (C++ STL extensions)
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- MySQL client
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1.5 Support TraDemGen

1.6 About TraDemGen

TraDemGen aims at providing a clean API, and the corresponding C++ implementation, able to generate demand for travel solutions (e.g., from JFK to PEK on 25-05-2009) according to characteristics (e.g., Willingness-To-Pay, preferred airline, etc). TraDemGen mainly targets simulation purposes. N

TraDemGen makes an extensive use of existing open-source libraries for increased functionality, speed and accuracy. In particular the Boost (*C++ Standard Extensions*) library is used.

The TraDemGen library originates from the department of Operational Research and Innovation at Amadeus, Sophia Antipolis, France. TraDemGen is released under the terms of the GNU Lesser General Public License (LGPLv2.1) for you to enjoy.

TraDemGen should work on GNU/Linux, Sun Solaris, Microsoft Windows (with Cygwin, MinGW/MSYS, or Microsoft Visual C++ .NET) and Mac OS X operating systems.

Note

(N) - The TraDemGen library is **NOT** intended, in any way, to be used by airlines for production systems. If you want to report issue, bug or feature request, or if you just want to give feedback, have a look on the right-hand side of this page for the preferred reporting methods. In any case, please do not contact Amadeus directly for any matter related to TraDemGen.

2 People

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- Debian: Emmanuel Bastien ebastien@users.sourceforge.net (N)

Note

(N) - Amadeus employees.

3 Coding Rules

In the following sections we describe the naming conventions which are used for files, classes, structures, local variables, and global variables.

3.1 Default Naming Rules for Variables

Variables names follow Java naming conventions. Examples:

- `lNumberOfPassengers`
- `lSeatAvailability`

3.2 Default Naming Rules for Functions

Function names follow Java naming conventions. Example:

- `int myFunctionName (const int& a, int b)`

3.3 Default Naming Rules for Classes and Structures

Each new word in a class or structure name should always start with a capital letter and the words should be separated with an under-score. Abbreviations are written with capital letters. Examples:

- `MyClassName`
- `MyStructName`

3.4 Default Naming Rules for Files

Files are named after the C++ class names.

Source files are named using `.cpp` suffix, whereas header files end with `.hpp` extension. Examples:

- `FlightDate.hpp`
- `SegmentDate.cpp`

3.5 Default Functionality of Classes

All classes that are configured by input parameters should include:

- default empty constructor
- one or more additional constructor(s) that takes input parameters and initializes the class instance
- setup function, preferably named `'setup'` or `'set_parameters'`

Explicit destructor functions are not required, unless they are needed. It shall not be possible to use any of the other member functions unless the class has been properly initiated with the input parameters.

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4.1 GNU LESSER GENERAL PUBLIC LICENSE

4.1.1 Version 2.1, February 1999

```
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```

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```

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```
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```

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4.3.2 END OF TERMS AND CONDITIONS

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```
<one line to give the library's name and a brief idea of what it does.>
Copyright (C) <year>  <name of author>

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modify it under the terms of the GNU Lesser General Public
License as published by the Free Software Foundation; either
version 2.1 of the License, or (at your option) any later version.
```

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    Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA  02110-1301  USA
```

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the library, if necessary. Here is a sample; alter the names:

```
  Yoyodyne, Inc., hereby disclaims all copyright interest in the
  library 'Frob' (a library for tweaking knobs) written by James Random Hacker.

  <signature of Ty Coon>, 1 April 1990
  Ty Coon, President of Vice
```

That's all there is to it!

Source

5 Documentation Rules

5.1 General Rules

All classes in TraDemGen should be properly documented with Doxygen comments in include (`.hpp`) files. Source (`.cpp`) files should be documented according to a normal standard for well documented C++ code.

An example of how the interface of a class shall be documented in TraDemGen is shown here:

```
/*!
 * \brief Brief description of MyClass here
 *
 * Detailed description of MyClass here. With example code if needed.
 */
class MyClass {
public:
  //! Default constructor
  MyClass(void) { setup_done = false; }

  /*!
   * \brief Constructor that initializes the class with parameters
   *
   * Detailed description of the constructor here if needed
   *
   * \param[in] param1 Description of \a param1 here
   * \param[in] param2 Description of \a param2 here
   */
  MyClass(TYPE1 param1, TYPE2 param2) { setup(param1, param2); }

  /*!
   * \brief Setup function for MyClass
   *
   * Detailed description of the setup function here if needed
   *
   * \param[in] param1 Description of \a param1 here
   * \param[in] param2 Description of \a param2 here
   */
  void setup(TYPE1 param1, TYPE2 param2);

  /*!
   * \brief Brief description of memberFunction1
   *
```

```
   * Detailed description of memberFunction1 here if needed
   *
   * \param[in]     param1 Description of \a param1 here
   * \param[in]     param2 Description of \a param2 here
   * \param[in,out] param3 Description of \a param3 here
   * \return Description of the return value here
   */
  TYPE4 memberFunction1(TYPE1 param1, TYPE2 param2, TYPE3 &param3);

private:

  bool _setupDone;         /*!< Variable that checks if the class is properly
                                initialized with parameters */
  TYPE1 _privateVariable1; //!< Short description of _privateVariable1 here
  TYPE2 _privateVariable2; //!< Short description of _privateVariable2 here
};
```

5.2 File Header

All files should start with the following header, which include Doxygen's `\file`, `\brief` and `\author` tags, `$Date$` and `$Revisions$` CVS tags, and a common copyright note:

```
/*!
 * \file
 * \brief Brief description of the file here
 * \author Names of the authors who contributed to this code
 * \date Date
 *
 * Detailed description of the file here if needed.
 *
 * ----------------------------------------------------------------------------
 *
 * TraDemGen - C++ Simulated Revenue Accounting (RAC) System Library
 *
 * Copyright (C) 2009-2011  (\see authors file for a list of contributors)
 *
 * \see copyright file for license information
 *
 * ----------------------------------------------------------------------------
 */
```

5.3 Grouping Various Parts

All functions must be added to a Doxygen group in order to appear in the documentation. The following code example defines the group `'my_group'`:

```
/*!
 * \defgroup my_group Brief description of the group here
 *
 * Detailed description of the group here
*/
```

The following example shows how to document the function `myFunction` and how to add it to the group `my_group`:

```
/*!
 * \brief Brief description of myFunction here
 * \ingroup my_group
 *
 * Detailed description of myFunction here
 *
 * \param[in] param1 Description of \a param1 here
 * \param[in] param2 Description of \a param2 here
 * \return Description of the return value here
 */
TYPE3 myFunction(TYPE1 param1, TYPE2 &param2);
```

6 Main features

A short list of the main features of TraDemgEn is given below sorted in different categories. Many more features and functions exist and for these we refer to the reference documentation.

6.1 Demand generation

The demand can be generated thanks to two relatively advanced pieces of algorithm, both following a sequential principle. That is, the events (booking requests) are generated one after the other, sequentially, rather than being generated all at once at the beginning of the process (e.g., a simulation).

The two sequential methods are:

- 'Intuitive' method. The booking period is sliced in intervals, where the arrival rate of events (booking requests) is known for each of those intervals, say λ_i. The inter-arrival process then follows an exponential law. That is, the final number of booking requests follows a Non homogeneous Poisson distribution. With that method, the variance of that distribution is therefore equal to the mean.
- 'Advanced' method. The process uses order statistics in order to mimic the behaviour of uniform distributions projected onto the know arrival pattern of events. With that method, the final number of booking requests is first drawn, following any probability distribution (e.g., normal, Gamma, Beta or even Weibull law) with any required standard deviation. Then, each booking request is drawn in sequence:
  - according to a mere uniform distribution,
  - and projected onto the known booking arrival pattern.

6.2 Other features

- CSV input file parsing
- Memory handling

7 Make a Difference

Do not ask what TraDemGen can do for you. Ask what you can do for TraDemGen.

You can help us to develop the TraDemGen library. There are always a lot of things you can do:

- Start using TraDemGen
- Tell your friends about TraDemGen and help them to get started using it
- If you find a bug, report it to us. Without your help we can never hope to produce a bug free code.
- Help us to improve the documentation by providing information about documentation bugs
- Answer support requests in the TraDemGen discussion forums on SourceForge. If you know the answer to a question, help others to overcome their TraDemGen problems.
- Help us to improve our algorithms. If you know of a better way (e.g. that is faster or requires less memory) to implement some of our algorithms, then let us know.
- Help us to port TraDemGen to new platforms. If you manage to compile TraDemGen on a new platform, then tell us how you did it.
- Send us your code. If you have a good TraDemGen compatible code, which you can release under the LGPL, and you think it should be included in TraDemGen, then send it to us.
- Become an TraDemGen developer. Send us an e-mail and tell what you can do for TraDemGen.

8 Make a new release

8.1 Introduction

This document describes briefly the recommended procedure of releasing a new version of TraDemGen using a Linux development machine and the SourceForge project site.

The following steps are required to make a release of the distribution package.

8.2 Initialisation

Clone locally the full `Git project`:

```
cd ~
mkdir -p dev/sim
cd ~/dev/sim
git clone git://trademgen.git.sourceforge.net/gitroot/trademgen/trademgen trademgengit
cd trademgengit
git checkout trunk
```

8.3 Release branch maintenance

Switch to the release branch, on your local clone, and merge the latest updates from the trunk. Decide about the new version to be released.

```
cd ~/dev/sim/trademgengit
git checkout releases
git merge trunk
```

Update the version in the various build system files, replacing the old version numbers by the correct ones:

```
vi CMakeLists.txt
vi autogen.sh
vi README
```

Update the version, add some news in the `NEWS` file, add a change-log in the `ChangeLog` file and in the RPM specification files:

```
vi NEWS
vi ChangeLog
vi trademgen.spec
```

8.4 Commit and publish the release branch

Commit the new release:

```
cd ~/dev/sim/trademgengit
git add -A
git commit -m "[Release 0.5.0] Release of the 0.5.0 version of TraDemGen."
git push
```

8.5 Create distribution packages

Create the distribution packages using the following command:

```
cd ~/dev/sim/trademgengit
git checkout releases
rm -rf build && mkdir -p build
cd build
export INSTALL_BASEDIR=/home/user/dev/deliveries
```

```
export LIBSUFFIX_4_CMAKE="-DLIB_SUFFIX=64"
cmake -DCMAKE_INSTALL_PREFIX=${INSTALL_BASEDIR}/trademgen-0.5.0 \
 -DWITH_STDAIR_PREFIX=${INSTALL_BASEDIR}/stdair-stable \
 -DWITH_AIRRAC_PREFIX=${INSTALL_BASEDIR}/airsched-stable \
 -DWITH_AIRRAC_PREFIX=${INSTALL_BASEDIR}/airrac-stable \
 -DWITH_RMOL_PREFIX=${INSTALL_BASEDIR}/rmol-stable \
 -DWITH_RMOL_PREFIX=${INSTALL_BASEDIR}/airinv-stable \
 -DWITH_RMOL_PREFIX=${INSTALL_BASEDIR}/simfqt-stable \
 -DCMAKE_BUILD_TYPE:STRING=Debug -DINSTALL_DOC:BOOL=ON \
 ${LIBSUFFIX_4_CMAKE} ..
make check && make dist
make install
```

This will configure, compile and check the package. The output packages will be named, for instance, `trademgen-0.5.0.tar.gz` and `trademgen-0.5.0.tar.bz2`.

8.6 Upload the HTML documentation to SourceForge

In order to update the Web site files, either:

- synchronise them with rsync and SSH: Upload the just generated HTML (and PDF) documentation onto the SourceForge Web site.

  ```
  cd ~/dev/sim/trademgengit/build
  git checkout releases
  rsync -aiv ${INSTALL_BASEDIR}/trademgen-0.5.0/share/doc/trademgen-0.5.0/html/ \
   your_sf_user,trademgen@web.sourceforge.net:htdocs/
  ```

  where `-aiv` options mean:

  - `-a`: archive/mirror mode; equals `-rlptgoD` (no `-H`, `-A`, `-X`)
  - `-v`: increase verbosity
  - `-i`: output a change-summary for all updates
  - Note the trailing slashes (/) at the end of both the source and target directories. It means that the content of the source directory (`doc/html`), rather than the directory itself, has to be copied into the content of the target directory.

- or use the SourceForge Shell service.

8.7 Generate the RPM packages

Optionally, generate the RPM package (for instance, for Fedora/RedHat):

```
cd ~/dev/sim/trademgengit/build
git checkout releases
make dist
```

To perform this step, rpm-build, rpmlint and rpmdevtools have to be available on the system.

```
cp ../trademgen.spec ~/dev/packages/SPECS \
  && cp trademgen-0.5.0.tar.bz2 ~/dev/packages/SOURCES
cd ~/dev/packages/SPECS
rpmbuild -ba trademgen.spec
cd ~/dev/packages
rpmlint -i SPECS/trademgen.spec SRPMS/trademgen-0.5.0-1.fc16.src.rpm \
  RPMS/noarch/trademgen-* RPMS/i686/trademgen-*
```

8.8 Update distributed change log

Update the `NEWS` and `ChangeLog` files with appropriate information, including what has changed since the previous release. Then commit and push the changes into the TraDemGen's Git repository.

8.9 Create the binary package, including the documentation

Create the binary package, which includes HTML and PDF documentation, using the following command:

```
cd ~/dev/sim/trademgengit/build
git checkout releases
make package
```

The output binary package will be named, for instance, `trademgen-0.5.0-Linux.tar.bz2`. That package contains both the HTML and PDF documentation. The binary package contains also the executables and shared libraries, as well as C++ header files, but all of those do not interest us for now.

8.10 Upload the files to SourceForge

Upload the distribution and documentation packages to the SourceForge server. Check SourceForge help page on uploading software.

8.11 Make a new post

- submit a new entry in the SourceForge project-related news feed
- make a new post on the SourceForge hosted WordPress blog
- and update, if necessary, Trac tickets.

8.12 Send an email on the announcement mailing-list

Finally, you should send an announcement to trademgen-announce@lists.sourceforge.net (see https://lists.sourceforge.net/lists/listinfo/trademgen-announce for the archives)

9 Installation

9.1 Table of Contents

- Fedora/RedHat Linux distributions
- TraDemGen Requirements
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9.2 Fedora/RedHat Linux distributions

Note that on Fedora/RedHat Linux distributions, RPM packages are available and can be installed with your usual package manager. For instance:

```
yum -y install trademgen-devel trademgen-doc
```

RPM packages can also be available on the SourceForge download site.

9.3 TraDemGen Requirements

TraDemGen should compile without errors or warnings on most GNU/Linux systems, on UNIX systems like Solaris SunOS, and on POSIX based environments for Microsoft Windows like Cygwin or MinGW with MSYS. It can be also built on Microsoft Windows NT/2000/XP/Vista/7 using Microsoft's Visual C++ .NET, but our support for this compiler is limited. For GNU/Linux, SunOS, Cygwin and MinGW we assume that you have at least the following GNU software installed on your computer:

- GNU Autotools:
  - autoconf,
  - automake,
  - libtool,
  - make, version 3.72.1 or later (check version with 'make –version')
- GCC - GNU C++ Compiler (g++), version 4.3.x or later (check version with 'gcc –version')
- Boost - C++ STL extensions, version 1.35 or later (check version with 'grep "define BOOST_LIB_VERSION" /usr/include/boost/version.hpp')
- MySQL - Database client libraries, version 5.0 or later (check version with 'mysql –version')
- SOCI - C++ database client library wrapper, version 3.0.0 or later (check version with 'soci-config –version')

Optionally, you might need a few additional programs: Doxygen, LaTeX, Dvips and Ghostscript, to generate the HTML and PDF documentation.

We strongly recommend that you use recent stable releases of the GCC, if possible. We do not actively work on supporting older versions of the GCC, and they may therefore (without prior notice) become unsupported in future releases of TraDemGen.

9.4 Basic Installation

Briefly, the shell commands './cmake .. && make install' should configure, build and install this package. The following more-detailed instructions are generic; see the 'README' file for instructions specific to this package. Some packages provide this 'INSTALL' file but do not implement all of the features documented below. The lack of an optional feature in a given package is not necessarily a bug. More recommendations for GNU packages can be found in the info page corresponding to "Makefile Conventions: (standards)Makefile Conventions".

The 'cmake' shell script attempts to guess correct values for various system-dependent variables used during compilation. It uses those values to create a 'Makefile' in each directory of the package. It may also create one or more '.h' files containing system-dependent definitions. Finally, it creates a 'CMakeCache.txt' cache file that you can refer to in the future to recreate the current configuration, and files 'CMakeFiles' containing compiler output (useful mainly for debugging 'cmake').

It can also use an optional file (typically called 'config.cache' and enabled with '–cache-file=config.-cache' or simply '-C') that saves the results of its tests to speed up reconfiguring. Caching is disabled by default to prevent problems with accidental use of stale cache files.

If you need to do unusual things to compile the package, please try to figure out how 'configure' could check whether to do them, and mail diffs or instructions to the address given in the 'README' so they can be considered for the

next release. If you are using the cache, and at some point 'config.cache' contains results you don't want to keep, you may remove or edit it.

The file 'CMakeLists.txt' is used to create the 'Makefile' files.

The simplest way to compile this package is:

1. 'cd' to the directory containing the package's source code and type './cmake ..' to configure the package for your system. Running 'cmake' is generally fast. While running, it prints some messages telling which features it is checking for.
2. Type 'make' to compile the package.
3. Optionally, type 'make check'to run any self-tests that come with the package, generally using the just-built uninstalled binaries.
4. Type 'make install' to install the programs and any data files and documentation. When installing into a prefix owned by root, it is recommended that the package be configured and built as a regular user, and only the 'make install' phase executed with root privileges.
5. You can remove the program binaries and object files from the source code directory by typing 'make clean'. To also remove the files that 'configure' created (so you can compile the package for a different kind of computer), type 'make distclean'. There is also a 'make maintainer-clean' target, but that is intended mainly for the package's developers. If you use it, you may have to get all sorts of other programs in order to regenerate files that came with the distribution.
6. Often, you can also type 'make uninstall' to remove the installed files again. In practice, not all packages have tested that uninstallation works correctly, even though it is required by the GNU Coding Standards.

9.5 Compilers and Options

Some systems require unusual options for compilation or linking that the 'cmake' script does not know about. Run './cmake -help' for details on some of the pertinent environment variables.

You can give 'cmake' initial values for configuration parameters by setting variables in the command line or in the environment. Here is an example:

```
./cmake CC=c99 CFLAGS=-g LIBS=-lposix
```

See also

Defining Variables for more details.

9.6 Compiling For Multiple Architectures

You can compile the package for more than one kind of computer at the same time, by placing the object files for each architecture in their own directory. To do this, you can use GNU 'make'. 'cd' to the directory where you want the object files and executables to go and run the 'configure' script. 'configure' automatically checks for the source code in the directory that 'configure' is in and in '..'. This is known as a "VPATH" build.

With a non-GNU 'make', it is safer to compile the package for one architecture at a time in the source code directory. After you have installed the package

for one architecture, use ‘make distclean’ before reconfiguring for another architecture.

On MacOS X 10.5 and later systems, you can create libraries and executables that work on multiple system types–known as "fat" or "universal" binaries–by specifying multiple ‘-arch’ options to the compiler but only a single ‘-arch’ option to the preprocessor. Like this:

```
./configure CC="gcc -arch i386 -arch x86_64 -arch ppc -arch ppc64" \
            CXX="g++ -arch i386 -arch x86_64 -arch ppc -arch ppc64" \
            CPP="gcc -E" CXXCPP="g++ -E"
```

This is not guaranteed to produce working output in all cases, you may have to build one architecture at a time and combine the results using the ‘lipo’ tool if you have problems.

9.7 Installation Names

By default, ‘make install’ installs the package’s commands under ‘/usr/local/bin’, include files under ‘/usr/local/include’, etc. You can specify an installation prefix other than ‘/usr/local’ by giving ‘configure’ the option ‘–prefix=PREFIX’, where PREFIX must be an absolute file name.

You can specify separate installation prefixes for architecture-specific files and architecture-independent files. If you pass the option ‘–exec-prefix=PREFIX’ to ‘configure’, the package uses PREFIX as the prefix for installing programs and libraries. Documentation and other data files still use the regular prefix.

In addition, if you use an unusual directory layout you can give options like ‘–bindir=DIR’ to specify different values for particular kinds of files. Run ‘configure –help’ for a list of the directories you can set and what kinds of files go in them. In general, the default for these options is expressed in terms of ‘${prefix}’, so that specifying just ‘–prefix’ will affect all of the other directory specifications that were not explicitly provided.

The most portable way to affect installation locations is to pass the correct locations to ‘configure’; however, many packages provide one or both of the following shortcuts of passing variable assignments to the ‘make install’ command line to change installation locations without having to reconfigure or recompile.

The first method involves providing an override variable for each affected directory. For example, ‘make install prefix=/alternate/directory’ will choose an alternate location for all directory configuration variables that were expressed in terms of ‘${prefix}’. Any directories that were specified during ‘configure’, but not in terms of ‘${prefix}’, must each be overridden at install time for the entire installation to be relocated. The approach of makefile variable overrides for each directory variable is required by the GNU Coding Standards, and ideally causes no recompilation. However, some platforms have known limitations with the semantics of shared libraries that end up requiring recompilation when using this method, particularly noticeable in packages that use GNU Libtool.

The second method involves providing the ‘DESTDIR’ variable. For example, ‘make install DESTDIR=/alternate/directory’ will prepend ‘/alternate/directory’ before all installation names. The approach of ‘DESTDIR’ overrides is not required by the GNU Coding Standards, and does not work on platforms that have drive letters. On the other hand, it does better at avoiding recompilation

issues, and works well even when some directory options were not specified
in terms of '${prefix}' at 'configure' time.

9.8 Optional Features

If the package supports it, you can cause programs to be installed with an
extra prefix or suffix on their names by giving 'cmake' the option '-program-prefix=P-
REFIX' or '-program-suffix=SUFFIX'.

Some packages pay attention to '-enable-FEATURE' options to 'configure',
where FEATURE indicates an optional part of the package. They may also
pay attention to '-with-PACKAGE' options, where PACKAGE is something like
'gnu-as' or 'x' (for the X Window System). The 'README' should mention any
'-enable-' and '-with-' options that the package recognizes.

For packages that use the X Window System, 'configure' can usually find the
X include and library files automatically, but if it doesn't, you can use
the 'configure' options '-x-includes=DIR' and '-x-libraries=DIR' to specify
their locations.

Some packages offer the ability to configure how verbose the execution of
'make' will be. For these packages, running './configure -enable-silent-rules'
sets the default to minimal output, which can be overridden with 'make V=1';
while running './configure -disable-silent-rules' sets the default to verbose,
which can be overridden with 'make V=0'.

9.9 Particular systems

On HP-UX, the default C compiler is not ANSI C compatible. If GNU CC is
not installed, it is recommended to use the following options in order to
use an ANSI C compiler:

```
./configure CC="cc -Ae -D_XOPEN_SOURCE=500"
```

and if that doesn't work, install pre-built binaries of GCC for HP-UX.

On OSF/1 a.k.a. Tru64, some versions of the default C compiler cannot parse
its '<wchar.h>' header file. The option '-nodtk' can be used as a workaround.
If GNU CC is not installed, it is therefore recommended to try

```
./configure CC="cc"
```

and if that doesn't work, try

```
./configure CC="cc -nodtk"
```

On Solaris, don't put '/usr/ucb' early in your 'PATH'. This directory contains
several dysfunctional programs; working variants of these programs are available
in '/usr/bin'. So, if you need '/usr/ucb' in your 'PATH', put it *after*
'/usr/bin'.

On Haiku, software installed for all users goes in '/boot/common', not '/usr/local'.
It is recommended to use the following options:

```
./cmake -DCMAKE_INSTALL_PREFIX=/boot/common
```

9.10 Specifying the System Type

There may be some features 'configure' cannot figure out automatically, but needs to determine by the type of machine the package will run on. Usually, assuming the package is built to be run on the *same* architectures, 'configure' can figure that out, but if it prints a message saying it cannot guess the machine type, give it the '–build=TYPE' option. TYPE can either be a short name for the system type, such as 'sun4', or a canonical name which has the form CPU-COMPANY-SYSTEM

where SYSTEM can have one of these forms:

- OS
- KERNEL-OS

  See the file 'config.sub' for the possible values of each field. If 'config.sub' isn't included in this package, then this package doesn't need to know the machine type.

  If you are *building* compiler tools for cross-compiling, you should use the option '–target=TYPE' to select the type of system they will produce code for.

  If you want to *use* a cross compiler, that generates code for a platform different from the build platform, you should specify the "host" platform (i.e., that on which the generated programs will eventually be run) with '–host=TYPE'.

9.11 Sharing Defaults

If you want to set default values for 'configure' scripts to share, you can create a site shell script called 'config.site' that gives default values for variables like 'CC', 'cache_file', and 'prefix'. 'configure' looks for 'PREFIX/share/config.site' if it exists, then 'PREFIX/etc/config.site' if it exists. Or, you can set the 'CONFIG_SITE' environment variable to the location of the site script. A warning: not all 'configure' scripts look for a site script.

9.12 Defining Variables

Variables not defined in a site shell script can be set in the environment passed to 'configure'. However, some packages may run configure again during the build, and the customized values of these variables may be lost. In order to avoid this problem, you should set them in the 'configure' command line, using 'VAR=value'. For example:

```
./configure CC=/usr/local2/bin/gcc
```

causes the specified 'gcc' to be used as the C compiler (unless it is overridden in the site shell script).

Unfortunately, this technique does not work for 'CONFIG_SHELL' due to an Autoconf bug. Until the bug is fixed you can use this workaround:

```
CONFIG_SHELL=/bin/bash /bin/bash ./configure CONFIG_SHELL=/bin/bash
```

9.13 'cmake' Invocation

'cmake' recognizes the following options to control how it operates.

- '-help', '-h' print a summary of all of the options to 'configure', and exit.
- '-help=short', '-help=recursive' print a summary of the options unique to this package's 'configure', and exit. The 'short' variant lists options used only in the top level, while the 'recursive' variant lists options also present in any nested packages.
- '-version', '-V' print the version of Autoconf used to generate the 'configure' script, and exit.
- '-cache-file=FILE' enable the cache: use and save the results of the tests in FILE, traditionally 'config.cache'. FILE defaults to '/dev/null' to disable caching.
- '-config-cache', '-C' alias for '-cache-file=config.cache'.
- '-quiet', '-silent', '-q' do not print messages saying which checks are being made. To suppress all normal output, redirect it to '/dev/null' (any error messages will still be shown).
- '-srcdir=DIR' look for the package's source code in directory DIR. Usually 'configure' can determine that directory automatically.
- '-prefix=DIR' use DIR as the installation prefix.

  See also

  Installation Names for more details, including other options available for fine-tuning the installation locations.

- '-no-create', '-n' run the configure checks, but stop before creating any output files.

'cmake' also accepts some other, not widely useful, options. Run 'cmake -help' for more details.

The 'cmake' script produces an ouput like this:

```
cmake -DCMAKE_INSTALL_PREFIX=/home/user/dev/deliveries/trademgen-99.99.99 -DLIB_SUFFIX=64 -DCMAKE_BUILD_TYPE:S
-- The C compiler identification is GNU
-- The CXX compiler identification is GNU
-- Check for working C compiler: /usr/lib64/ccache/gcc
-- Check for working C compiler: /usr/lib64/ccache/gcc -- works
-- Detecting C compiler ABI info
-- Detecting C compiler ABI info - done
-- Check for working CXX compiler: /usr/lib64/ccache/c++
-- Check for working CXX compiler: /usr/lib64/ccache/c++ -- works
-- Detecting CXX compiler ABI info
-- Detecting CXX compiler ABI info - done
-- Requires Git without specifying any version
-- Current Git revision name: 4856624ea4978b3b2bfe26cb6702cce0be531084 trunk
-- Requires PythonLibs-2.6
-- Found PythonLibs: /usr/lib64/libpython2.7.so (Required is at least version "2.6")
-- Found PythonLibs 2.7
-- Requires Boost-1.41
-- Boost version: 1.46.0
-- Found the following Boost libraries:
--   program_options
--   date_time
--   iostreams
--   serialization
--   filesystem
--   unit_test_framework
--   python
-- Found Boost version: 1.46.0
-- Found BoostWrapper: /usr/include (Required is at least version "1.41")
-- Requires MySQL without specifying any version
```

```
-- Using mysql-config: /usr/bin/mysql_config
-- Found MySQL: /usr/lib64/mysql/libmysqlclient.so
-- Found MySQL version: 5.5.14
-- Requires SOCI-3.0
-- Using soci-config: /usr/bin/soci-config
-- SOCI headers are buried
-- Found SOCI: /usr/lib64/libsoci_core.so (Required is at least version "3.0")
-- Found SOCIMySQL: /usr/lib64/libsoci_mysql.so (Required is at least version "3.0")
-- Found SOCI with MySQL back-end support version: 3.0.0
-- Requires StdAir-0.35
-- Found StdAir version: 0.36.2
-- Requires Doxygen without specifying any version
-- Found Doxygen: /usr/bin/doxygen
-- Found DoxygenWrapper: /usr/bin/doxygen
-- Found Doxygen version: 1.7.4
-- Had to set the linker language for 'trademgenlib' to CXX
-- Had to set the linker language for 'pytrademgenlib' to CXX
-- Test 'TrademgenTest' to be built with 'DemandGenerationTestSuite.cpp'
--
-- ============================================================
-- ----------------------------------
-- ---     Project Information    ---
-- ----------------------------------
-- PROJECT_NAME ................... : trademgen
-- PACKAGE_PRETTY_NAME ............ : TraDemGen
-- PACKAGE ........................ : trademgen
-- PACKAGE_NAME ................... : TRADEMGEN
-- PACKAGE_BRIEF .................. : C++ Simulated Travel Demand Generation Library
-- PACKAGE_VERSION ................ : 99.99.99
-- GENERIC_LIB_VERSION ............ : 99.99.99
-- GENERIC_LIB_SOVERSION .......... : 99.99
--
-- ----------------------------------
-- ---     Build Configuration    ---
-- ----------------------------------
-- Modules to build ............... : trademgen
-- Libraries to build/install ..... : trademgenlib;pytrademgenlib
-- Binaries to build/install ...... : trademgen;trademgen_with_db;pytrademgen.py
-- Modules to test ................ : trademgen
-- Binaries to test ............... : TrademgenTesttst
--
-- * Module ....................... : trademgen
--   + Layers to build ............ : .;basic;bom;factory;command;service
--   + Dependencies on other layers :
--   + Libraries to build/install . : trademgenlib;pytrademgenlib
--   + Executables to build/install : trademgen;trademgen_with_db;pytrademgen.py
--   + Tests to perform ........... : TrademgenTesttst
--
-- BUILD_SHARED_LIBS .............. : ON
-- CMAKE_BUILD_TYPE ............... : Debug
--  * CMAKE_C_FLAGS ............... :
--  * CMAKE_CXX_FLAGS ............. : -Wall -Werror
--  * BUILD_FLAGS ................. :
--  * COMPILE_FLAGS ............... :
-- CMAKE_MODULE_PATH .............. : /home/user/dev/sim/trademgen/trademgengithub/config/
-- CMAKE_INSTALL_PREFIX ........... : /home/user/dev/deliveries/trademgen-99.99.99
--
-- * Doxygen:
--   - DOXYGEN_VERSION ............. : 1.7.4
--   - DOXYGEN_EXECUTABLE .......... : /usr/bin/doxygen
--   - DOXYGEN_DOT_EXECUTABLE ...... : /usr/bin/dot
--   - DOXYGEN_DOT_PATH ............ : /usr/bin
--
-- ----------------------------------
-- --- Installation Configuration ---
-- ----------------------------------
-- INSTALL_LIB_DIR ................ : /home/user/dev/deliveries/trademgen-99.99.99/lib64
-- INSTALL_BIN_DIR ................ : /home/user/dev/deliveries/trademgen-99.99.99/bin
-- INSTALL_INCLUDE_DIR ............ : /home/user/dev/deliveries/trademgen-99.99.99/include
-- INSTALL_DATA_DIR ............... : /home/user/dev/deliveries/trademgen-99.99.99/share
-- INSTALL_SAMPLE_DIR ............. : /home/user/dev/deliveries/trademgen-99.99.99/share/trademgen/samples
-- INSTALL_DOC .................... : ON
--
```

```
-- ---------------------------------
-- ---   Packaging Configuration  ---
-- ---------------------------------
-- CPACK_PACKAGE_CONTACT ......... : Denis Arnaud <denis_arnaud - at - users dot sourceforge dot net>
-- CPACK_PACKAGE_VENDOR ........... : Denis Arnaud
-- CPACK_PACKAGE_VERSION ......... : 99.99.99
-- CPACK_PACKAGE_DESCRIPTION_FILE . : /home/user/dev/sim/trademgen/trademgengithub/README
-- CPACK_RESOURCE_FILE_LICENSE .... : /home/user/dev/sim/trademgen/trademgengithub/COPYING
-- CPACK_GENERATOR ................ : TBZ2
-- CPACK_DEBIAN_PACKAGE_DEPENDS ... :
-- CPACK_SOURCE_GENERATOR ......... : TBZ2;TGZ
-- CPACK_SOURCE_PACKAGE_FILE_NAME . : trademgen-99.99.99
--
-- ---------------------------------
-- ---     External libraries    ---
-- ---------------------------------
--
-- * Python:
--   - PYTHONLIBS_VERSION ......... : 2.7
--   - PYTHON_LIBRARIES ........... : /usr/lib64/libpython2.7.so
--   - PYTHON_INCLUDE_PATH ........ : /usr/include/python2.7
--   - PYTHON_INCLUDE_DIRS ........ : /usr/include/python2.7
--   - PYTHON_DEBUG_LIBRARIES ..... :
--   - Python_ADDITIONAL_VERSIONS . :
--
-- * Boost:
--   - Boost_VERSION .............. : 104600
--   - Boost_LIB_VERSION .......... : 1_46
--   - Boost_HUMAN_VERSION ........ : 1.46.0
--   - Boost_INCLUDE_DIRS ......... : /usr/include
--   - Boost required components .. : program_options;date_time;iostreams;serialization;filesystem;unit_test_f
--   - Boost required libraries ... : optimized;/usr/lib64/libboost_iostreams-mt.so;debug;/usr/lib64/libboost_
--
-- * MySQL:
--   - MYSQL_VERSION .............. : 5.5.14
--   - MYSQL_INCLUDE_DIR .......... : /usr/include/mysql
--   - MYSQL_LIBRARIES ............ : /usr/lib64/mysql/libmysqlclient.so
--
-- * SOCI:
--   - SOCI_VERSION ............... : 3.0.0
--   - SOCI_INCLUDE_DIR ........... : /usr/include/soci
--   - SOCIMYSQL_INCLUDE_DIR ...... : /usr/include/soci
--   - SOCI_LIBRARIES ............. : /usr/lib64/libsoci_core.so
--   - SOCIMYSQL_LIBRARIES ........ : /usr/lib64/libsoci_mysql.so
--
-- * StdAir:
--   - STDAIR_VERSION ............. : 0.36.2
--   - STDAIR_BINARY_DIRS ......... : /home/user/dev/deliveries/stdair-0.36.2/bin
--   - STDAIR_EXECUTABLES ......... : stdair
--   - STDAIR_LIBRARY_DIRS ........ : /home/user/dev/deliveries/stdair-0.36.2/lib64
--   - STDAIR_LIBRARIES ........... : stdairlib;stdairuicllib
--   - STDAIR_INCLUDE_DIRS ........ : /home/user/dev/deliveries/stdair-0.36.2/include
--   - STDAIR_SAMPLE_DIR .......... : /home/user/dev/deliveries/stdair-0.36.2/share/stdair/samples
--
-- Change a value with: cmake -D<Variable>=<Value>
-- ================================================================
--
-- Configuring done
-- Generating done
-- Build files have been written to: /home/user/dev/sim/trademgen/trademgengithub/build
```

It is recommended that you check if your library has been compiled and linked properly and works as expected. To do so, you should execute the testing process 'make check'. As a result, you should obtain a similar report:

```
[  0%] Built target hdr_cfg_trademgen
[ 94%] Built target trademgenlib
[100%] Built target TrademgenTesttst
Scanning dependencies of target check_trademgentst
Test project /home/user/dev/sim/trademgen/trademgengithub/build/test/trademgen
    Start 1: TrademgenTesttst
1/1 Test #1: TrademgenTesttst .................   Passed    0.37 sec
```

```
100% tests passed, 0 tests failed out of 1

Total Test time (real) =  10.82 sec
[100%] Built target check_trademgentst
Scanning dependencies of target check
[100%] Built target check
```

Check if all the executed tests PASSED. If not, please contact us by filling a bug-report.

Finally, you should install the compiled and linked library, include files and (optionally) HTML and PDF documentation by typing:

```
make install
```

Depending on the PREFIX settings during configuration, you might need the root (administrator) access to perform this step.

Eventually, you might invoke the following command

```
make clean
```

to remove all files created during compilation process, or even

```
cd ~/dev/sim/trademgengit
rm -rf build && mkdir build
cd build
```

to remove everything.

10 Linking with TraDemGen

10.1 Table of Contents

- Introdution
- Using the pkg-config command
- Using the trademgen-config script
- M4 macro for the GNU Autotools
- Using TraDemGen with dynamic linking

10.2 Introdution

There are two convenient methods of linking your programs with the TraDemGen library. The first one employs the 'pkg-config' command (see http://pkgconfig.freedesktop.org/), whereas the second one uses 'trademgen-config' script. These methods are shortly described below.

10.3 Using the pkg-config command

'pkg-config' is a helper tool used when compiling applications and libraries. It helps you insert the correct compiler and linker options. The syntax of the 'pkg-config' is as follows:

```
pkg-config <options> <library_name>
```

For instance, assuming that you need to compile an TraDemGen based program 'my_prog.cpp', you should use the following command:

```
g++ `pkg-config --cflags trademgen` -o my_prog my_prog.cpp `pkg-config --libs
      trademgen`
```

For more information see the 'pkg-config' man pages.

10.4 Using the trademgen-config script

TraDemGen provides a shell script called trademgen-config, which is installed by default in '$prefix/bin' ('/usr/local/bin') directory. It can be used to simplify compilation and linking of TraDemGen based programs. The usage of this script is quite similar to the usage of the 'pkg-config' command.

Assuming that you need to compile the program 'my_prog.cpp' you can now do that with the following command:

```
g++ `trademgen-config --cflags` -o my_prog_opt my_prog.cpp `trademgen-config --
      libs`
```

A list of 'trademgen-config' options can be obtained by typing:

```
trademgen-config --help
```

If the 'trademgen-config' command is not found by your shell, you should add its location '$prefix/bin' to the PATH environment variable, e.g.:

```
export PATH=/usr/local/bin:$PATH
```

10.5 M4 macro for the GNU Autotools

A M4 macro file is delivered with TraDemGen, namely 'trademgen.m4', which can be found in, e.g., '/usr/share/aclocal'. When used by a 'configure' script, thanks to he 'AM_PATH_TraDemGen' macro (specified in the M4 macro file), the following Makefile variables are then defined:

- 'TraDemGen_VERSION' (e.g., defined to 0.23.0)
- 'TraDemGen_CFLAGS' (e.g., defined to '-I${prefix}/include')
- 'TraDemGen_LIBS' (e.g., defined to '-L${prefix}/lib -ltrademgen')

10.6 Using TraDemGen with dynamic linking

When using static linking some of the library routines in TraDemGen are copied into your executable program. This can lead to unnecessary large executables. To avoid having too large executable files you may use dynamic linking instead. Dynamic linking means that the actual linking is performed when the program is executed. This requires that the system is able to locate the shared TraDemGen library file during your program execution. If you install the TraDemGen library using a non-standard prefix, the 'LD_LIBRARY_PATH' environment variable might be used to inform the linker of the dynamic library location, e.g.:

```
export LD_LIBRARY_PATH=<TraDemGen installation prefix>/lib:$LD_LIBRARY_PATH
```

11 Test Rules

This section describes how the functionality of the TraDemGen library should be verified. In the 'test/trademgen' subdirectory, test source files are provided. All functionality should be tested using these test source files.

11.1 The Test Source Files

Each new TraDemGen module/class should be accompanied with a test source file. The test source file is an implementation in C++ that tests the functionality of a function/class or a group of functions/classes called test suites. The test source file should test relevant parameter settings and input/output relations to guarantee correct functionality of the corresponding classes/functions. The test source files should be maintained using version control and updated whenever new functionality is added to the TraDemGen library.

The test source file should print relevant data to a standard output that can be used to verify the functionality. All relevant parameter settings should be tested.

The test source file should be placed in the `'test/trademgen'` subdirectory and should have a name ending with `'TestSuite.cpp'`.

11.2 The Reference File

Consider a test source file named `'YieldTestSuite.cpp'`. A reference file named `'YieldTestSuite.ref'` should accompany the test source file. The reference file contains a reference printout of the standard output generated when running the test program. The reference file should be maintained using version control and updated according to the test source file.

11.3 Testing TraDemGen Library

One can compile and execute all test programs from the `'test/trademgen'` sub-directory by typing:

```
% make check
```

after successful compilation of the TraDemGen library.

12 Users Guide

12.1 Table of Contents

- Introduction
- Get Started
  - Get the TraDemGen library
  - Build the TraDemGen project
  - Build and Run the Tests
  - Install the TraDemGen Project (Binaries, Documentation)
- Exploring the Predefined BOM Tree
  - Demand Stream Engine BOM Tree
- Extending the BOM Tree

12.2 Introduction

The `TraDemGen` library contains classes for yield rule management. This document does not cover all the aspects of the `TraDemGen` library. It does however explain the most important things you need to know in order to start using `TraDemGen`.

12.3 Get Started

12.3.1 Get the TraDemGen library

12.3.2 Build the TraDemGen project

To run the configuration script the first time, go to the top directory (where the TraDemGen package has been unpacked), and issue either of the following two commands, depending on whether the TraDemGen project has been checked out from the Subversion repository or downloaded as a tar-ball package from the Sourceforge Web site:

- `./autogen.sh`
- `./configure`

12.3.3 Build and Run the Tests

12.3.4 Install the TraDemGen Project (Binaries, Documentation)

12.4 Exploring the Predefined BOM Tree

`TraDemGen` predefines a BOM (Business Object Model) tree specific to the airline IT arena.

12.4.1 Demand Stream Engine BOM Tree

- `TRADEMGEN::DemandStream`

12.5 Extending the BOM Tree

13 Supported Systems

13.1 Table of Contents

- Introdution
- TraDemGen 3.10.x
  - Linux Systems
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    - Gentoo Linux with ACML
    - Gentoo Linux with ATLAS
    - Gentoo Linux with MKL
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  - Windows Systems
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  - Unix Systems
    - SunOS 5.9 with TraDemGen External
- TraDemGen 3.9.1
- TraDemGen 3.9.0
- TraDemGen 3.8.1

13.2 Introdution

This page is intended to provide a list of TraDemGen supported systems, i.e. the systems on which configuration, installation and testing process of the TraDemGen library has been sucessful. Results are grouped based on minor release number. Therefore, only the latest tests for bug-fix releases are included. Besides, the information on this page is divided into sections dependent on the operating system.

Where necessary, some extra information is given for each tested configuration, e.g. external libraries installed, configuration commands used, etc.

If you manage to compile, install and test the TraDemGen library on a system not mentioned below, please let us know, so we could update this database.

13.3 TraDemGen 3.10.x

13.3.1 Linux Systems

13.3.1.1 Fedora Core 4 with ATLAS

- **Platform**: Intel Pentium 4
- **Operating System**: Fedora Core 4 (x86)
- **Compiler**: g++ (GCC) 4.0.2 20051125
- **TraDemGen release**: 3.10.0
- **External Libraries**: From FC4 distribution:
  - `fftw3.i386-3.0.1-3`
  - `fftw3-devel.i386-3.0.1-3`
  - `atlas-sse2.i386-3.6.0-8.fc4`
  - `atlas-sse2-devel.i386-3.6.0-8.fc4`
  - `blas.i386-3.0-35.fc4`
  - `lapack.i386-3.0-35.fc4`
- **Tests Status**: All tests PASSED
- **Comments**: TraDemGen configured with:

```
% CXXFLAGS="-O3 -pipe -march=pentium4" ./configure
```

- **Date**: March 7, 2006
- **Tester**: Tony Ottosson

13.3.1.2 Gentoo Linux with ACML

- **Platform**: AMD Sempron 3000+
- **Operating System**: Gentoo Linux 2006.0 (x86 arch)
- **Compiler(s)**: g++ (GCC) 3.4.5
- **TraDemGen release**: 3.10.1
- **External Libraries**: Compiled and installed from portage tree:
  - `sci-libs/acml-3.0.0`
- **Tests Status**: All tests PASSED
- **Comments**: BLAS and LAPACK libs set by using the following system commands:

```
% eselect blas set ACML
% eselect lapack set ACML
```

  TraDemGen configured with:

```
% export CPPFLAGS="-I/usr/include/acml"
% ./configure --with-blas="-lblas"
```

- **Date**: March 31, 2006
- **Tester**: Adam Piatyszek (ediap)

13.3.1.3 Gentoo Linux with ATLAS

- **Platform**: Intel Pentium M Centrino
- **Operating System**: Gentoo Linux 2006.0 (x86)
- **Compiler**: g++ (GCC) 3.4.5
- **TraDemGen release**: 3.10.1
- **External Libraries**: Compiled and installed from portage tree:
  - `sci-libs/fftw-3.1`
  - `sci-libs/blas-atlas-3.6.0-r1`
  - `sci-libs/lapack-atlas-3.6.0`
- **Tests Status**: All tests PASSED
- **Comments**: BLAS and LAPACK libs set by using the following system commands:

```
% eselect blas set ATLAS
% eselect lapack set ATLAS
```

  TraDemGen configured with:

```
% ./configure --with-blas="-lblas"
```

- **Date**: March 31, 2006
- **Tester**: Adam Piatyszek (ediap)

13.3.1.4 Gentoo Linux with MKL

- **Platform**: Intel Pentium M Centrino
- **Operating System**: Gentoo Linux 2006.0 (x86 arch)
- **Compiler**: g++ (GCC) 3.4.5
- **TraDemGen release**: 3.10.0
- **External Libraries**: Intel Math Kernel Library (MKL) 8.0.1 installed manually in the following directory: `/opt/intel/mkl/8.0.1`
- **Tests Status**: All tests PASSED
- **Comments**: TraDemGen configured using the following commands:

```
% export LDFLAGS="-L/opt/intel/mkl/8.0.1/lib/32"
% export CPPFLAGS="-I/opt/intel/mkl/8.0.1/include"
% ./configure
```

- **Date**: February 28, 2006
- **Tester**: Adam Piatyszek (ediap)

13.3.1.5 Gentoo Linux with NetLib's BLAS and LAPACK

- **Platform**: Intel Pentium M Centrino
- **Operating System**: Gentoo Linux 2006.0 (x86)
- **Compiler**: g++ (GCC) 3.4.5
- **TraDemGen release**: 3.10.1
- **External Libraries**: Compiled and installed from portage tree:
  - `sci-libs/fftw-3.1`
  - `sci-libs/blas-reference-19940131-r2`
  - `sci-libs/cblas-reference-20030223`
  - `sci-libs/lapack-reference-3.0-r2`
- **Tests Status**: All tests PASSED
- **Comments**: BLAS and LAPACK libs set by using the following system commands:

```
% blas-config reference
% lapack-config reference
```

  TraDemGen configured with:

```
% ./configure --with-blas="-lblas"
```

- **Date**: March 31, 2006
- **Tester**: Adam Piatyszek (ediap)

13.3.1.6 Red Hat Enterprise Linux with TraDemGen External

- **Platform**: Intel Pentium 4
- **Operating System**: Red Hat Enterprise Linux AS release 4 (Nahant Update 2)
- **Compiler**: g++ (GCC) 3.4.4 20050721 (Red Hat 3.4.4-2)
- **TraDemGen release**: 3.10.0
- **External Libraries**: BLAS, CBLAS, LAPACK and FFTW libraries from TraDemGen External 2.1.1 package
- **Tests Status**: All tests PASSED
- **Date**: March 7, 2006
- **Tester**: Erik G. Larsson

13.3.1.7 SUSE Linux 10.0 with NetLib's BLAS and LAPACK

- **Platform**: Intel Pentium 4 CPU 3.20GHz (64-bit)
- **Operating System**: SUSE Linux 10.0 (x86_64)
- **Compiler(s)**: g++ (GCC) 4.0.2
- **TraDemGen release**: 3.10.0
- **External Libraries**: BLAS, LAPACK and FFTW libraries installed from OpenSuse 10.0 RPM repository:
  - `blas-3.0-926`
  - `lapack-3.0-926`
  - `fftw3-3.0.1-114`
  - `fftw3-threads-3.0.1-114`
  - `fftw3-devel-3.0.1-114`
- **Tests Status**: All tests PASSED
- **Comments**: TraDemGen configured with:

```
% export CXXFLAGS="-m64 -march=nocona -O3 -pipe"
% ./configure --with-lapack="/usr/lib64/liblapack.so.3"
```

- **Date**: March 1, 2006
- **Tester**: Adam Piatyszek (ediap)

13.3.1.8 SUSE Linux 10.0 with MKL

- **Platform**: Intel Pentium 4 CPU 3.20GHz (64-bit)
- **Operating System**: SUSE Linux 10.0 (x86_64)
- **Compiler(s)**: g++ (GCC) 4.0.2
- **TraDemGen release**: 3.10.0
- **External Libraries**: Intel Math Kernel Library (MKL) 8.0.1 installed manually in the following directory: `/opt/intel/mkl/8.0.1`
- **Tests Status**: All tests PASSED
- **Comments**: TraDemGen configured with:

```
% export CXXFLAGS="-m64 -march=nocona -O3 -pipe"
% export LDFLAGS="-L/opt/intel/mkl/8.0.1/lib/em64t"
% export CPPFLAGS="-I/opt/intel/mkl/8.0.1/include"
% ./configure
```

- **Date**: March 1, 2006
- **Tester**: Adam Piatyszek (ediap)

13.3.2 Windows Systems

13.3.2.1 Microsoft Windows XP with Cygwin

- **Platform**: AMD Sempron 3000+
- **Operating System**: Microsoft Windows XP SP2, Cygwin 1.5.19-4
- **Compiler(s)**: g++ (GCC) 3.4.4 (cygming special)
- **TraDemGen release**: 3.10.1
- **External Libraries**: Installed from Cygwin's repository:
  - `fftw-3.0.1-2`
  - `fftw-dev-3.0.1-1`
  - `lapack-3.0-4`
- **Tests Status**: All tests PASSED
- **Comments**: Only static library can be built. TraDemGen configured with:

```
% ./configure
```

- **Date**: March 31, 2006
- **Tester**: Adam Piatyszek (ediap)

13.3.2.2 Microsoft Windows XP with Cygwin and ATLAS

- **Platform**: AMD Sempron 3000+
- **Operating System**: Microsoft Windows XP SP2, Cygwin 1.5.19-4
- **Compiler(s)**: g++ (GCC) 3.4.4 (cygming special)
- **TraDemGen release**: 3.10.1
- **External Libraries**: Installed from Cygwin's repository:
  - `fftw-3.0.1-2`
  - `fftw-dev-3.0.1-1`

  ATLAS BLAS and LAPACK libraries from TraDemGen External 2.1.1 package configured using:

```
% ./configure --enable-atlas --disable-fftw
```

- **Tests Status**: All tests PASSED
- **Comments**: Only static library can be built. TraDemGen configured with:

```
% export LDFLAGS="-L/usr/local/lib"
% ./configure
```

- **Date**: March 31, 2006
- **Tester**: Adam Piatyszek (ediap)

13.3.2.3 Microsoft Windows XP with Cygwin and ACML

- **Platform**: AMD Sempron 3000+
- **Operating System**: Microsoft Windows XP SP2, Cygwin 1.5.19-4
- **Compiler(s)**: g++ (GCC) 3.4.4 (cygming special)
- **TraDemGen release**: 3.10.2
- **External Libraries**: ACML version 3.1.0 (`acml3.1.0-32-win32-g77.exe`) installed into a default directory, i.e. `"c:\Program Files\AMD\acml3.1.0"`
- **Tests Status**: All tests PASSED
- **Comments**: Only static library can be built. TraDemGen configured with:

```
% export LDFLAGS="-L/cygdrive/c/Progra~1/AMD/acml3.1.0/gnu32/lib"
% export CPPFLAGS="-I/cygdrive/c/Progra~1/AMD/acml3.1.0/gnu32/include"
% ./configure --enable-debug
```

- **Date**: May 15, 2006
- **Tester**: Adam Piatyszek (ediap)

13.3.2.4 Microsoft Windows XP with MinGW, MSYS and ACML

- **Platform**: AMD Sempron 3000+
- **Operating System**: Microsoft Windows XP SP2, MinGW 5.0.2, MSYS 1.0.10
- **Compiler(s)**: g++ (GCC) 3.4.4 (mingw special)
- **TraDemGen release**: 3.10.2
- **External Libraries**: ACML version 3.1.0 (`acml3.1.0-32-win32-g77.exe`) installed into a default directory, i.e. `"c:\Program Files\AMD\acml3.1.0"`
- **Tests Status**: All tests PASSED
- **Comments**: Only static library can be built. TraDemGen configured with:

```
% export LDFLAGS="-L/c/Progra~1/AMD/acml3.1.0/gnu32/lib"
% export CPPFLAGS="-I/c/Progra~1/AMD/acml3.1.0/gnu32/include"
% ./configure --enable-debug
```

- **Date**: May 15, 2006
- **Tester**: Adam Piatyszek (ediap)

13.3.2.5 Microsoft Windows XP with MinGW, MSYS and TraDemGen External

- **Platform**: AMD Sempron 3000+
- **Operating System**: Microsoft Windows XP SP2, MinGW 5.0.2, MSYS 1.0.10
- **Compiler(s)**: g++ (GCC) 3.4.4 (mingw special)
- **TraDemGen release**: 3.10.5
- **External Libraries**: BLAS, CBLAS, LAPACK and FFTW libraries from TraDemGen External 2.2.0 package
- **Tests Status**: All tests PASSED
- **Comments**: Only static library can be built. TraDemGen configured with:

```
% export LDFLAGS="-L/usr/local/lib"
% export CPPFLAGS="-I/usr/local/include"
% export CXXFLAGS="-Wall -O3 -march=athlon-tbird -pipe"
% ./configure --disable-html-doc
```

- **Date**: August 11, 2006
- **Tester**: Adam Piatyszek (ediap)

13.3.2.6 Microsoft Windows XP with MS Visual C++ and Intel MKL

- **Platform**: AMD Sempron 3000+
- **Operating System**: Microsoft Windows XP SP2
- **Compiler(s)**: Microsoft Visual C++ 2005 .NET
- **TraDemGen release**: 3.10.5
- **External Libraries**: Intel Math Kernel Library (MKL) 8.1 installed manually in the following directory: "`C:\-Program Files\Intel\MKL\8.1`"
- **Tests Status**: Not fully tested. Some TraDemGen based programs compiled and run with success.
- **Comments**: Only static library can be built. TraDemGen built by opening the "`win32\trademgen.-vcproj`" project file in MSVC++ and executing "`Build -> Build Solution`" command from menu.
- **Date**: August 11, 2006
- **Tester**: Adam Piatyszek (ediap)

13.3.3 Unix Systems

13.3.3.1 SunOS 5.9 with TraDemGen External

- **Platform**: SUNW, Sun-Blade-100 (SPARC)
- **Operating System**: SunOS 5.9 Generic_112233-10
- **Compiler(s)**: g++ (GCC) 3.4.5
- **TraDemGen release**: 3.10.2
- **External Libraries**: BLAS, CBLAS, LAPACK and FFTW libraries from TraDemGen External 2.1.1 package. The following configuration command has been used:

```
% export CFLAGS="-mcpu=ultrasparc -O2 -pipe -funroll-all-loops"
% ./configure
```

- **Tests Status**: All tests PASSED
- **Comments**: TraDemGen configured with:

```
% export LDFLAGS="-L/usr/local/lib"
% export CPPFLAGS="-I/usr/local/include"
% export CXXFLAGS="-mcpu=ultrasparc -O2 -pipe"
% ./configure --enable-debug
```

- **Date**: May 15, 2006
- **Tester**: Adam Piatyszek (ediap)

14 TraDemGen Supported Systems (Previous Releases)

14.1 TraDemGen 3.9.1

14.2 TraDemGen 3.9.0

14.3 TraDemGen 3.8.1

15 Tutorials

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  - Result of the Tutorial Program
- Extend the Pre-Defined BOM Tree
  - Extend an Airline Inventory Object
  - Build the Specific BOM Objects
  - Result of the Tutorial Program

15.2 Introduction

This page contains some tutorial examples that will help you getting started using StdAir. Most examples show how to construct some simple business objects, i.e., instances of the so-named Business Object Model (BOM).

15.2.1 Preparing the StdAir Project for Development

The source code for these examples can be found in the `batches` and `test/stdair` directories. They are compiled along with the rest of the `StdAir` project. See the User Guide (Users Guide) for more details on how to build the `StdAir` project.

15.3 Build a Predefined BOM Tree

A few steps:

- Instanciate the BOM Root Object
- Instanciate the (Airline) Inventory Object
- Link the Inventory Object with the BOM Root

15.3.1 Instanciate the BOM Root Object

First, a BOM root object (i.e., a root for all the classes in the project) is instantiated by the `stdair::STDAIR_ServiceContext` context object, when the `stdair::STDAIR_Service` is itself instantiated. The corresponding `StdAir` type (class) is `stdair::BomRoot`.

In the following sample, that object is named `ioBomRoot`, and is given as input/output parameter of the `stdair::CmdBomManager::buildSampleBom()` method:

15.3.2 Instanciate the (Airline) Inventory Object

An airline inventory object can then be instantiated. Let us give it the "BA" airline code (corresponding to `British Airways`) as the object key. That is, an object (let us name it `lBAKey`) of type (class) `stdair::InventoryKey` has first to be instantiated.

Thanks to that key, an airline inventory object, i.e. of type (class) `stdair::Inventory`, can be instantiated. Let us name that airline inventory object `lBAInv`.

15.3.3 Link the Inventory Object with the BOM Root

Then, both objects have to be linked: the airline inventory object (`stdair::Inventory`) has to be linked with the root of the BOM tree (`stdair::BomRoot`). That operation is as simple as using the `stdair::FacBomManager::addToListAndMap()` method:

15.3.4 Build Another Airline Inventory

Another airline inventory object, corresponding to the Air France (`Air France`) company, is instantiated the same way:

See the corresponding full program (cmd_bom_manager_cpp) for more details.

15.3.5 Dump The BOM Tree Content

From the `BomRoot` (of type `stdair::BomRoot`) object instance, the list of airline inventories (of type `stdair::Inventory`) can then be retrieved...

... and browsed:

See the corresponding full program (bom_display_cpp) for more details.

15.3.6 Result of the Tutorial Program

When the `stdair.cpp` program is run (with the `-b` option), the output should look like:

See the corresponding full program (batch_stdair_cpp) for more details.

15.4 Extend the Pre-Defined BOM Tree

Now that we master how to instantiate the pre-defined StdAir classes, let us see how to extend that BOM.

15.4.1 Extend an Airline Inventory Object

For instance, let us assume that some (IT) provider (e.g., you) would like to have a specific implementation of the `Inventory` object. The corresponding class has just to extend the `stdair::Inventory` class:

The STL containers have to be defined accordingly too:

See the full class definition (test_archi_inv_hpp) and implementation (test_archi_inv_cpp) for more details.

15.4.2 Build the Specific BOM Objects

The BOM root object (`stdair::BomRoot`) is instantiated the classical way:

Then, the specific implementation of the airline inventory object (`myprovider::Inventory`) can be instantiated the same way as a standard Inventory (`stdair::Inventory`) would be:

Then, the specific implementation of the airline inventory object (`myprovider::Inventory`) is linked to the root of the BOM tree (`stdair::BomRoot`) the same way as the standard Inventory (`stdair::Inventory`) would be:

Another specific airline inventory object is instantiated the same way:

From the `BomRoot` (of type `stdair::BomRoot`) object instance, the list of specific airline inventories (of type `stdair::Inventory`) can then be retrieved...

... and browsed:

15.4.3 Result of the Tutorial Program

When this program is run, the output should look like:

See the corresponding full program (StandardAirlineITTestSuite_cpp) for more details.

16 Command-Line Test to Demonstrate How To Use TraDemGen elements

```
 */
// ////////////////////////////////////////////////////////////////////
// Import section
// ////////////////////////////////////////////////////////////////////
// STL
#include <sstream>
#include <fstream>
#include <map>
#include <cmath>
// Boost Unit Test Framework (UTF)
#define BOOST_TEST_DYN_LINK
#define BOOST_TEST_MAIN
#define BOOST_TEST_MODULE DemandGenerationTest
#include <boost/test/unit_test.hpp>
// StdAir
#include <stdair/stdair_basic_types.hpp>
#include <stdair/basic/BasConst_General.hpp>
#include <stdair/basic/BasLogParams.hpp>
#include <stdair/basic/BasDBParams.hpp>
#include <stdair/basic/BasFileMgr.hpp>
#include <stdair/basic/ProgressStatusSet.hpp>
#include <stdair/bom/EventStruct.hpp>
#include <stdair/bom/BookingRequestStruct.hpp>
#include <stdair/service/Logger.hpp>
// TraDemGen
#include <trademgen/TRADEMGEN_Exceptions.hpp>
#include <trademgen/TRADEMGEN_Service.hpp>
#include <trademgen/bom/DemandStreamKey.hpp>
#include <trademgen/config/trademgen-paths.hpp
      >

namespace boost_utf = boost::unit_test;

// (Boost) Unit Test XML Report
std::ofstream utfReportStream ("DemandGenerationTestSuite_utfresults.xml");

struct UnitTestConfig {
  UnitTestConfig() {
    boost_utf::unit_test_log.set_stream (utfReportStream);
    boost_utf::unit_test_log.set_format (boost_utf::XML);
    boost_utf::unit_test_log.set_threshold_level (boost_utf::log_test_units);
    //boost_utf::unit_test_log.set_threshold_level
       (boost_utf::log_successful_tests);
  }

  ~UnitTestConfig() {
  }
};

// Specific type definitions
typedef std::pair<stdair::Count_T, stdair::Count_T> NbOfEventsPair_T;
typedef std::map<const stdair::DemandStreamKeyStr_T,
                 NbOfEventsPair_T> NbOfEventsByDemandStreamMap_T;

// ////////////////////////////////////////////////////////////////////
void testDemandGenerationHelper (const unsigned short iTestFlag,
                                 const stdair::Filename_T& iDemandInputFilename
      ,
                                 const stdair::DemandGenerationMethod&
      iDemandGenerationMethod,
                                 const bool isBuiltin) {

  // Seed for the random generation
  const stdair::RandomSeed_T lRandomSeed = stdair::DEFAULT_RANDOM_SEED;

  // Output log File
  std::ostringstream oStr;
  oStr << "DemandGenerationTestSuite_" << iTestFlag << ".log";
  const stdair::Filename_T lLogFilename (oStr.str());

  // Set the log parameters
  std::ofstream logOutputFile;
  // Open and clean the log outputfile
  logOutputFile.open (lLogFilename.c_str());
  logOutputFile.clear();

  // Initialise the TraDemGen service object
  const stdair::BasLogParams lLogParams (stdair::LOG::DEBUG, logOutputFile);
  TRADEMGEN::TRADEMGEN_Service trademgenService (
      lLogParams, lRandomSeed);

  NbOfEventsByDemandStreamMap_T lNbOfEventsMap;

  // Total number of events
```

```
  stdair::Count_T lRefExpectedNbOfEvents (0);
  stdair::Count_T lRefActualNbOfEvents (0);

  // Check whether or not a (CSV) input file should be read
  if (isBuiltin == true) {

    // Build the default sample BOM tree (filled with demand streams) for
       TraDemGen
    trademgenService.buildSampleBom();

    lNbOfEventsMap.insert (NbOfEventsByDemandStreamMap_T::
                           value_type ("SIN-BKK 2010-Feb-08 Y",
                                       NbOfEventsPair_T (4, 60)));
    lNbOfEventsMap.insert (NbOfEventsByDemandStreamMap_T::
                           value_type ("BKK-HKG 2010-Feb-08 Y",
                                       NbOfEventsPair_T (4, 60)));
    lNbOfEventsMap.insert (NbOfEventsByDemandStreamMap_T::
                           value_type ("SIN-HKG 2010-Feb-08 Y",
                                       NbOfEventsPair_T (4, 60)));

    // Total number of events, for the 3 demand streams: 180
    lRefExpectedNbOfEvents = 180;
    lRefActualNbOfEvents = 186;

  } else {

    // Create the DemandStream objects, and insert them within the BOM tree
    const TRADEMGEN::DemandFilePath lDemandFilePath (
      iDemandInputFilename);
    trademgenService.parseAndLoad (lDemandFilePath);

    lNbOfEventsMap.insert (NbOfEventsByDemandStreamMap_T::
                           value_type ("SIN-HND 2010-Feb-08 Y",
                                       NbOfEventsPair_T (1, 10)));
    lNbOfEventsMap.insert (NbOfEventsByDemandStreamMap_T::
                           value_type ("SIN-HND 2010-Feb-09 Y",
                                       NbOfEventsPair_T (1, 10)));
    lNbOfEventsMap.insert (NbOfEventsByDemandStreamMap_T::
                           value_type ("SIN-BKK 2010-Feb-08 Y",
                                       NbOfEventsPair_T (1, 10)));
    lNbOfEventsMap.insert (NbOfEventsByDemandStreamMap_T::
                           value_type ("SIN-BKK 2010-Feb-09 Y",
                                       NbOfEventsPair_T (1, 10)));

    // Total number of events, for the 4 demand streams: 40
    lRefExpectedNbOfEvents = 40;
    lRefActualNbOfEvents = 40;
  }

  // Retrieve the expected (mean value of the) number of events to be
  // generated
  const stdair::Count_T& lExpectedNbOfEventsToBeGenerated =
    trademgenService.getExpectedTotalNumberOfRequestsToBeGenerated();

  BOOST_CHECK_EQUAL (lRefExpectedNbOfEvents,
                     std::floor (lExpectedNbOfEventsToBeGenerated));

  BOOST_CHECK_MESSAGE (lRefExpectedNbOfEvents ==
                       std::floor (lExpectedNbOfEventsToBeGenerated),
                       "Expected total number of requests to be generated: "
                       << lExpectedNbOfEventsToBeGenerated
                       << " (=> "
                       << std::floor (lExpectedNbOfEventsToBeGenerated)
                       << "). Reference value: " << lRefExpectedNbOfEvents);

  const stdair::Count_T& lActualNbOfEventsToBeGenerated =
    trademgenService.generateFirstRequests(iDemandGenerationMethod);

  // DEBUG
  STDAIR_LOG_DEBUG ("Expected number of events: "
                    << lExpectedNbOfEventsToBeGenerated << ", actual: "
                    << lActualNbOfEventsToBeGenerated);

  // Total number of events, for all the demand streams:
  BOOST_CHECK_EQUAL (lRefActualNbOfEvents, lActualNbOfEventsToBeGenerated);

  BOOST_CHECK_MESSAGE (lRefActualNbOfEvents == lActualNbOfEventsToBeGenerated,
                       "Actual total number of requests to be generated: "
                       << lExpectedNbOfEventsToBeGenerated
                       << " (=> "
                       << std::floor (lExpectedNbOfEventsToBeGenerated)
                       << "). Reference value: " << lRefActualNbOfEvents);

  const bool isQueueDone = trademgenService.isQueueDone();
  BOOST_REQUIRE_MESSAGE (isQueueDone == false,
                         "The event queue should not be empty.");
```

```
  stdair::Count_T idx = 1;
  while (trademgenService.isQueueDone() == false) {

    // Get the next event from the event queue
    stdair::EventStruct lEventStruct;
    stdair::ProgressStatusSet lPPS = trademgenService.popEvent (lEventStruct);

    // DEBUG
    STDAIR_LOG_DEBUG ("Poped event: '" << lEventStruct.describe() << "'.");

    // Extract the corresponding demand/booking request
    const stdair::BookingRequestStruct& lPoppedRequest =
      lEventStruct.getBookingRequest();

    // DEBUG
    STDAIR_LOG_DEBUG ("Poped booking request: '"
                      << lPoppedRequest.describe() << "'.");

    // Retrieve the corresponding demand stream
    const stdair::DemandGeneratorKey_T& lDemandStreamKey =
      lPoppedRequest.getDemandGeneratorKey();

    // Check that the number of booking requests to be generated are correct
    const NbOfEventsByDemandStreamMap_T::iterator itNbOfEventsMap =
      lNbOfEventsMap.find (lDemandStreamKey);
    BOOST_REQUIRE_MESSAGE (itNbOfEventsMap != lNbOfEventsMap.end(),
                           "The demand stream key '" << lDemandStreamKey
                           << "' is not expected in that test");

    const NbOfEventsPair_T& lNbOfEventsPair = itNbOfEventsMap->second;
    stdair::Count_T lCurrentNbOfEvents = lNbOfEventsPair.first;
    const stdair::Count_T& lExpectedTotalNbOfEvents = lNbOfEventsPair.second;

    // Assess whether more events should be generated for that demand stream
    const bool stillHavingRequestsToBeGenerated = trademgenService.
      stillHavingRequestsToBeGenerated (lDemandStreamKey, lPPS,
                                        iDemandGenerationMethod);

    if (lCurrentNbOfEvents == 1) {
      const stdair::ProgressStatus& lDemandStreamProgressStatus =
        lPPS.getSpecificGeneratorStatus();
      const stdair::Count_T& lNbOfRequests =
        lDemandStreamProgressStatus.getExpectedNb();

      BOOST_CHECK_EQUAL (lNbOfRequests, lExpectedTotalNbOfEvents);
      BOOST_CHECK_MESSAGE (lNbOfRequests == lExpectedTotalNbOfEvents,
                           "[" << lDemandStreamKey
                           << "] Total number of requests to be generated: "
                           << lNbOfRequests << "). Expected value: "
                           << lExpectedTotalNbOfEvents);
    }

    // DEBUG
    STDAIR_LOG_DEBUG ("=> [" << lDemandStreamKey << "][" << lCurrentNbOfEvents
                      << "/" << lExpectedTotalNbOfEvents
                      << "] is now processed. "
                      << "Still generate events for that demand stream? "
                      << stillHavingRequestsToBeGenerated);

    // If there are still events to be generated for that demand stream,
    // generate and add them to the event queue
    if (stillHavingRequestsToBeGenerated == true) {
      const stdair::BookingRequestPtr_T lNextRequest_ptr =
        trademgenService.generateNextRequest (lDemandStreamKey,
                                              iDemandGenerationMethod);
      assert (lNextRequest_ptr != NULL);

      const stdair::Duration_T lDuration =
        lNextRequest_ptr->getRequestDateTime()
        - lPoppedRequest.getRequestDateTime();
      BOOST_REQUIRE_GT (lDuration.total_milliseconds(), 0);
      BOOST_REQUIRE_MESSAGE (lDuration.total_milliseconds() > 0,
                             "[" << lDemandStreamKey
                             << "] The date-time of the generated event ("
                             << lNextRequest_ptr->getRequestDateTime()
                             << ") is lower than the date-time "
                             << "of the current event ("
                             << lPoppedRequest.getRequestDateTime() << ")");

      // DEBUG
      STDAIR_LOG_DEBUG ("[" << lDemandStreamKey << "][" << lCurrentNbOfEvents
                        << "/" << lExpectedTotalNbOfEvents
                        << "] Added request: '" << lNextRequest_ptr->describe()
                        << "'. Is queue done? "
                        << trademgenService.isQueueDone());

      // Keep, within the dedicated map, the current counters of events
```

```
       updated.
      ++lCurrentNbOfEvents;
      itNbOfEventsMap->second = NbOfEventsPair_T (lCurrentNbOfEvents,
                                                  lExpectedTotalNbOfEvents);
    }

    // Iterate
    ++idx;
  }
  // Compensate for the last iteration
  --idx;

  if (iDemandGenerationMethod == stdair::DemandGenerationMethod::STA_ORD) {
    //
    BOOST_CHECK_EQUAL (idx, lRefActualNbOfEvents);
    BOOST_CHECK_MESSAGE (idx == lRefActualNbOfEvents,
                         "The total actual number of events is "
                         << lRefActualNbOfEvents << ", but " << idx
                         << " events have been generated");
  }

  trademgenService.reset();

  // DEBUG
  STDAIR_LOG_DEBUG ("End of the simulation");

  // Close the log file
  logOutputFile.close();

}


// ///////////////// Main: Unit Test Suite ///////////////

// Set the UTF configuration (re-direct the output to a specific file)
BOOST_GLOBAL_FIXTURE (UnitTestConfig);

// Start the test suite
BOOST_AUTO_TEST_SUITE (master_test_suite)


BOOST_AUTO_TEST_CASE (trademgen_simple_simulation_test) {

  // Input file name
  const stdair::Filename_T lInputFilename (STDAIR_SAMPLE_DIR "
      /demand01.csv");

  // Generate the date time of the requests with the statistic order method.
  const stdair::DemandGenerationMethod lDemandGenerationMethod (
      stdair::DemandGenerationMethod::STA_ORD);

  // State whether the BOM tree should be built-in or parsed from an input file
  const bool isBuiltin = false;
  BOOST_CHECK_NO_THROW (testDemandGenerationHelper(0,
                                                   lInputFilename,
                                                   lDemandGenerationMethod,
                                                   isBuiltin));

}

BOOST_AUTO_TEST_CASE (trademgen_missing_input_file_test) {

  // Input file name
  const stdair::Filename_T lInputFilename (STDAIR_SAMPLE_DIR "
      /missingFile.csv");

  // Generate the date time of the requests with the statistic order method.
  const stdair::DemandGenerationMethod lDemandGenerationMethod (
      stdair::DemandGenerationMethod::STA_ORD);

  // State whether the BOM tree should be built-in or parsed from an input file
  const bool isBuiltin = false;
  BOOST_CHECK_THROW (testDemandGenerationHelper(1,
                                                lInputFilename,
                                                lDemandGenerationMethod,
                                                isBuiltin),
                     TRADEMGEN::DemandInputFileNotFoundException
      );

}

BOOST_AUTO_TEST_CASE (trademgen_default_bom_simulation_test) {

  // Generate the date time of the requests with the statistic order method.
  const stdair::DemandGenerationMethod lDemandGenerationMethod (
      stdair::DemandGenerationMethod::STA_ORD);
```

```
  // State whether the BOM tree should be built-in or parsed from an input file
  const bool isBuiltin = true;
  BOOST_CHECK_NO_THROW (testDemandGenerationHelper(2,
                                                   " " ,
                                                   lDemandGenerationMethod,
                                                   isBuiltin));

}

BOOST_AUTO_TEST_CASE (trademgen_poisson_process_test) {

  // Generate the date time of the requests with the poisson process.
  const stdair::DemandGenerationMethod lDemandGenerationMethod (
      stdair::DemandGenerationMethod::POI_PRO);

  // State whether the BOM tree should be built-in or parsed from an input file
  const bool isBuiltin = true;
  BOOST_CHECK_NO_THROW (testDemandGenerationHelper(3,
                                                   " " ,
                                                   lDemandGenerationMethod,
                                                   isBuiltin));

}

// End the test suite
BOOST_AUTO_TEST_SUITE_END()

/*!
```

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std::basic_fstream< wchar_t >
std::basic_ifstream< char >
std::basic_ifstream< wchar_t >
std::basic_ios< char >
std::basic_ios< wchar_t >
std::basic_iostream< char >
std::basic_iostream< wchar_t >
std::basic_istream< char >
std::basic_istream< wchar_t >
std::basic_istringstream< char >
std::basic_istringstream< wchar_t >
std::basic_ofstream< char >
std::basic_ofstream< wchar_t >
std::basic_ostream< char >

std::basic_ostream< wchar_t >
std::basic_ostringstream< char >
std::basic_ostringstream< wchar_t >
std::basic_string< char >
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21 Namespace Documentation

21.1 SEVMGR Namespace Reference

Functions

- template void SEVMGR_Service::addEventGenerator< TRADEMGEN::DemandStream > (TRADEMGEN::-DemandStream &) const
- template TRADEMGEN::DemandStream & SEVMGR_Service::getEventGenerator< TRADEMGEN::-DemandStream, stdair::DemandStreamKeyStr_T > (const stdair::DemandStreamKeyStr_T &) const
- template bool SEVMGR_Service::hasEventGenerator< TRADEMGEN::DemandStream, stdair::Demand-StreamKeyStr_T > (const stdair::DemandStreamKeyStr_T &) const
- template const TRADEMGEN::DemandStreamList_T SEVMGR_Service::getEventGeneratorList< TRADEMGEN::Demand-Stream > () const
- template bool SEVMGR_Service::hasEventGeneratorList< TRADEMGEN::DemandStream > () const

21.1.1 Function Documentation

21.1.1.1 template void SEVMGR::SEVMGR_Service::addEventGenerator< TRADEMGEN::DemandStream > (TRADEMGEN::DemandStream &) const

Explicit template instantiations with the TraDemGen own EventGenerator type: DemandStream.

21.1.1.2 template TRADEMGEN::DemandStream& SEVMGR::SEVMGR_Service::getEventGenerator< TRADEMGEN::DemandStream, stdair::DemandStreamKeyStr_T > (const stdair::DemandStreamKeyStr_T &) const

21.1.1.3 template bool SEVMGR::SEVMGR_Service::hasEventGenerator< TRADEMGEN::DemandStream, stdair::DemandStreamKeyStr_T > (const stdair::DemandStreamKeyStr_T &) const

21.1.1.4 template const TRADEMGEN::DemandStreamList_T SEVMGR::SEVMGR_Service::getEventGeneratorList< TRADEMGEN::DemandStream > ( ) const

21.1.1.5 template bool SEVMGR::SEVMGR_Service::hasEventGeneratorList< TRADEMGEN::DemandStream > ( ) const

21.2 stdair Namespace Reference

Forward declarations.

Classes

- struct CategoricalAttribute

  Class modeling the distribution of values that can be taken by a categorical attribute.

21.2.1 Detailed Description

Forward declarations.

21.3 TRADEMGEN Namespace Reference

Namespaces

- namespace DemandParserHelper

Classes

- struct DefaultMap
- struct CategoricalAttributeLite

  Class modeling the distribution of values that can be taken by a categorical attribute.
- struct ContinuousAttribute
- struct ContinuousAttributeLite

  Class modeling the distribution of values that can be taken by a continuous attribute.
- struct DemandCharacteristics

  Class modeling the characteristics of a demand type.
- struct DemandDistribution

  Class modeling the distribution of a demand type.
- class DictionaryManager

  Class wrapper of dictionary business methods.
- struct RandomGenerationContext
- struct FlagSaver
- class BomDisplay

  Utility class to display TraDemGen objects with a pretty format.
- class DemandStream

  Class modeling a demand stream.
- struct DemandStreamKey
- struct DemandStruct
- class DBManager
- class DemandManager

  Utility class for Demand and DemandStream objects.
- class DemandParser

  Class wrapping the parser entry point.
- class DemandFileParser
- struct DBParams
- class FacTRADEMGENServiceContext

  Factory for creating the TraDemGen service context instance.
- struct Trademgener

  Wrapper structure around the C++ API, so as to expose a Python API.
- class TRADEMGEN_ServiceContext

  Class holding the context of the Trademgen services.
- struct TRADEMGEN_Abstract
- class TrademgenGenerationException
- class DemandInputFileNotFoundException
- class IndexOutOfRangeException
- class TRADEMGEN_Service

  class holding the services related to Travel Demand Generation.
- class DemandFilePath

Typedefs

- typedef char char_t
- typedef boost::spirit::classic::file_iterator < char_t > iterator_t
- typedef boost::spirit::classic::scanner < iterator_t > scanner_t

- typedef boost::spirit::classic::rule < scanner_t > rule_t
- typedef boost::spirit::classic::int_parser < unsigned int, 10, 1, 1 > int1_p_t
- typedef boost::spirit::classic::uint_parser < unsigned int, 10, 2, 2 > uint2_p_t
- typedef boost::spirit::classic::uint_parser < unsigned int, 10, 1, 2 > uint1_2_p_t
- typedef boost::spirit::classic::uint_parser < unsigned int, 10, 1, 3 > uint1_3_p_t
- typedef boost::spirit::classic::uint_parser < unsigned int, 10, 4, 4 > uint4_p_t
- typedef boost::spirit::classic::uint_parser < unsigned int, 10, 1, 4 > uint1_4_p_t
- typedef boost::spirit::classic::chset < char_t > chset_t
- typedef boost::spirit::classic::impl::loop_traits < chset_t, unsigned int, unsigned int >::type repeat_p_t
- typedef boost::spirit::classic::bounded < uint2_p_t, unsigned int > bounded2_p_t
- typedef boost::spirit::classic::bounded < uint1_2_p_t, unsigned int > bounded1_2_p_t
- typedef boost::spirit::classic::bounded < uint1_3_p_t, unsigned int > bounded1_3_p_t
- typedef boost::spirit::classic::bounded < uint4_p_t, unsigned int > bounded4_p_t
- typedef boost::spirit::classic::bounded < uint1_4_p_t, unsigned int > bounded1_4_p_t
- typedef ContinuousAttributeLite < stdair::FloatDuration_T > ContinuousFloatDuration_T
- typedef ContinuousFloatDuration_T::ContinuousDistribution_T ArrivalPatternCumulativeDistribution_T
- typedef CategoricalAttributeLite < stdair::AirportCode_T > POSProbabilityMass_T
- typedef POSProbabilityMass_T::ProbabilityMassFunction_T POSProbabilityMassFunction_T
- typedef CategoricalAttributeLite < stdair::ChannelLabel_T > ChannelProbabilityMass_T

- typedef ChannelProbabilityMass_T::ProbabilityMassFunction_T ChannelProbabilityMassFunction_T
- typedef CategoricalAttributeLite < stdair::TripType_T > TripTypeProbabilityMass_T
- typedef TripTypeProbabilityMass_T::ProbabilityMassFunction_T TripTypeProbabilityMassFunction_T
- typedef CategoricalAttributeLite < stdair::DayDuration_T > StayDurationProbabilityMass_T
- typedef StayDurationProbabilityMass_T::ProbabilityMassFunction_T StayDurationProbabilityMassFunction_T
- typedef CategoricalAttributeLite < stdair::FrequentFlyer_T > FrequentFlyerProbabilityMass_T
- typedef FrequentFlyerProbabilityMass_T::ProbabilityMassFunction_T FrequentFlyerProbabilityMassFunction_T
- typedef ContinuousAttributeLite < stdair::IntDuration_T > PreferredDepartureTimeCumulativeDistribution_T
- typedef PreferredDepartureTimeCumulativeDistribution_T::ContinuousDistribution_T PreferredDepartureTimeContinuousDistribution_T
- typedef ContinuousAttributeLite < stdair::PriceValue_T > ValueOfTimeCumulativeDistribution_T
- typedef ValueOfTimeCumulativeDistribution_T::ContinuousDistribution_T ValueOfTimeContinuousDistribution_T
- typedef ContinuousAttributeLite < stdair::RealNumber_T > CumulativeDistribution_T
- typedef CumulativeDistribution_T::ContinuousDistribution_T FRAT5Pattern_T
- typedef stdair::Probability_T DictionaryKey_T
- typedef std::list< DemandStream * > DemandStreamList_T
- typedef std::map< const stdair::MapKey_T, DemandStream * > DemandStreamMap_T
- typedef std::list< std::string > DBParamsNameList_T
- typedef boost::shared_ptr < TRADEMGEN_Service > TRADEMGEN_ServicePtr_T

Functions

- stdair::BaseGenerator_T DEFAULT_BASE_GENERATOR (stdair::DEFAULT_RANDOM_SEED)
- stdair::UniformGenerator_T DEFAULT_UNIFORM_GENERATOR (DEFAULT_BASE_GENERATOR, DEFAULT_UNIFORM_REAL_DISTRIBUTION)
- void stat_display (std::ostream &oStream, const stat_acc_type &iStatAcc)

Variables

- const POSProbabilityMassFunction_T DEFAULT_POS_PROBALILITY_MASS
- const stdair::FloatDuration_T DEFAULT_LAST_LOWER_BOUND_ARRIVAL_PATTERN = -1
- const FRAT5Pattern_T DEFAULT_FRAT5_PATTERN = DefaultMap::createFRAT5Pattern()
- const double DEFAULT_MAX_ADVANCE_PURCHASE = 330.0
- const stdair::UniformDistribution_T DEFAULT_UNIFORM_REAL_DISTRIBUTION
- stdair::BaseGenerator_T DEFAULT_BASE_GENERATOR
- stdair::UniformGenerator_T DEFAULT_UNIFORM_GENERATOR

21.3.1 Typedef Documentation

21.3.1.1 typedef char TRADEMGEN::char_t

Definition at line 31 of file BasParserTypes.hpp.

21.3.1.2 typedef boost::spirit::classic::file_iterator<char_t> TRADEMGEN::iterator_t

Definition at line 35 of file BasParserTypes.hpp.

21.3.1.3 typedef boost::spirit::classic::scanner<iterator_t> TRADEMGEN::scanner_t

Definition at line 36 of file BasParserTypes.hpp.

21.3.1.4 typedef boost::spirit::classic::rule<scanner_t> TRADEMGEN::rule_t

Definition at line 37 of file BasParserTypes.hpp.

21.3.1.5 typedef boost::spirit::classic::int_parser<unsigned int, 10, 1, 1> TRADEMGEN::int1_p_t

1-digit-integer parser

Definition at line 45 of file BasParserTypes.hpp.

21.3.1.6 typedef boost::spirit::classic::uint_parser<unsigned int, 10, 2, 2> TRADEMGEN::uint2_p_t

2-digit-integer parser

Definition at line 48 of file BasParserTypes.hpp.

21.3.1.7 typedef boost::spirit::classic::uint_parser<unsigned int, 10, 1, 2> TRADEMGEN::uint1_2_p_t

Up-to-2-digit-integer parser

Definition at line 51 of file BasParserTypes.hpp.

21.3.1.8 typedef boost::spirit::classic::uint_parser<unsigned int, 10, 1, 3> TRADEMGEN::uint1_3_p_t

Up-to-3-digit-integer parser

Definition at line 54 of file BasParserTypes.hpp.

21.3.1.9 typedef boost::spirit::classic::uint_parser<unsigned int, 10, 4, 4> TRADEMGEN::uint4_p_t

4-digit-integer parser

Definition at line 57 of file BasParserTypes.hpp.

21.3.1.10 typedef boost::spirit::classic::uint_parser<unsigned int, 10, 1, 4> TRADEMGEN::uint1_4_p_t

Up-to-4-digit-integer parser

Definition at line 60 of file BasParserTypes.hpp.

21.3.1.11 typedef boost::spirit::classic::chset<char_t> TRADEMGEN::chset_t

character set

Definition at line 63 of file BasParserTypes.hpp.

21.3.1.12 typedef boost::spirit::classic::impl::loop_traits<chset_t, unsigned int, unsigned int>::type TRADEMGEN::repeat_p_t

(Repeating) sequence of a given number of characters: repeat_p(min, max)

Definition at line 69 of file BasParserTypes.hpp.

21.3.1.13 typedef boost::spirit::classic::bounded<uint2_p_t, unsigned int> TRADEMGEN::bounded2_p_t

Bounded-number-of-integers parser

Definition at line 72 of file BasParserTypes.hpp.

21.3.1.14 typedef boost::spirit::classic::bounded<uint1_2_p_t, unsigned int> TRADEMGEN::bounded1_2_p_t

Definition at line 73 of file BasParserTypes.hpp.

21.3.1.15 typedef boost::spirit::classic::bounded<uint1_3_p_t, unsigned int> TRADEMGEN::bounded1_3_p_t

Definition at line 74 of file BasParserTypes.hpp.

21.3.1.16 typedef boost::spirit::classic::bounded<uint4_p_t, unsigned int> TRADEMGEN::bounded4_p_t

Definition at line 75 of file BasParserTypes.hpp.

21.3.1.17 typedef boost::spirit::classic::bounded<uint1_4_p_t, unsigned int> TRADEMGEN::bounded1_4_p_t

Definition at line 76 of file BasParserTypes.hpp.

21.3.1.18 typedef ContinuousAttributeLite<stdair::FloatDuration_T> TRADEMGEN::ContinuousFloatDuration_T

Type definition for the continuous distribition of the duration (as a float number).

Definition at line 19 of file DemandCharacteristicsTypes.hpp.

21.3.1.19 typedef ContinuousFloatDuration_T::ContinuousDistribution_T TRADEMGEN::ArrivalPattern-CumulativeDistribution_T

Type definition for the arrival pattern cumulative distribution.

Definition at line 22 of file DemandCharacteristicsTypes.hpp.

21.3.1.20 typedef CategoricalAttributeLite<stdair::AirportCode_T> TRADEMGEN::POSProbabilityMass_T

Define the point-of-sale probablity mass.

Definition at line 25 of file DemandCharacteristicsTypes.hpp.

21.3.1.21 typedef POSProbabilityMass_T::ProbabilityMassFunction_T TRADEMGEN::POSProbabilityMass-Function_T

Define the probability mass function type of point-of-sale.

Definition at line 28 of file DemandCharacteristicsTypes.hpp.

21.3.1.22 typedef CategoricalAttributeLite<stdair::ChannelLabel_T> TRADEMGEN::ChannelProbabilityMass_T

Define the booking channel probablity mass.

Definition at line 31 of file DemandCharacteristicsTypes.hpp.

21.3.1.23 typedef ChannelProbabilityMass_T::ProbabilityMassFunction_T TRADEMGEN::Channel-ProbabilityMassFunction_T

Define the probability mass function type of booking channel.

Definition at line 34 of file DemandCharacteristicsTypes.hpp.

21.3.1.24 typedef CategoricalAttributeLite<stdair::TripType_T> TRADEMGEN::TripTypeProbabilityMass_T

Define the trip type probablity mass.

Definition at line 37 of file DemandCharacteristicsTypes.hpp.

21.3.1.25 typedef TripTypeProbabilityMass_T::ProbabilityMassFunction_T TRADEMGEN::TripTypeProbabilityMassFunction_T

Define the probability mass function type of trip type.

Definition at line 40 of file DemandCharacteristicsTypes.hpp.

21.3.1.26 typedef CategoricalAttributeLite<stdair::DayDuration_T> TRADEMGEN::StayDurationProbabilityMass_T

Define the stay duration probablity mass.

Definition at line 43 of file DemandCharacteristicsTypes.hpp.

21.3.1.27 typedef StayDurationProbabilityMass_T::ProbabilityMassFunction_T TRADEMGEN::StayDurationProbabilityMassFunction_T

Define the probability mass function type of stay duration.

Definition at line 46 of file DemandCharacteristicsTypes.hpp.

21.3.1.28 typedef CategoricalAttributeLite<stdair::FrequentFlyer_T> TRADEMGEN::FrequentFlyerProbabilityMass_T

Define the frequent flyer probablity mass.

Definition at line 49 of file DemandCharacteristicsTypes.hpp.

21.3.1.29 typedef FrequentFlyerProbabilityMass_T::ProbabilityMassFunction_T TRADEMGEN::FrequentFlyerProbabilityMassFunction_T

Define the probability mass function type of frequent flyer.

Definition at line 52 of file DemandCharacteristicsTypes.hpp.

21.3.1.30 typedef ContinuousAttributeLite<stdair::IntDuration_T> TRADEMGEN::PreferredDepartureTimeCumulativeDistribution_T

Define the preferred departure time cumulative distribution.

Definition at line 55 of file DemandCharacteristicsTypes.hpp.

21.3.1.31 typedef PreferredDepartureTimeCumulativeDistribution_T::ContinuousDistribution_T TRADEMGEN::PreferredDepartureTimeContinuousDistribution_T

Define the preferred departure time continuous distribution.

Definition at line 58 of file DemandCharacteristicsTypes.hpp.

21.3.1.32 typedef ContinuousAttributeLite<stdair::PriceValue_T> TRADEMGEN::ValueOfTimeCumulativeDistribution_T

Define the value of time cumulative distribution.

Definition at line 61 of file DemandCharacteristicsTypes.hpp.

21.3.1.33 typedef ValueOfTimeCumulativeDistribution_T::ContinuousDistribution_T TRADEMGEN::ValueOfTimeContinuousDistribution_T

Define the value of time continuous distribution.

Definition at line 64 of file DemandCharacteristicsTypes.hpp.

21.3.1.34 typedef ContinuousAttributeLite<stdair::RealNumber_T> TRADEMGEN::CumulativeDistribution_T

Define the FRAT5 pattern type.

Definition at line 67 of file DemandCharacteristicsTypes.hpp.

21.3.1.35 typedef CumulativeDistribution_T::ContinuousDistribution_T TRADEMGEN::FRAT5Pattern_T

Definition at line 68 of file DemandCharacteristicsTypes.hpp.

21.3.1.36 typedef stdair::Probability_T TRADEMGEN::DictionaryKey_T

Dictionary key.

Definition at line 16 of file DictionaryManager.hpp.

21.3.1.37 typedef std::list<DemandStream*> TRADEMGEN::DemandStreamList_T

Define the airline feature list.

Definition at line 16 of file DemandStreamTypes.hpp.

21.3.1.38 typedef std::map<const stdair::MapKey_T, DemandStream*> TRADEMGEN::DemandStreamMap_T

Define the airline feature map.

Definition at line 22 of file DemandStreamTypes.hpp.

21.3.1.39 typedef std::list<std::string> TRADEMGEN::DBParamsNameList_T

List of names for a given (geographical) dbparams.

Definition at line 17 of file DBParams.hpp.

21.3.1.40 typedef boost::shared_ptr<TRADEMGEN_Service> TRADEMGEN::TRADEMGEN_ServicePtr_T

(Smart) Pointer on the TraDemGen service handler.

Definition at line 17 of file TRADEMGEN_Types.hpp.

21.3.2 Function Documentation

21.3.2.1 stdair::BaseGenerator_T TRADEMGEN::DEFAULT_BASE_GENERATOR (stdair::DEFAULT_RANDOM_SEED)

Default base generator.

21.3.2.2 stdair::UniformGenerator_T TRADEMGEN::DEFAULT_UNIFORM_GENERATOR (DEFAULT_BASE_GENERATOR , DEFAULT_UNIFORM_REAL_DISTRIBUTION)

Default uniform variate generator.

21.3.2.3 void TRADEMGEN::stat_display (std::ostream & *oStream,* const stat_acc_type & *iStatAcc*)

Display the statistics held by the dedicated accumulator.

Definition at line 47 of file pytrademgen.cpp.

Referenced by TRADEMGEN::Trademgener::trademgen().

21.3.3 Variable Documentation

21.3.3.1 const POSProbabilityMassFunction_T TRADEMGEN::DEFAULT_POS_PROBALILITY_MASS

Initial value:

```
DefaultMap::createPOSProbMass()
```

Default name for the TRADEMGEN_Service. Default PoS probability mass.

Default PoS probability mass.

Definition at line 16 of file BasConst.cpp.

21.3.3.2 const stdair::FloatDuration_T TRADEMGEN::DEFAULT_LAST_LOWER_BOUND_ARRIVAL_PATTERN = -1

Default last lower bound of daily rate interval in arrival pattern.

Definition at line 35 of file BasConst.cpp.

Referenced by TRADEMGEN::DemandStream::generateTimeOfRequestPoissonProcess().

21.3.3.3 const FRAT5Pattern_T TRADEMGEN::DEFAULT_FRAT5_PATTERN = DefaultMap::createFRAT5Pattern()

Default FRAT5 pattern.

Definition at line 38 of file BasConst.cpp.

21.3.3.4 const double TRADEMGEN::DEFAULT_MAX_ADVANCE_PURCHASE = 330.0

Default MAX Advance Purchase.

Definition at line 75 of file BasConst.cpp.

21.3.3.5 const stdair::UniformDistribution_T TRADEMGEN::DEFAULT_UNIFORM_REAL_DISTRIBUTION

Default random uniform real distribution.

Definition at line 81 of file BasConst.cpp.

21.3.3.6 stdair::BaseGenerator_T TRADEMGEN::DEFAULT_BASE_GENERATOR

Default base generator. Just here to initialise objects (e.g., stdair::RandomGeneration) with default generator. They are then replaced by a generator, for which the state can better be tracked/stored.

21.3.3.7 stdair::UniformGenerator_T TRADEMGEN::DEFAULT_UNIFORM_GENERATOR

Default uniform generator. Just here to initialise objects (e.g., stdair::RandomGeneration) with default generator. They are then replaced by a generator, for which the state can better be tracked/stored.

21.4 TRADEMGEN::DemandParserHelper Namespace Reference

Classes

- struct ParserSemanticAction
- struct storePrefDepDateRangeStart
- struct storePrefDepDateRangeEnd
- struct storeDow
- struct storeOrigin
- struct storeDestination
- struct storePrefCabin
- struct storeDemandMean
- struct storeDemandStdDev

- struct storeDemandChangeFeeProb
- struct storeDemandChangeFeeDisutility
- struct storeDemandNonRefundableProb
- struct storeDemandNonRefundableDisutility
- struct storePosCode
- struct storePosProbMass
- struct storeChannelCode
- struct storeChannelProbMass
- struct storeTripCode
- struct storeTripProbMass
- struct storeStayCode
- struct storeStayProbMass
- struct storeFFCode
- struct storeFFProbMass
- struct storePrefDepTime
- struct storePrefDepTimeProbMass
- struct storeWTP
- struct storeTimeValue
- struct storeTimeValueProbMass
- struct storeDTD
- struct storeDTDProbMass
- struct doEndDemand
- struct DemandParser

Functions

- repeat_p_t airline_code_p (chset_t("0-9A-Z").derived(), 2, 3)
- bounded1_4_p_t flight_number_p (uint1_4_p.derived(), 0u, 9999u)
- bounded4_p_t year_p (uint4_p.derived(), 2000u, 2099u)
- bounded2_p_t month_p (uint2_p.derived(), 1u, 12u)
- bounded2_p_t day_p (uint2_p.derived(), 1u, 31u)
- repeat_p_t dow_p (chset_t("0-1").derived().derived(), 7, 7)
- repeat_p_t airport_p (chset_t("0-9A-Z").derived(), 3, 3)
- bounded1_2_p_t hours_p (uint1_2_p.derived(), 0u, 23u)
- bounded2_p_t minutes_p (uint2_p.derived(), 0u, 59u)
- bounded2_p_t seconds_p (uint2_p.derived(), 0u, 59u)
- chset_t cabin_code_p ("A-Z")
- chset_t passenger_type_p ("A-Z")
- chset_t ff_type_p ("A-Z")
- repeat_p_t class_code_list_p (chset_t("A-Z").derived(), 1, 26)
- bounded1_3_p_t stay_duration_p (uint1_3_p.derived(), 0u, 999u)

Variables

- int1_p_t int1_p
- uint2_p_t uint2_p
- uint1_2_p_t uint1_2_p
- uint1_3_p_t uint1_3_p
- uint4_p_t uint4_p
- uint1_4_p_t uint1_4_p
- int1_p_t family_code_p

21.4.1 Function Documentation

21.4.1.1 repeat_p_t TRADEMGEN::DemandParserHelper::airline_code_p (chset_t("0-9A-Z").derived() , 2 , 3)

Airline Code Parser: repeat_p(2,3)[chset_p("0-9A-Z")]

21.4.1.2 bounded1_4_p_t TRADEMGEN::DemandParserHelper::flight_number_p (uint1_4_p. *derived()*, 0u , 9999u)

Flight Number Parser: limit_d(0u, 9999u)[uint1_4_p]

21.4.1.3 bounded4_p_t TRADEMGEN::DemandParserHelper::year_p (uint4_p. *derived()*, 2000u , 2099u)

Year Parser: limit_d(2000u, 2099u)[uint4_p]

Referenced by TRADEMGEN::DemandParserHelper::DemandParser::definition< ScannerT >::definition().

21.4.1.4 bounded2_p_t TRADEMGEN::DemandParserHelper::month_p (uint2_p. *derived()*, 1u , 12u)

Month Parser: limit_d(1u, 12u)[uint2_p]

Referenced by TRADEMGEN::DemandParserHelper::DemandParser::definition< ScannerT >::definition().

21.4.1.5 bounded2_p_t TRADEMGEN::DemandParserHelper::day_p (uint2_p. *derived()*, 1u , 31u)

Day Parser: limit_d(1u, 31u)[uint2_p]

Referenced by TRADEMGEN::DemandParserHelper::DemandParser::definition< ScannerT >::definition().

21.4.1.6 repeat_p_t TRADEMGEN::DemandParserHelper::dow_p (chset_t("0-1").derived().derived() , 7 , 7)

DOW (Day-Of-the-Week) Parser: repeat_p(7)[chset_p("0-1")]

Referenced by TRADEMGEN::DemandParserHelper::DemandParser::definition< ScannerT >::definition().

21.4.1.7 repeat_p_t TRADEMGEN::DemandParserHelper::airport_p (chset_t("0-9A-Z").derived() , 3 , 3)

Airport Parser: repeat_p(3)[chset_p("0-9A-Z")]

Referenced by TRADEMGEN::DemandParserHelper::DemandParser::definition< ScannerT >::definition().

21.4.1.8 bounded1_2_p_t TRADEMGEN::DemandParserHelper::hours_p (uint1_2_p. *derived()*, 0u , 23u)

Hour Parser: limit_d(0u, 23u)[uint2_p]

Referenced by TRADEMGEN::DemandParserHelper::DemandParser::definition< ScannerT >::definition().

21.4.1.9 bounded2_p_t TRADEMGEN::DemandParserHelper::minutes_p (uint2_p. *derived()*, 0u , 59u)

Minute Parser: limit_d(0u, 59u)[uint2_p]

Referenced by TRADEMGEN::DemandParserHelper::DemandParser::definition< ScannerT >::definition().

21.4.1.10 bounded2_p_t TRADEMGEN::DemandParserHelper::seconds_p (uint2_p. *derived()*, 0u , 59u)

Second Parser: limit_d(0u, 59u)[uint2_p]

Referenced by TRADEMGEN::DemandParserHelper::DemandParser::definition< ScannerT >::definition().

21.4.1.11 chset_t TRADEMGEN::DemandParserHelper::cabin_code_p ("A-Z")

Cabin code parser: chset_p("A-Z")

Referenced by TRADEMGEN::DemandParserHelper::DemandParser::definition< ScannerT >::definition().

21.4.1.12 chset_t TRADEMGEN::DemandParserHelper::passenger_type_p ("A-Z")

Passenger type parser: chset_p("A-Z")

21.4.1.13 chset_t TRADEMGEN::DemandParserHelper::ff_type_p ("A-Z")

Frequent flyer type parser: chset_p("A-Z")

Referenced by TRADEMGEN::DemandParserHelper::DemandParser::definition< ScannerT >::definition().

21.4.1.14 repeat_p_t TRADEMGEN::DemandParserHelper::class_code_list_p (chset_t("A-Z").derived() , 1 , 26)

Class Code List Parser: repeat_p(1,26)[chset_p("A-Z")]

21.4.1.15 bounded1_3_p_t TRADEMGEN::DemandParserHelper::stay_duration_p (uint1_3_p. *derived()*, 0u , 999u)

Stay duration Parser: limit_d(0u, 999u)[uint3_p]

Referenced by TRADEMGEN::DemandParserHelper::DemandParser::definition< ScannerT >::definition().

21.4.2 Variable Documentation

21.4.2.1 int1_p_t TRADEMGEN::DemandParserHelper::int1_p

1-digit-integer parser

Definition at line 497 of file DemandParserHelper.cpp.

21.4.2.2 uint2_p_t TRADEMGEN::DemandParserHelper::uint2_p

2-digit-integer parser

Definition at line 500 of file DemandParserHelper.cpp.

21.4.2.3 uint1_2_p_t TRADEMGEN::DemandParserHelper::uint1_2_p

Up-to-2-digit-integer parser

Definition at line 503 of file DemandParserHelper.cpp.

21.4.2.4 uint1_3_p_t TRADEMGEN::DemandParserHelper::uint1_3_p

Up-to-3-digit-integer parser

Definition at line 506 of file DemandParserHelper.cpp.

21.4.2.5 uint4_p_t TRADEMGEN::DemandParserHelper::uint4_p

4-digit-integer parser

Definition at line 509 of file DemandParserHelper.cpp.

21.4.2.6 uint1_4_p_t TRADEMGEN::DemandParserHelper::uint1_4_p

Up-to-4-digit-integer parser

Definition at line 512 of file DemandParserHelper.cpp.

21.4.2.7 int1_p_t TRADEMGEN::DemandParserHelper::family_code_p

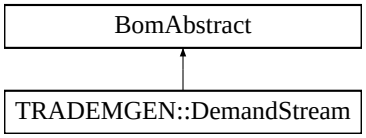
Family code parser

Definition at line 554 of file DemandParserHelper.cpp.

22 Class Documentation

22.1 BomAbstract Class Reference

Inheritance diagram for BomAbstract:



The documentation for this class was generated from the following file:

- trademgen/bom/DemandStream.hpp

22.2 TRADEMGEN::BomDisplay Class Reference

Utility class to display TraDemGen objects with a pretty format.

`#include <trademgen/bom/BomDisplay.hpp>`

Static Public Member Functions

- static std::string csvDisplay (const SEVMGR::SEVMGR_ServicePtr_T)
- static void csvDisplay (std::ostream &, const DemandStream &)

22.2.1 Detailed Description

Utility class to display TraDemGen objects with a pretty format.

Definition at line 23 of file BomDisplay.hpp.

22.2.2 Member Function Documentation

22.2.2.1 std::string TRADEMGEN::BomDisplay::csvDisplay (const SEVMGR::SEVMGR_ServicePtr_T *iSEVMGR_ServicePtr*) [static]

Recursively display (dump in the underlying output log stream) the objects of the BOM tree.

Parameters

std::ostream&	Output stream in which the BOM tree should be logged/dumped.
const	SEVMGR::SEVMGR_ServicePtr_T Pointer on the SEvMgr service handler to display the queue key and to obtain the demand stream list.

Definition at line 45 of file BomDisplay.cpp.

22.2.2.2 void TRADEMGEN::BomDisplay::csvDisplay (std::ostream & *oStream,* const DemandStream & *iDemandStream*) [static]

Recursively display (dump in the underlying output log stream) the objects of the BOM tree.

Parameters

std::ostream&	Output stream in which the BOM tree should be logged/dumped.
const	DemandStream& Root of the BOM tree to be displayed.

Definition at line 87 of file BomDisplay.cpp.

References TRADEMGEN::DemandStream::display().

The documentation for this class was generated from the following files:

- trademgen/bom/BomDisplay.hpp
- trademgen/bom/BomDisplay.cpp

22.3 stdair::CategoricalAttribute< T > Struct Template Reference

Class modeling the distribution of values that can be taken by a categorical attribute.

`#include <trademgen/basic/CategoricalAttribute.hpp>`

Public Types

- typedef std::map< T, DictionaryKey_T > ProbabilityMassFunction_T
- typedef std::map < DictionaryKey_T, T > InverseCumulativeDistribution_T

Public Member Functions

- const T & getValue (const Probability_T &iCumulativeProbability) const
- const std::string displayProbabilityMassFunction () const
- const std::string displayInverseCumulativeDistribution () const
- CategoricalAttribute (const ProbabilityMassFunction_T &iProbabilityMassFunction)
- CategoricalAttribute ()
- CategoricalAttribute (const CategoricalAttribute &iCategoricalAttribute)
- virtual ~CategoricalAttribute ()
- void determineInverseCumulativeDistributionFromProbabilityMassFunction ()

22.3.1 Detailed Description

template<typename T>struct stdair::CategoricalAttribute< T >

Class modeling the distribution of values that can be taken by a categorical attribute.

Definition at line 21 of file CategoricalAttribute.hpp.

22.3.2 Member Typedef Documentation

22.3.2.1 template<typename T > typedef std::map<T, DictionaryKey_T> stdair::CategoricalAttribute< T >::ProbabilityMassFunction_T

Define the probability mass function type.

Definition at line 28 of file CategoricalAttribute.hpp.

22.3.2.2 template<typename T > typedef std::map<DictionaryKey_T, T> stdair::CategoricalAttribute< T >::InverseCumulativeDistribution_T

Define the inverse cumulative distribution type.

Definition at line 33 of file CategoricalAttribute.hpp.

22.3.3 Constructor & Destructor Documentation

22.3.3.1 template<typename T > stdair::CategoricalAttribute< T >::CategoricalAttribute (const ProbabilityMassFunction_T & *iProbabilityMassFunction*) [inline]

Main constructor.

Definition at line 129 of file CategoricalAttribute.hpp.

References stdair::CategoricalAttribute< T >::determineInverseCumulativeDistributionFromProbabilityMassFunction().

22.3.3.2 template<typename T > stdair::CategoricalAttribute< T >::CategoricalAttribute ( ) [inline]

Default constructor.

Definition at line 137 of file CategoricalAttribute.hpp.

22.3.3.3 template<typename T > stdair::CategoricalAttribute< T >::CategoricalAttribute (const CategoricalAttribute< T > & *iCategoricalAttribute*) [inline]

Copy constructor.

Definition at line 142 of file CategoricalAttribute.hpp.

References stdair::CategoricalAttribute< T >::determineInverseCumulativeDistributionFromProbabilityMassFunction().

22.3.3.4 template<typename T > virtual stdair::CategoricalAttribute< T >::~CategoricalAttribute ( ) [inline], [virtual]

Destructor.

Definition at line 150 of file CategoricalAttribute.hpp.

22.3.4 Member Function Documentation

22.3.4.1 template<typename T > const T& stdair::CategoricalAttribute< T >::getValue (const Probability_T & *iCumulativeProbability*) const [inline]

Get value from inverse cumulative distribution.

Definition at line 67 of file CategoricalAttribute.hpp.

References stdair::CategoricalAttribute< T >::displayInverseCumulativeDistribution().

22.3.4.2 template<typename T > const std::string stdair::CategoricalAttribute< T >::displayProbabilityMassFunction ( ) const [inline]

Display probability mass function.

Definition at line 91 of file CategoricalAttribute.hpp.

22.3.4.3 template<typename T > const std::string stdair::CategoricalAttribute< T >::displayInverseCumulativeDistribution ( ) const [inline]

Display inverse cumulative distribution.

Definition at line 111 of file CategoricalAttribute.hpp.

Referenced by stdair::CategoricalAttribute< T >::getValue().

22.3.4.4 template<typename T > void stdair::CategoricalAttribute< T >::determineInverseCumulativeDistributionFromProbabilityMassFunction ( ) [inline]

Determine inverse cumulative distribution from probability mass function (initialisation).

Definition at line 157 of file CategoricalAttribute.hpp.

Referenced by stdair::CategoricalAttribute< T >::CategoricalAttribute().

The documentation for this struct was generated from the following file:

- trademgen/basic/CategoricalAttribute.hpp

22.4 TRADEMGEN::CategoricalAttributeLite< T > Struct Template Reference

Class modeling the distribution of values that can be taken by a categorical attribute.

`#include <trademgen/basic/CategoricalAttributeLite.hpp>`

Public Types

- typedef std::map< T, stdair::Probability_T > ProbabilityMassFunction_T

Public Member Functions

- const T & getValue (const stdair::Probability_T &iCumulativeProbability) const
- bool checkValue (const T &iValue) const
- const std::string displayProbabilityMass () const
- CategoricalAttributeLite (const ProbabilityMassFunction_T &iValueMap)
- CategoricalAttributeLite ()
- CategoricalAttributeLite (const CategoricalAttributeLite &iCAL)
- CategoricalAttributeLite & operator= (const CategoricalAttributeLite &iCAL)
- virtual ~CategoricalAttributeLite ()

22.4.1 Detailed Description

template<typename T>struct TRADEMGEN::CategoricalAttributeLite< T >

Class modeling the distribution of values that can be taken by a categorical attribute.

Definition at line 27 of file CategoricalAttributeLite.hpp.

22.4.2 Member Typedef Documentation

22.4.2.1 template<typename T> typedef std::map<T, stdair::Probability_T> TRADEMGEN::CategoricalAttributeLite< T >::ProbabilityMassFunction_T

Type for the probability mass function.

Definition at line 33 of file CategoricalAttributeLite.hpp.

22.4.3 Constructor & Destructor Documentation

22.4.3.1 template<typename T> TRADEMGEN::CategoricalAttributeLite< T >::CategoricalAttributeLite (const ProbabilityMassFunction_T & *iValueMap*) [inline]

Main constructor.

Definition at line 95 of file CategoricalAttributeLite.hpp.

22.4.3.2 template<typename T> TRADEMGEN::CategoricalAttributeLite< T >::CategoricalAttributeLite ( ) [inline]

Default constructor.

Definition at line 103 of file CategoricalAttributeLite.hpp.

22.4.3.3 template<typename T> TRADEMGEN::CategoricalAttributeLite< T >::CategoricalAttributeLite (const CategoricalAttributeLite< T > & *iCAL*) [inline]

Copy constructor.

Definition at line 109 of file CategoricalAttributeLite.hpp.

22.4.3.4 template<typename T> virtual TRADEMGEN::CategoricalAttributeLite< T >::~CategoricalAttributeLite ( ) [inline], [virtual]

Destructor.

Definition at line 128 of file CategoricalAttributeLite.hpp.

22.4.4 Member Function Documentation

22.4.4.1 template<typename T> const T& TRADEMGEN::CategoricalAttributeLite< T >::getValue (const stdair::Probability_T & *iCumulativeProbability*) const [inline]

Get value from inverse cumulative distribution.

Definition at line 41 of file CategoricalAttributeLite.hpp.

Referenced by TRADEMGEN::DemandStream::generateChannel(), TRADEMGEN::DemandStream::generateFrequentFlyer(), TRADEMGEN::DemandStream::generateStayDuration(), TRADEMGEN::DemandStream::generateTripType(), and TRADEMGEN::DemandCharacteristics::getPOSValue().

22.4.4.2 template<typename T> bool TRADEMGEN::CategoricalAttributeLite< T >::checkValue (const T & *iValue*) const [inline]

Check if a value belongs to the value list.

Definition at line 61 of file CategoricalAttributeLite.hpp.

Referenced by TRADEMGEN::DemandCharacteristics::checkPOSValue().

22.4.4.3 template<typename T> const std::string TRADEMGEN::CategoricalAttributeLite< T >::displayProbabilityMass ( ) const [inline]

Display probability mass function.

Definition at line 76 of file CategoricalAttributeLite.hpp.

Referenced by TRADEMGEN::DemandCharacteristics::describe(), TRADEMGEN::DemandStream::display(), and TRADEMGEN::CategoricalAttributeLite< stdair::TripType_T >::getValue().

22.4.4.4 template<typename T> CategoricalAttributeLite& TRADEMGEN::CategoricalAttributeLite< T >::operator= (const CategoricalAttributeLite< T > & *iCAL*) [inline]

Copy operator.

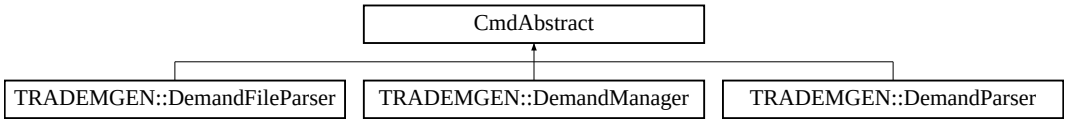
Definition at line 118 of file CategoricalAttributeLite.hpp.

The documentation for this struct was generated from the following file:

- trademgen/basic/CategoricalAttributeLite.hpp

22.5 CmdAbstract Class Reference

Inheritance diagram for CmdAbstract:



The documentation for this class was generated from the following file:

- trademgen/command/DemandParser.hpp

22.6 TRADEMGEN::ContinuousAttribute< T > Struct Template Reference

`#include <trademgen/basic/ContinuousAttribute.hpp>`

Public Types

- typedef std::multimap< T, DictionaryKey_T > ContinuousDistribution_T
- typedef std::multimap < DictionaryKey_T, T > ContinuousInverseDistribution_T

Public Member Functions

- const T getValue (const stdair::Probability_T &iCumulativeProbability) const
- const std::string displayCumulativeDistribution () const
- const std::string displayInverseCumulativeDistribution () const
- ContinuousAttribute ()
- ContinuousAttribute (const ContinuousDistribution_T &iCumulativeDistribution)
- ContinuousAttribute (const ContinuousAttribute &iContinuousAttribute)
- virtual ~ContinuousAttribute ()
- void determineInverseCumulativeDistributionFromCumulativeDistribution ()

22.6.1 Detailed Description

template<class T>struct TRADEMGEN::ContinuousAttribute< T >

Class modeling the distribution of values that can be taken by a continuous attribute.

Definition at line 21 of file ContinuousAttribute.hpp.

22.6.2 Member Typedef Documentation

22.6.2.1 template<class T > typedef std::multimap<T, DictionaryKey_T> TRADEMGEN::ContinuousAttribute< T >::ContinuousDistribution_T

Definition at line 26 of file ContinuousAttribute.hpp.

22.6.2.2 template<class T > typedef std::multimap<DictionaryKey_T, T> TRADEMGEN::ContinuousAttribute< T >::ContinuousInverseDistribution_T

Definition at line 27 of file ContinuousAttribute.hpp.

22.6.3 Constructor & Destructor Documentation

22.6.3.1 template<class T > TRADEMGEN::ContinuousAttribute< T >::ContinuousAttribute ( ) [inline]

Constructor by default

Definition at line 113 of file ContinuousAttribute.hpp.

22.6.3.2 template<class T > TRADEMGEN::ContinuousAttribute< T >::ContinuousAttribute (const ContinuousDistribution_T & *iCumulativeDistribution*) [inline]

Constructor

Definition at line 116 of file ContinuousAttribute.hpp.

References TRADEMGEN::ContinuousAttribute< T >::determineInverseCumulativeDistributionFromCumulativeDistribution().

22.6.3.3 template<class T > TRADEMGEN::ContinuousAttribute< T >::ContinuousAttribute (const ContinuousAttribute< T > & *iContinuousAttribute*) [inline]

Copy constructor

Definition at line 122 of file ContinuousAttribute.hpp.

22.6.3.4 template<class T > virtual TRADEMGEN::ContinuousAttribute< T >::~ContinuousAttribute ( ) [inline], [virtual]

Destructor

Definition at line 128 of file ContinuousAttribute.hpp.

22.6.4 Member Function Documentation

22.6.4.1 template<class T > const T TRADEMGEN::ContinuousAttribute< T >::getValue (const stdair::Probability_T & *iCumulativeProbability*) const [inline]

Get value from inverse cumulative distribution.

Definition at line 52 of file ContinuousAttribute.hpp.

References TRADEMGEN::DictionaryManager::keyToValue(), and TRADEMGEN::DictionaryManager::valueToKey().

22.6.4.2 template<class T > const std::string TRADEMGEN::ContinuousAttribute< T >::displayCumulativeDistribution ( ) const [inline]

Display cumulative distribution

Definition at line 83 of file ContinuousAttribute.hpp.

References TRADEMGEN::DictionaryManager::keyToValue().

22.6.4.3 template<class T > const std::string TRADEMGEN::ContinuousAttribute< T >::displayInverseCumulativeDistribution ( ) const [inline]

Display inverse cumulative distribution

Definition at line 99 of file ContinuousAttribute.hpp.

References TRADEMGEN::DictionaryManager::keyToValue().

22.6.4.4 template<class T > void TRADEMGEN::ContinuousAttribute< T >::determineInverseCumulativeDistributionFromCumulativeDistribution ( ) [inline]

Determine inverse cumulative distribution from cumulative distribution (initialisation).

Definition at line 132 of file ContinuousAttribute.hpp.

Referenced by TRADEMGEN::ContinuousAttribute< T >::ContinuousAttribute().

The documentation for this struct was generated from the following file:

- trademgen/basic/ContinuousAttribute.hpp

22.7 TRADEMGEN::ContinuousAttributeLite< T > Struct Template Reference

Class modeling the distribution of values that can be taken by a continuous attribute.

`#include <trademgen/basic/ContinuousAttributeLite.hpp>`

Public Types

- typedef std::map< T, stdair::Probability_T > ContinuousDistribution_T

Public Member Functions

- const T getValue (const stdair::Probability_T &iCumulativeProbability) const
- const double getDerivativeValue (const T iKey) const
- const T getUpperBound (const T iKey) const
- const std::string displayCumulativeDistribution () const
- ContinuousAttributeLite (const ContinuousDistribution_T &iValueMap)
- ContinuousAttributeLite (const ContinuousAttributeLite &iCAL)
- ContinuousAttributeLite & operator= (const ContinuousAttributeLite &iCAL)
- virtual ~ContinuousAttributeLite ()

22.7.1 Detailed Description

template<typename T>struct TRADEMGEN::ContinuousAttributeLite< T >

Class modeling the distribution of values that can be taken by a continuous attribute.

Definition at line 26 of file ContinuousAttributeLite.hpp.

22.7.2 Member Typedef Documentation

22.7.2.1 template<typename T> typedef std::map<T, stdair::Probability_T> TRADEMGEN::ContinuousAttributeLite< T >::ContinuousDistribution_T

Type for the probability mass function.

Definition at line 32 of file ContinuousAttributeLite.hpp.

22.7.3 Constructor & Destructor Documentation

22.7.3.1 template<typename T> TRADEMGEN::ContinuousAttributeLite< T >::ContinuousAttributeLite (const ContinuousDistribution_T & *iValueMap*) [inline]

Constructor.

Definition at line 157 of file ContinuousAttributeLite.hpp.

22.7.3.2 template<typename T> TRADEMGEN::ContinuousAttributeLite< T >::ContinuousAttributeLite (const ContinuousAttributeLite< T > & *iCAL*) [inline]

Copy constructor.

Definition at line 165 of file ContinuousAttributeLite.hpp.

22.7.3.3 template<typename T> virtual TRADEMGEN::ContinuousAttributeLite< T >::~ContinuousAttributeLite ( ) [inline], [virtual]

Destructor.

Definition at line 184 of file ContinuousAttributeLite.hpp.

22.7.4 Member Function Documentation

22.7.4.1 template<typename T> const T TRADEMGEN::ContinuousAttributeLite< T >::getValue (const stdair::Probability_T & *iCumulativeProbability*) const [inline]

Get value from inverse cumulative distribution.

Definition at line 39 of file ContinuousAttributeLite.hpp.

Referenced by TRADEMGEN::DemandStream::generateTimeOfRequestPoissonProcess(), TRADEMGEN::DemandStream::generateTimeOfRequestStatisticsOrder(), TRADEMGEN::DemandStream::generateValueOfTime(), and TRADEMGEN::DemandStream::generateWTP().

22.7.4.2 template<typename T> const double TRADEMGEN::ContinuousAttributeLite< T >::getDerivativeValue (const T *iKey*) const [inline]

Get the value of the derivative function in a key point.

Definition at line 82 of file ContinuousAttributeLite.hpp.

Referenced by TRADEMGEN::DemandStream::generateTimeOfRequestPoissonProcess().

22.7.4.3 template<typename T> const T TRADEMGEN::ContinuousAttributeLite< T >::getUpperBound (const T *iKey*) const [inline]

Get the upper bound.

Definition at line 116 of file ContinuousAttributeLite.hpp.

Referenced by TRADEMGEN::DemandStream::generateTimeOfRequestPoissonProcess().

22.7.4.4 template<typename T> const std::string TRADEMGEN::ContinuousAttributeLite< T >::displayCumulativeDistribution ( ) const [inline]

Display cumulative distribution.

Definition at line 135 of file ContinuousAttributeLite.hpp.

Referenced by TRADEMGEN::DemandCharacteristics::describe().

22.7.4.5 template<typename T> ContinuousAttributeLite& TRADEMGEN::ContinuousAttributeLite< T >::operator= (const ContinuousAttributeLite< T > & *iCAL*) [inline]

Copy operator.

Definition at line 174 of file ContinuousAttributeLite.hpp.

The documentation for this struct was generated from the following file:

- trademgen/basic/ContinuousAttributeLite.hpp

22.8 TRADEMGEN::DBManager Class Reference

`#include <trademgen/command/DBManager.hpp>`

Static Public Member Functions

- static void updateAirlineInDB (stdair::DBSession_T &, const stdair::AirlineStruct &)
- static bool retrieveAirline (stdair::DBSession_T &, const stdair::AirlineCode_T &, stdair::AirlineStruct &)
- static void prepareSelectStatement (stdair::DBSession_T &, stdair::DBRequestStatement_T &, stdair::AirlineStruct &)
- static bool iterateOnStatement (stdair::DBRequestStatement_T &, stdair::AirlineStruct &, const bool iShouldDoReset)

22.8.1 Detailed Description

Class building the Business Object Model (BOM) from data retrieved from the database.

Definition at line 20 of file DBManager.hpp.

22.8.2 Member Function Documentation

22.8.2.1 void TRADEMGEN::DBManager::updateAirlineInDB (stdair::DBSession_T & *ioSociSession,* const stdair::AirlineStruct & *iAirline*) [static]

Update the fields of the database row corresponding to the given BOM object.

Definition at line 121 of file DBManager.cpp.

22.8.2.2 bool TRADEMGEN::DBManager::retrieveAirline (stdair::DBSession_T & *ioSociSession,* const stdair::AirlineCode_T & *iAirlineCode,* stdair::AirlineStruct & *ioAirline*) [static]

Retrieve, from the (MySQL) database, the row corresponding to the given BOM code, and fill the given BOM object with that retrieved data.

Definition at line 157 of file DBManager.cpp.

References iterateOnStatement().

22.8.2.3 void TRADEMGEN::DBManager::prepareSelectStatement (stdair::DBSession_T & *ioSociSession,* stdair::DBRequestStatement_T & *ioSelectStatement,* stdair::AirlineStruct & *ioAirline*) [static]

Prepare (parse and put in cache) the SQL statement.

Definition at line 24 of file DBManager.cpp.

22.8.2.4 bool TRADEMGEN::DBManager::iterateOnStatement (stdair::DBRequestStatement_T & *ioStatement,* stdair::AirlineStruct & *ioAirline,* const bool *iShouldDoReset*) [static]

Iterate on the SQL statement.

The SQL has to be already prepared. const bool Tells whether the Airline object should be reset.

Definition at line 97 of file DBManager.cpp.

Referenced by retrieveAirline().

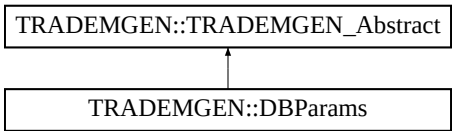
The documentation for this class was generated from the following files:

- trademgen/command/DBManager.hpp
- trademgen/command/DBManager.cpp

22.9 TRADEMGEN::DBParams Struct Reference

`#include <trademgen/DBParams.hpp>`

Inheritance diagram for TRADEMGEN::DBParams:



Public Member Functions

- std::string getUser () const
- std::string getPassword () const
- std::string getHost () const
- std::string getPort () const
- std::string getDBName () const
- void setUser (const std::string &iUser)
- void setPassword (const std::string &iPasswd)
- void setHost (const std::string &iHost)
- void setPort (const std::string &iPort)
- void setDBName (const std::string &iDBName)
- bool check () const
- void toStream (std::ostream &ioOut) const
- void fromStream (std::istream &)
- std::string toShortString () const
- std::string toString () const
- DBParams (const std::string &iDBUser, const std::string &iDBPasswd, const std::string &iDBHost, const std::string &iDBPort, const std::string &iDBName)
- virtual ~DBParams ()

22.9.1 Detailed Description

Structure modelling a (geographical) dbparams.

Definition at line 21 of file DBParams.hpp.

22.9.2 Constructor & Destructor Documentation

22.9.2.1 TRADEMGEN::DBParams::DBParams (const std::string & *iDBUser,* const std::string & *iDBPasswd,* const std::string & *iDBHost,* const std::string & *iDBPort,* const std::string & *iDBName*) [inline]

Main Constructor.

Definition at line 119 of file DBParams.hpp.

22.9.2.2 virtual TRADEMGEN::DBParams::~DBParams ( ) [inline], [virtual]

Default Constructor. Default copy constructor. Destructor.

Definition at line 132 of file DBParams.hpp.

22.9.3 Member Function Documentation

22.9.3.1 std::string TRADEMGEN::DBParams::getUser ( ) const [inline]

Get the database user name.

Definition at line 25 of file DBParams.hpp.

22.9.3.2 std::string TRADEMGEN::DBParams::getPassword ( ) const [inline]

Get the database user password.

Definition at line 30 of file DBParams.hpp.

22.9.3.3 std::string TRADEMGEN::DBParams::getHost ( ) const [inline]

Get the database host name.

Definition at line 35 of file DBParams.hpp.

22.9.3.4 std::string TRADEMGEN::DBParams::getPort ( ) const [inline]

Get the database port number.

Definition at line 40 of file DBParams.hpp.

22.9.3.5 std::string TRADEMGEN::DBParams::getDBName ( ) const [inline]

Get the database name.

Definition at line 45 of file DBParams.hpp.

22.9.3.6 void TRADEMGEN::DBParams::setUser (const std::string & *iUser*) [inline]

Set the database user name.

Definition at line 52 of file DBParams.hpp.

22.9.3.7 void TRADEMGEN::DBParams::setPassword (const std::string & *iPasswd*) [inline]

Set the database password.

Definition at line 57 of file DBParams.hpp.

22.9.3.8 void TRADEMGEN::DBParams::setHost (const std::string & *iHost*) [inline]

Set the database host name.

Definition at line 62 of file DBParams.hpp.

22.9.3.9 void TRADEMGEN::DBParams::setPort (const std::string & *iPort*) [inline]

Set the database port number.

Definition at line 67 of file DBParams.hpp.

22.9.3.10 void TRADEMGEN::DBParams::setDBName (const std::string & *iDBName*) [inline]

Set the database name.

Definition at line 72 of file DBParams.hpp.

22.9.3.11 bool TRADEMGEN::DBParams::check ( ) const [inline]

Check that all the parameters are fine.

Definition at line 80 of file DBParams.hpp.

22.9.3.12 void TRADEMGEN::DBParams::toStream (std::ostream & *ioOut*) const [inline], [virtual]

Dump a structure into an output stream.

Parameters

ostream&	the output stream.

Implements TRADEMGEN::TRADEMGEN_Abstract.

Definition at line 93 of file DBParams.hpp.

References toString().

22.9.3.13 void TRADEMGEN::DBParams::fromStream (std::istream &) [inline], [virtual]

Read a structure from an input stream.

Parameters

istream&	the input stream.

Implements TRADEMGEN::TRADEMGEN_Abstract.

Definition at line 99 of file DBParams.hpp.

22.9.3.14 std::string TRADEMGEN::DBParams::toShortString ( ) const [inline]

Get a short display of the DBParams structure.

Definition at line 103 of file DBParams.hpp.

22.9.3.15 std::string TRADEMGEN::DBParams::toString ( ) const [inline], [virtual]

Get the serialised version of the DBParams structure.

Implements TRADEMGEN::TRADEMGEN_Abstract.

Definition at line 110 of file DBParams.hpp.

Referenced by toStream().

The documentation for this struct was generated from the following file:

- trademgen/DBParams.hpp

22.10 TRADEMGEN::DefaultMap Struct Reference

`#include <trademgen/basic/BasConst_DemandGeneration.hpp>`

Static Public Member Functions

- static POSProbabilityMassFunction_T createPOSProbMass ()
- static FRAT5Pattern_T createFRAT5Pattern ()

22.10.1 Detailed Description

Default PoS probability mass.

Definition at line 24 of file BasConst_DemandGeneration.hpp.

22.10.2 Member Function Documentation

22.10.2.1 POSProbabilityMassFunction_T TRADEMGEN::DefaultMap::createPOSProbMass ( ) [static]

Default PoS probability mass.

Definition at line 20 of file BasConst.cpp.

22.10.2.2 FRAT5Pattern_T TRADEMGEN::DefaultMap::createFRAT5Pattern ( ) [static]

Default FRAT5 pattern.

Definition at line 41 of file BasConst.cpp.

The documentation for this struct was generated from the following files:

- trademgen/basic/BasConst_DemandGeneration.hpp
- trademgen/basic/BasConst.cpp

22.11 TRADEMGEN::DemandParserHelper::DemandParser::definition< ScannerT > Struct Template Reference

`#include <trademgen/command/DemandParserHelper.hpp>`

Public Member Functions

- definition (DemandParser const &self)
- boost::spirit::classic::rule
  < ScannerT > const & start () const

Public Attributes

- boost::spirit::classic::rule
  < ScannerT > demand_list
- boost::spirit::classic::rule
  < ScannerT > not_to_be_parsed
- boost::spirit::classic::rule
  < ScannerT > demand

- boost::spirit::classic::rule < ScannerT > demand_end
- boost::spirit::classic::rule < ScannerT > pref_dep_date_range
- boost::spirit::classic::rule < ScannerT > date
- boost::spirit::classic::rule < ScannerT > dow
- boost::spirit::classic::rule < ScannerT > origin
- boost::spirit::classic::rule < ScannerT > destination
- boost::spirit::classic::rule < ScannerT > pref_cabin
- boost::spirit::classic::rule < ScannerT > demand_params
- boost::spirit::classic::rule < ScannerT > pos_dist
- boost::spirit::classic::rule < ScannerT > pos_pair
- boost::spirit::classic::rule < ScannerT > pos_code
- boost::spirit::classic::rule < ScannerT > pos_share
- boost::spirit::classic::rule < ScannerT > channel_dist
- boost::spirit::classic::rule < ScannerT > channel_pair
- boost::spirit::classic::rule < ScannerT > channel_code
- boost::spirit::classic::rule < ScannerT > channel_share
- boost::spirit::classic::rule < ScannerT > trip_dist
- boost::spirit::classic::rule < ScannerT > trip_pair
- boost::spirit::classic::rule < ScannerT > trip_code
- boost::spirit::classic::rule < ScannerT > trip_share
- boost::spirit::classic::rule < ScannerT > stay_dist
- boost::spirit::classic::rule < ScannerT > stay_pair
- boost::spirit::classic::rule < ScannerT > stay_share
- boost::spirit::classic::rule < ScannerT > ff_dist
- boost::spirit::classic::rule < ScannerT > ff_pair
- boost::spirit::classic::rule < ScannerT > ff_code
- boost::spirit::classic::rule < ScannerT > ff_share
- boost::spirit::classic::rule < ScannerT > change_fees

- boost::spirit::classic::rule < ScannerT > non_refundable
- boost::spirit::classic::rule < ScannerT > pref_dep_time_dist
- boost::spirit::classic::rule < ScannerT > pref_dep_time_pair
- boost::spirit::classic::rule < ScannerT > pref_dep_time_share
- boost::spirit::classic::rule < ScannerT > time
- boost::spirit::classic::rule < ScannerT > wtp
- boost::spirit::classic::rule < ScannerT > time_value_dist
- boost::spirit::classic::rule < ScannerT > time_value_pair
- boost::spirit::classic::rule < ScannerT > time_value_share
- boost::spirit::classic::rule < ScannerT > dtd_dist
- boost::spirit::classic::rule < ScannerT > dtd_pair
- boost::spirit::classic::rule < ScannerT > dtd_share

22.11.1 Detailed Description

template<typename ScannerT>struct TRADEMGEN::DemandParserHelper::DemandParser::definition< ScannerT >

Definition at line 391 of file DemandParserHelper.hpp.

22.11.2 Constructor & Destructor Documentation

22.11.2.1 template<typename ScannerT > TRADEMGEN::DemandParserHelper::DemandParser::definition< ScannerT >::definition (DemandParser const & *self*)

Definition at line 580 of file DemandParserHelper.cpp.

References TRADEMGEN::DemandParserHelper::airport_p(), TRADEMGEN::DemandParserHelper::cabin_code_p(), TRADEMGEN::DemandParserHelper::day_p(), TRADEMGEN::DemandParserHelper::dow_p(), TRADEMGEN::DemandParserHelper::ff_type_p(), TRADEMGEN::DemandParserHelper::hours_p(), TRADEMGEN::DemandParserHelper::minutes_p(), TRADEMGEN::DemandParserHelper::month_p(), TRADEMGEN::DemandParserHelper::seconds_p(), TRADEMGEN::DemandParserHelper::stay_duration_p(), and TRADEMGEN::DemandParserHelper::year_p().

22.11.3 Member Function Documentation

22.11.3.1 template<typename ScannerT > bsc::rule< ScannerT > const & TRADEMGEN::DemandParserHelper::DemandParser::definition< ScannerT >::start ( ) const

Entry point of the parser.

Definition at line 839 of file DemandParserHelper.cpp.

22.11.4 Member Data Documentation

22.11.4.1 template<typename ScannerT > boost::spirit::classic::rule<ScannerT> TRADEMGEN::DemandParserHelper::DemandParser::definition< ScannerT >::demand_list

Definition at line 395 of file DemandParserHelper.hpp.

22.11.4.2 template<typename ScannerT > boost::spirit::classic::rule<ScannerT> TRADEMGEN::DemandParserHelper::DemandParser::definition< ScannerT >::not_to_be_parsed

Definition at line 395 of file DemandParserHelper.hpp.

22.11.4.3 template<typename ScannerT > boost::spirit::classic::rule<ScannerT> TRADEMGEN::DemandParserHelper::DemandParser::definition< ScannerT >::demand

Definition at line 395 of file DemandParserHelper.hpp.

22.11.4.4 template<typename ScannerT > boost::spirit::classic::rule<ScannerT> TRADEMGEN::DemandParserHelper::DemandParser::definition< ScannerT >::demand_end

Definition at line 395 of file DemandParserHelper.hpp.

22.11.4.5 template<typename ScannerT > boost::spirit::classic::rule<ScannerT> TRADEMGEN::DemandParserHelper::DemandParser::definition< ScannerT >::pref_dep_date_range

Definition at line 395 of file DemandParserHelper.hpp.

22.11.4.6 template<typename ScannerT > boost::spirit::classic::rule<ScannerT> TRADEMGEN::DemandParserHelper::DemandParser::definition< ScannerT >::date

Definition at line 395 of file DemandParserHelper.hpp.

22.11.4.7 template<typename ScannerT > boost::spirit::classic::rule<ScannerT> TRADEMGEN::DemandParserHelper::DemandParser::definition< ScannerT >::dow

Definition at line 395 of file DemandParserHelper.hpp.

22.11.4.8 template<typename ScannerT > boost::spirit::classic::rule<ScannerT> TRADEMGEN::DemandParserHelper::DemandParser::definition< ScannerT >::origin

Definition at line 395 of file DemandParserHelper.hpp.

22.11.4.9 template<typename ScannerT > boost::spirit::classic::rule<ScannerT> TRADEMGEN::DemandParserHelper::DemandParser::definition< ScannerT >::destination

Definition at line 395 of file DemandParserHelper.hpp.

22.11.4.10 template<typename ScannerT > boost::spirit::classic::rule<ScannerT> TRADEMGEN::DemandParserHelper::DemandParser::definition< ScannerT >::pref_cabin

Definition at line 395 of file DemandParserHelper.hpp.

22.11.4.11 template<typename ScannerT > boost::spirit::classic::rule<ScannerT> TRADEMGEN::DemandParserHelper::DemandParser::definition< ScannerT >::demand_params

Definition at line 395 of file DemandParserHelper.hpp.

22.11.4.12 template<typename ScannerT > boost::spirit::classic::rule<ScannerT> TRADEMGEN::DemandParserHelper::DemandParser::definition< ScannerT >::pos_dist

Definition at line 395 of file DemandParserHelper.hpp.

22.11.4.13 template<typename ScannerT > boost::spirit::classic::rule<ScannerT> TRADEMGEN::DemandParserHelper::DemandParser::definition< ScannerT >::pos_pair

Definition at line 395 of file DemandParserHelper.hpp.

22.11.4.14 template<typename ScannerT > boost::spirit::classic::rule<ScannerT> TRADEMGEN::DemandParserHelper::DemandParser::definition< ScannerT >::pos_code

Definition at line 395 of file DemandParserHelper.hpp.

22.11.4.15 template<typename ScannerT > boost::spirit::classic::rule<ScannerT> TRADEMGEN::DemandParserHelper::DemandParser::definition< ScannerT >::pos_share

Definition at line 395 of file DemandParserHelper.hpp.

22.11.4.16 template<typename ScannerT > boost::spirit::classic::rule<ScannerT> TRADEMGEN::DemandParserHelper::DemandParser::definition< ScannerT >::channel_dist

Definition at line 395 of file DemandParserHelper.hpp.

22.11.4.17 template<typename ScannerT > boost::spirit::classic::rule<ScannerT> TRADEMGEN::DemandParserHelper::DemandParser::definition< ScannerT >::channel_pair

Definition at line 395 of file DemandParserHelper.hpp.

22.11.4.18 template<typename ScannerT > boost::spirit::classic::rule<ScannerT> TRADEMGEN::DemandParserHelper::DemandParser::definition< ScannerT >::channel_code

Definition at line 395 of file DemandParserHelper.hpp.

22.11.4.19 template<typename ScannerT > boost::spirit::classic::rule<ScannerT> TRADEMGEN::DemandParserHelper::DemandParser::definition< ScannerT >::channel_share

Definition at line 395 of file DemandParserHelper.hpp.

22.11.4.20 template<typename ScannerT > boost::spirit::classic::rule<ScannerT> TRADEMGEN::DemandParserHelper::DemandParser::definition< ScannerT >::trip_dist

Definition at line 395 of file DemandParserHelper.hpp.

22.11.4.21 template<typename ScannerT > boost::spirit::classic::rule<ScannerT> TRADEMGEN::DemandParserHelper::DemandParser::definition< ScannerT >::trip_pair

Definition at line 395 of file DemandParserHelper.hpp.

22.11.4.22 template<typename ScannerT > boost::spirit::classic::rule<ScannerT> TRADEMGEN::DemandParserHelper::DemandParser::definition< ScannerT >::trip_code

Definition at line 395 of file DemandParserHelper.hpp.

22.11.4.23 template<typename ScannerT > boost::spirit::classic::rule<ScannerT> TRADEMGEN::DemandParserHelper::DemandParser::definition< ScannerT >::trip_share

Definition at line 395 of file DemandParserHelper.hpp.

22.11.4.24 template<typename ScannerT > boost::spirit::classic::rule<ScannerT> TRADEMGEN::DemandParserHelper::DemandParser::definition< ScannerT >::stay_dist

Definition at line 395 of file DemandParserHelper.hpp.

22.11.4.25 template<typename ScannerT > boost::spirit::classic::rule<ScannerT> TRADEMGEN::DemandParserHelper::DemandParser::definition< ScannerT >::stay_pair

Definition at line 395 of file DemandParserHelper.hpp.

22.11.4.26 template<typename ScannerT > boost::spirit::classic::rule<ScannerT> TRADEMGEN::DemandParserHelper::DemandParser::definition< ScannerT >::stay_share

Definition at line 395 of file DemandParserHelper.hpp.

22.11.4.27 template<typename ScannerT > boost::spirit::classic::rule<ScannerT> TRADEMGEN::DemandParserHelper::DemandParser::definition< ScannerT >::ff_dist

Definition at line 395 of file DemandParserHelper.hpp.

22.11.4.28 template<typename ScannerT > boost::spirit::classic::rule<ScannerT> TRADEMGEN::DemandParserHelper::DemandParser::definition< ScannerT >::ff_pair

Definition at line 395 of file DemandParserHelper.hpp.

22.11.4.29 template<typename ScannerT > boost::spirit::classic::rule<ScannerT> TRADEMGEN::DemandParserHelper::DemandParser::definition< ScannerT >::ff_code

Definition at line 395 of file DemandParserHelper.hpp.

22.11.4.30 template<typename ScannerT > boost::spirit::classic::rule<ScannerT> TRADEMGEN::DemandParserHelper::DemandParser::definition< ScannerT >::ff_share

Definition at line 395 of file DemandParserHelper.hpp.

22.11.4.31 template<typename ScannerT > boost::spirit::classic::rule<ScannerT> TRADEMGEN::DemandParserHelper::DemandParser::definition< ScannerT >::change_fees

Definition at line 395 of file DemandParserHelper.hpp.

22.11.4.32 template<typename ScannerT > boost::spirit::classic::rule<ScannerT> TRADEMGEN::DemandParserHelper::DemandParser::definition< ScannerT >::non_refundable

Definition at line 395 of file DemandParserHelper.hpp.

22.11.4.33 template<typename ScannerT > boost::spirit::classic::rule<ScannerT> TRADEMGEN::DemandParserHelper::DemandParser::definition< ScannerT >::pref_dep_time_dist

Definition at line 395 of file DemandParserHelper.hpp.

22.11.4.34 template<typename ScannerT > boost::spirit::classic::rule<ScannerT> TRADEMGEN::DemandParserHelper::DemandParser::definition< ScannerT >::pref_dep_time_pair

Definition at line 395 of file DemandParserHelper.hpp.

22.11.4.35 template<typename ScannerT > boost::spirit::classic::rule<ScannerT> TRADEMGEN::DemandParserHelper::DemandParser::definition< ScannerT >::pref_dep_time_share

Definition at line 395 of file DemandParserHelper.hpp.

22.11.4.36 template<typename ScannerT > boost::spirit::classic::rule<ScannerT> TRADEMGEN::DemandParserHelper::DemandParser::definition< ScannerT >::time

Definition at line 395 of file DemandParserHelper.hpp.

22.11.4.37 template<typename ScannerT > boost::spirit::classic::rule<ScannerT> TRADEMGEN::DemandParserHelper::DemandParser::definition< ScannerT >::wtp

Definition at line 395 of file DemandParserHelper.hpp.

22.11.4.38 template<typename ScannerT > boost::spirit::classic::rule<ScannerT> TRADEMGEN::DemandParserHelper::DemandParser::definition< ScannerT >::time_value_dist

Definition at line 395 of file DemandParserHelper.hpp.

22.11.4.39 template<typename ScannerT > boost::spirit::classic::rule<ScannerT> TRADEMGEN::DemandParserHelper::DemandParser::definition< ScannerT >::time_value_pair

Definition at line 395 of file DemandParserHelper.hpp.

22.11.4.40 template<typename ScannerT > boost::spirit::classic::rule<ScannerT> TRADEMGEN::DemandParserHelper::DemandParser::definition< ScannerT >::time_value_share

Definition at line 395 of file DemandParserHelper.hpp.

22.11.4.41 template<typename ScannerT > boost::spirit::classic::rule<ScannerT> TRADEMGEN::DemandParserHelper::DemandParser::definition< ScannerT >::dtd_dist

Definition at line 395 of file DemandParserHelper.hpp.

22.11.4.42 template<typename ScannerT > boost::spirit::classic::rule<ScannerT> TRADEMGEN::DemandParserHelper::DemandParser::definition< ScannerT >::dtd_pair

Definition at line 395 of file DemandParserHelper.hpp.

22.11.4.43 template<typename ScannerT > boost::spirit::classic::rule<ScannerT> TRADEMGEN::DemandParserHelper::DemandParser::definition< ScannerT >::dtd_share

Definition at line 395 of file DemandParserHelper.hpp.

The documentation for this struct was generated from the following files:

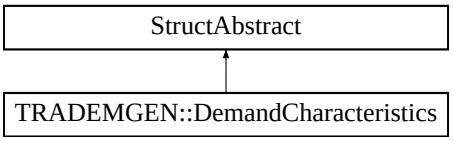
- trademgen/command/DemandParserHelper.hpp
- trademgen/command/DemandParserHelper.cpp

22.12 TRADEMGEN::DemandCharacteristics Struct Reference

Class modeling the characteristics of a demand type.

`#include <trademgen/basic/DemandCharacteristics.hpp>`

Inheritance diagram for TRADEMGEN::DemandCharacteristics:



Public Member Functions

- const stdair::AirportCode_T & getPOSValue (const stdair::Probability_T &iCumulativeProbability) const
- bool checkPOSValue (const stdair::AirportCode_T &iPOS) const
- const std::string describe () const

- DemandCharacteristics (const ArrivalPatternCumulativeDistribution_T &, const POSProbabilityMass-Function_T &, const ChannelProbabilityMassFunction_T &, const TripTypeProbabilityMassFunction_T &, const StayDurationProbabilityMassFunction_T &, const FrequentFlyerProbabilityMassFunction_T &, const stdair::ChangeFeesRatio_T &, const stdair::Disutility_T &, const stdair::NonRefundableRatio_T &, const stdair::Disutility_T &, const PreferredDepartureTimeContinuousDistribution_T &, const stdair::WTP_T &, const ValueOfTimeContinuousDistribution_T &)
- DemandCharacteristics ()
- DemandCharacteristics (const DemandCharacteristics &)
- ~DemandCharacteristics ()

Public Attributes

- ContinuousFloatDuration_T _arrivalPattern
- POSProbabilityMass_T _posProbabilityMass
- ChannelProbabilityMass_T _channelProbabilityMass
- TripTypeProbabilityMass_T _tripTypeProbabilityMass
- StayDurationProbabilityMass_T _stayDurationProbabilityMass
- FrequentFlyerProbabilityMass_T _frequentFlyerProbabilityMass
- stdair::ChangeFeesRatio_T _changeFeeProb
- stdair::Disutility_T _changeFeeDisutility
- stdair::NonRefundableRatio_T _nonRefundableProb
- stdair::Disutility_T _nonRefundableDisutility
- PreferredDepartureTimeCumulativeDistribution_T _preferredDepartureTimeCumulativeDistribution
- stdair::WTP_T _minWTP
- CumulativeDistribution_T _frat5Pattern
- ValueOfTimeCumulativeDistribution_T _valueOfTimeCumulativeDistribution

22.12.1 Detailed Description

Class modeling the characteristics of a demand type.

Definition at line 21 of file DemandCharacteristics.hpp.

22.12.2 Constructor & Destructor Documentation

22.12.2.1 TRADEMGEN::DemandCharacteristics::DemandCharacteristics (const ArrivalPatternCumulative-Distribution_T & *iArrivalPattern,* const POSProbabilityMassFunction_T & *iPOSProbMass,* const ChannelProbabilityMassFunction_T & *iChannelProbMass,* const TripTypeProbabilityMassFunction_T & *iTripTypeProbMass,* const StayDurationProbabilityMassFunction_T & *iStayDurationProbMass,* const FrequentFlyerProbabilityMassFunction_T & *iFrequentFlyerProbMass,* const stdair::ChangeFeesRatio_T & *iChangeFeeProb,* const stdair::Disutility_T & *iChangeFeeDisutility,* const stdair::NonRefundableRatio_T & *iNonRefundableProb,* const stdair::Disutility_T & *iNonRefundableDisutility,* const PreferredDepartureTime-ContinuousDistribution_T & *iPreferredDepartureTimeContinuousDistribution,* const stdair::WTP_T & *iMinWTP,* const ValueOfTimeContinuousDistribution_T & *iValueOfTimeContinuousDistribution*)

Constructor.

Definition at line 50 of file DemandCharacteristics.cpp.

22.12.2.2 TRADEMGEN::DemandCharacteristics::DemandCharacteristics ( )

Default constructor.

Definition at line 16 of file DemandCharacteristics.cpp.

22.12.2.3 TRADEMGEN::DemandCharacteristics::DemandCharacteristics (const DemandCharacteristics & *iDC*)

Copy constructor.

Definition at line 32 of file DemandCharacteristics.cpp.

22.12.2.4 TRADEMGEN::DemandCharacteristics::~DemandCharacteristics ( )

Destructor.

Definition at line 79 of file DemandCharacteristics.cpp.

22.12.3 Member Function Documentation

22.12.3.1 const stdair::AirportCode_T & TRADEMGEN::DemandCharacteristics::getPOSValue (const stdair::Probability_T & *iCumulativeProbability*) const

Get the POS corresponding to the cumulative probability

Definition at line 84 of file DemandCharacteristics.cpp.

References _posProbabilityMass, and TRADEMGEN::CategoricalAttributeLite< T >::getValue().

Referenced by TRADEMGEN::DemandStream::generatePOS().

22.12.3.2 bool TRADEMGEN::DemandCharacteristics::checkPOSValue (const stdair::AirportCode_T & *iPOS*) const

Check that the POS is within the distribution.

Definition at line 90 of file DemandCharacteristics.cpp.

References _posProbabilityMass, and TRADEMGEN::CategoricalAttributeLite< T >::checkValue().

22.12.3.3 const std::string TRADEMGEN::DemandCharacteristics::describe ( ) const

Give a description of the structure (for display purposes).

Definition at line 95 of file DemandCharacteristics.cpp.

References _arrivalPattern, _changeFeeDisutility, _changeFeeProb, _channelProbabilityMass, _frequentFlyerProbabilityMass, _minWTP, _nonRefundableDisutility, _nonRefundableProb, _posProbabilityMass, _preferredDepartureTimeCumulativeDistribution, _stayDurationProbabilityMass, _tripTypeProbabilityMass, _valueOfTimeCumulativeDistribution, TRADEMGEN::ContinuousAttributeLite< T >::displayCumulativeDistribution(), and TRADEMGEN::CategoricalAttributeLite< T >::displayProbabilityMass().

Referenced by TRADEMGEN::DemandStream::display().

22.12.4 Member Data Documentation

22.12.4.1 ContinuousFloatDuration_T TRADEMGEN::DemandCharacteristics::_arrivalPattern

Arrival pattern (cumulative distribution of timing of arrival of requests (negative number of days between departure date and request date).

Definition at line 87 of file DemandCharacteristics.hpp.

Referenced by describe(), TRADEMGEN::DemandStream::generateTimeOfRequestPoissonProcess(), and TRADEMGEN::DemandStream::generateTimeOfRequestStatisticsOrder().

22.12.4.2 POSProbabilityMass_T TRADEMGEN::DemandCharacteristics::_posProbabilityMass

POS probability mass.

Definition at line 92 of file DemandCharacteristics.hpp.

Referenced by checkPOSValue(), describe(), and getPOSValue().

22.12.4.3 ChannelProbabilityMass_T TRADEMGEN::DemandCharacteristics::_channelProbabilityMass

Channel probability mass.

Definition at line 97 of file DemandCharacteristics.hpp.

Referenced by describe(), and TRADEMGEN::DemandStream::generateChannel().

22.12.4.4 TripTypeProbabilityMass_T TRADEMGEN::DemandCharacteristics::_tripTypeProbabilityMass

Trip type probability mass.

Definition at line 102 of file DemandCharacteristics.hpp.

Referenced by describe(), and TRADEMGEN::DemandStream::generateTripType().

22.12.4.5 StayDurationProbabilityMass_T TRADEMGEN::DemandCharacteristics::_stayDurationProbabilityMass

Stay duration probability mass.

Definition at line 107 of file DemandCharacteristics.hpp.

Referenced by describe(), and TRADEMGEN::DemandStream::generateStayDuration().

22.12.4.6 FrequentFlyerProbabilityMass_T TRADEMGEN::DemandCharacteristics::_frequentFlyerProbabilityMass

Frequent flyer probability mass.

Definition at line 112 of file DemandCharacteristics.hpp.

Referenced by describe(), and TRADEMGEN::DemandStream::generateFrequentFlyer().

22.12.4.7 stdair::ChangeFeesRatio_T TRADEMGEN::DemandCharacteristics::_changeFeeProb

Change fee restriction acceptation probability.

Definition at line 117 of file DemandCharacteristics.hpp.

Referenced by describe(), and TRADEMGEN::DemandStream::generateChangeFees().

22.12.4.8 stdair::Disutility_T TRADEMGEN::DemandCharacteristics::_changeFeeDisutility

Change fee disutility.

Definition at line 122 of file DemandCharacteristics.hpp.

Referenced by describe(), TRADEMGEN::DemandStream::generateNextRequest(), and TRADEMGEN::DemandStream::getChangeFeeDisutility().

22.12.4.9 stdair::NonRefundableRatio_T TRADEMGEN::DemandCharacteristics::_nonRefundableProb

Non refundable restriction acceptation probability.

Definition at line 127 of file DemandCharacteristics.hpp.

Referenced by describe(), and TRADEMGEN::DemandStream::generateNonRefundable().

22.12.4.10 stdair::Disutility_T TRADEMGEN::DemandCharacteristics::_nonRefundableDisutility

Non refundable disutility.

Definition at line 132 of file DemandCharacteristics.hpp.

Referenced by describe(), TRADEMGEN::DemandStream::generateNextRequest(), and TRADEMGEN::DemandStream::getNonRefundableDisutility().

22.12.4.11 PreferredDepartureTimeCumulativeDistribution_T TRADEMGEN::DemandCharacteristics::_preferredDepartureTimeCumulativeDistribution

Preferred departure time cumulative distribution.

Definition at line 137 of file DemandCharacteristics.hpp.

Referenced by describe().

22.12.4.12 stdair::WTP_T TRADEMGEN::DemandCharacteristics::_minWTP

Min Willingness-to-pay, used for the computation of the WTP of each request.

Definition at line 143 of file DemandCharacteristics.hpp.

Referenced by describe(), and TRADEMGEN::DemandStream::generateWTP().

22.12.4.13 CumulativeDistribution_T TRADEMGEN::DemandCharacteristics::_frat5Pattern

FRAT5 pattern, used for the computation of WTP.

Definition at line 148 of file DemandCharacteristics.hpp.

Referenced by TRADEMGEN::DemandStream::generateWTP().

22.12.4.14 ValueOfTimeCumulativeDistribution_T TRADEMGEN::DemandCharacteristics::_valueOfTimeCumulativeDistribution

Value of time cumulative distribution.

Definition at line 153 of file DemandCharacteristics.hpp.

Referenced by describe(), and TRADEMGEN::DemandStream::generateValueOfTime().

The documentation for this struct was generated from the following files:

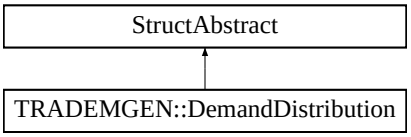
- trademgen/basic/DemandCharacteristics.hpp
- trademgen/basic/DemandCharacteristics.cpp

22.13 TRADEMGEN::DemandDistribution Struct Reference

Class modeling the distribution of a demand type.

`#include <trademgen/basic/DemandDistribution.hpp>`

Inheritance diagram for TRADEMGEN::DemandDistribution:



Public Member Functions

- DemandDistribution (const stdair::NbOfRequests_T &iMean, const stdair::StdDevValue_T &iStdDev)
- DemandDistribution ()
- DemandDistribution (const DemandDistribution &)
- ~DemandDistribution ()
- void fromStream (std::istream &ioIn)
- const std::string describe () const
- std::string display () const

Public Attributes

- stdair::NbOfRequests_T _meanNumberOfRequests
- stdair::StdDevValue_T _stdDevNumberOfRequests

22.13.1 Detailed Description

Class modeling the distribution of a demand type.

Definition at line 20 of file DemandDistribution.hpp.

22.13.2 Constructor & Destructor Documentation

22.13.2.1 TRADEMGEN::DemandDistribution::DemandDistribution (const stdair::NbOfRequests_T & *iMean,* const stdair::StdDevValue_T & *iStdDev*)

Constructor.

Definition at line 15 of file DemandDistribution.cpp.

22.13.2.2 TRADEMGEN::DemandDistribution::DemandDistribution ( )

Default constructor.

Definition at line 22 of file DemandDistribution.cpp.

22.13.2.3 TRADEMGEN::DemandDistribution::DemandDistribution (const DemandDistribution & *iDemandDistribution*)

Copy constructor.

Definition at line 31 of file DemandDistribution.cpp.

22.13.2.4 TRADEMGEN::DemandDistribution::~DemandDistribution ( )

Destructor.

Definition at line 26 of file DemandDistribution.cpp.

22.13.3 Member Function Documentation

22.13.3.1 void TRADEMGEN::DemandDistribution::fromStream (std::istream & *ioIn*)

Read a Business Object from an input stream.

Parameters

istream&	the input stream.

Definition at line 37 of file DemandDistribution.cpp.

22.13.3.2 const std::string TRADEMGEN::DemandDistribution::describe ( ) const

Display of the structure.

Definition at line 41 of file DemandDistribution.cpp.

References _meanNumberOfRequests, and _stdDevNumberOfRequests.

Referenced by display(), and TRADEMGEN::DemandStream::display().

22.13.3.3 std::string TRADEMGEN::DemandDistribution::display ( ) const

Display demand distribution.

Definition at line 49 of file DemandDistribution.cpp.

References describe().

22.13.4 Member Data Documentation

22.13.4.1 stdair::NbOfRequests_T TRADEMGEN::DemandDistribution::_meanNumberOfRequests

Mean number of requests.

Definition at line 67 of file DemandDistribution.hpp.

Referenced by describe(), TRADEMGEN::DemandStream::generateTimeOfRequestPoissonProcess(), and TRADEMGEN::DemandStream::getMeanNumberOfRequests().

22.13.4.2 stdair::StdDevValue_T TRADEMGEN::DemandDistribution::_stdDevNumberOfRequests

Standard deviation of number of requests.

Definition at line 72 of file DemandDistribution.hpp.

Referenced by describe(), and TRADEMGEN::DemandStream::getStdDevNumberOfRequests().

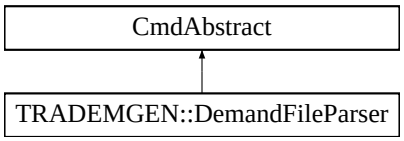
The documentation for this struct was generated from the following files:

- trademgen/basic/DemandDistribution.hpp
- trademgen/basic/DemandDistribution.cpp

22.14 TRADEMGEN::DemandFileParser Class Reference

`#include <trademgen/command/DemandParserHelper.hpp>`

Inheritance diagram for TRADEMGEN::DemandFileParser:



Public Member Functions

- DemandFileParser (SEVMGR::SEVMGR_ServicePtr_T, stdair::RandomGeneration &, const POSProbabilityMass_T &, const stdair::Filename_T &iDemandInputFilename)
- bool generateDemand ()

22.14.1 Detailed Description

Class wrapping the initialisation and entry point of the parser.

The seemingly redundancy is used to force the instantiation of the actual parser, which is a templatised Boost Spirit grammar. Hence, the actual parser is instantiated within that class object code.

Definition at line 434 of file DemandParserHelper.hpp.

22.14.2 Constructor & Destructor Documentation

22.14.2.1 TRADEMGEN::DemandFileParser::DemandFileParser (SEVMGR::SEVMGR_ServicePtr_T , stdair::RandomGeneration & , const POSProbabilityMass_T & , const stdair::Filename_T & *iDemandInputFilename*)

Constructor.

Definition at line 854 of file DemandParserHelper.cpp.

22.14.3 Member Function Documentation

22.14.3.1 bool TRADEMGEN::DemandFileParser::generateDemand ( )

Parse the demand input file.

Definition at line 897 of file DemandParserHelper.cpp.

Referenced by TRADEMGEN::DemandParser::generateDemand().

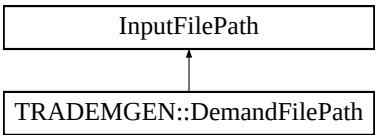
The documentation for this class was generated from the following files:

- trademgen/command/DemandParserHelper.hpp
- trademgen/command/DemandParserHelper.cpp

22.15 TRADEMGEN::DemandFilePath Class Reference

`#include <trademgen/TRADEMGEN_Types.hpp>`

Inheritance diagram for TRADEMGEN::DemandFilePath:



Public Member Functions

- DemandFilePath (const stdair::Filename_T &iFilename)

22.15.1 Detailed Description

Demand input file.

Definition at line 30 of file TRADEMGEN_Types.hpp.

22.15.2 Constructor & Destructor Documentation

22.15.2.1 TRADEMGEN::DemandFilePath::DemandFilePath (const stdair::Filename_T & *iFilename*) [inline], [explicit]

Constructor.

Definition at line 35 of file TRADEMGEN_Types.hpp.

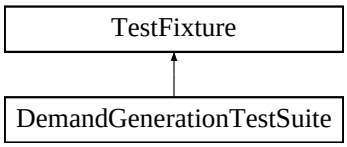
The documentation for this class was generated from the following file:

- trademgen/TRADEMGEN_Types.hpp

22.16 DemandGenerationTestSuite Class Reference

`#include <test/trademgen/DemandGenerationTestSuite.hpp>`

Inheritance diagram for DemandGenerationTestSuite:



Public Member Functions

- void simpleEventGeneration ()
- DemandGenerationTestSuite ()

Protected Attributes

- std::stringstream _describeKey

22.16.1 Detailed Description

Definition at line 6 of file DemandGenerationTestSuite.hpp.

22.16.2 Constructor & Destructor Documentation

22.16.2.1 DemandGenerationTestSuite::DemandGenerationTestSuite ( )

Test some error detection functionalities. Constructor.

22.16.3 Member Function Documentation

22.16.3.1 void DemandGenerationTestSuite::simpleEventGeneration ( )

Test a simple event generation functionality.

22.16.4 Member Data Documentation

22.16.4.1 std::stringstream DemandGenerationTestSuite::_describeKey [protected]

Definition at line 27 of file DemandGenerationTestSuite.hpp.

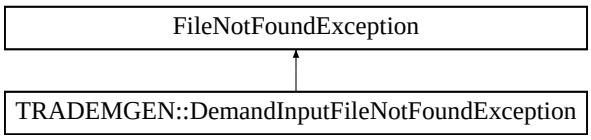
The documentation for this class was generated from the following file:

- test/trademgen/DemandGenerationTestSuite.hpp

22.17 TRADEMGEN::DemandInputFileNotFoundException Class Reference

`#include <trademgen/TRADEMGEN_Exceptions.hpp>`

Inheritance diagram for TRADEMGEN::DemandInputFileNotFoundException:



Public Member Functions

- DemandInputFileNotFoundException (const std::string &iWhat)

22.17.1 Detailed Description

Exception when no demand input file can be found

Definition at line 30 of file TRADEMGEN_Exceptions.hpp.

22.17.2 Constructor & Destructor Documentation

22.17.2.1 TRADEMGEN::DemandInputFileNotFoundException::DemandInputFileNotFoundException (const std::string & *iWhat*) [inline]

Constructor.

Definition at line 36 of file TRADEMGEN_Exceptions.hpp.

The documentation for this class was generated from the following file:

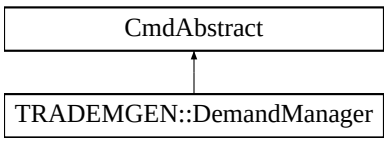
- trademgen/TRADEMGEN_Exceptions.hpp

22.18 TRADEMGEN::DemandManager Class Reference

Utility class for Demand and DemandStream objects.

`#include <trademgen/command/DemandManager.hpp>`

Inheritance diagram for TRADEMGEN::DemandManager:



Friends

- struct DemandParserHelper::doEndDemand
- class TRADEMGEN_Service

22.18.1 Detailed Description

Utility class for Demand and DemandStream objects.

Definition at line 40 of file DemandManager.hpp.

22.18.2 Friends And Related Function Documentation

22.18.2.1 friend struct DemandParserHelper::doEndDemand [friend]

Definition at line 41 of file DemandManager.hpp.

22.18.2.2 friend class TRADEMGEN_Service [friend]

Definition at line 42 of file DemandManager.hpp.

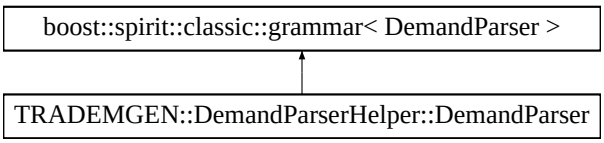
The documentation for this class was generated from the following files:

- trademgen/command/DemandManager.hpp
- trademgen/command/DemandManager.cpp

22.19 TRADEMGEN::DemandParserHelper::DemandParser Struct Reference

`#include <trademgen/command/DemandParserHelper.hpp>`

Inheritance diagram for TRADEMGEN::DemandParserHelper::DemandParser:



Classes

- struct definition

Public Member Functions

- DemandParser (SEVMGR::SEVMGR_ServicePtr_T, stdair::RandomGeneration &, const POSProbabilityMass_T &, DemandStruct &)

Public Attributes

- SEVMGR::SEVMGR_ServicePtr_T _sevmgrServicePtr
- stdair::RandomGeneration & _uniformGenerator
- const POSProbabilityMass_T & _posProbabilityMass
- DemandStruct & _demand

22.19.1 Detailed Description

PrefDepDate; Origin; Destination; PassengerType; Mean; StdDev; PosDist; ChannelDist; TripTypeDist; StayDurationDist; FrequentFlyerDist; PrefDepTimeDist; min WTP; (PrefArrivalDate; PrefArrivalTime;) TimeValueDist; ValueOfTimeDist; ArrivalPatternDist; 2010-02-08; SIN; BKK; L; 10.0; 1.0; SIN:0.7, BKK:0.2, row:0.1; DF:0.1, DN:0.3, IF:0.4, IN:0.2; RO:0.6, RI:0.2, OW:0.2; 0:0.1, 1:0.1, 2:0.15, 3:0.15, 4:0.15, 5:0.35; P:0.01, G:0.05, S:0.15, M:0.3, N:0.49; 06:0, 07:0.1, 09:0.3, 17:0.4, 19:0.8, 20:0.95, 22:1; 100:0, 500:0.8, 2000:1; 15:0, 60:1; 330:0, 40:0.2, 20:0.6, 1:1;

Fixed: Prefered departure date (yyyy-mm-dd) Origin (3-char airport code) Destination (3-char airport code) PassengerType (1-char, e.g., 'L' for Leisure, 'B' for Business) Observable: Mean StdDev Distribution with Probability Masses: POS Channel (D=direct, I=indirect, N=oNline, F=oFfline) Trip type(RO=outbound of round-trip,RI=inbound of round-trip,OW=one way) Stay duration (number of days) Frequent flyer (P=Platinum, G=Gold, S=Silver,

M=Member, N=None) Change fees restriction. 'True' for accepting the restriction (for hard-restriction custumer choice model) Change fees disutility (for disutility custumer choice model) Non refundable restriction. 'True' for accepting the restriction (for hard-restriction custumer choice model) Non refundable disutility (for disutility custumer choice model) Continuous cumulative distribution: Preferred departure time (hh:mm:ss) Preferred arrival date (equal to prefered departure date) Preferred arrival time (equal to prefered departure time) Value of time Arrival pattern (DTD as a positive value) The main fields are separated by ';' Probability mass distributions are defined by comma-separated 'value:probability' pairs Continuous cumulative distribution are defined by comma-separated 'value:probability' pairs, sorted in increasing order of values. The meaning of probability is P(random variable <= value) = probability.

Grammar: Demand ::= PrefDepDate ';' Origin ';' Destination ';' PassengerType ';' DemandParams ';' PosDist ';' ChannelDist ';' TripDist ';' StayDist ';' FfDist ';' PrefDepTimeDist ';' minWTP ';' TimeValueDist ';' DtdDist EndOfDemand PrefDepDate ::= date PassengerType ::= 'L' | 'B' | 'F' DemandParams ::= DemandMean ';' DemandStdDev PosDist ::= PosPair (',' PosPair)* PosPair ::= PosCode ':' PosShare PosCode ::= AirportCode | "row" PosShare ::= real ChannelDist ::= ChannelPair (',' ChannelPair)* ChannelPair ::= Channel_Code ':' ChannelShare ChannelCode ::= "DF" | "DN" | "IF" | "IN" ChannelShare ::= real TripDist ::= TripPair (',' TripPair)* TripPair ::= TripCode ':' TripShare TripCode ::= "RO" | "RI" | "OW" TripShare ::= real StayDist ::= StayPair (',' StayPair)* StayPair ::= [0;3]-digit-integer ':' stay_share StayShare ::= real FFDist ::= FF_Pair (',' FF_Pair)* FFPair ::= FFCode ':' FFShare FFCode ::= 'P' | 'G' | 'S' | 'M' | 'N' FFShare ::= real ChangeFeeProb ::= real NonRefundableProb ::= real PrefDepTimeDist ::= PrefDepTimePair (',' PrefDepTimePair)* PrefDepTimePair ::= time ':' PrefDepTimeShare PrefDepTimeShare ::= real minWTP ::= real TimeValueDist ::= TimeValuePair (',' TimeValuePair)* TimeValuePair ::= [0;2]-digit-integer ':' TimeValueShare TimeValueShare ::= real DTDDist ::= DTDPair (',' DTDPair)* DTDPair ::= real ':' DTDShare DTDShare ::= real EndOfDemand ::= ';' Grammar for the demand parser.

Definition at line 384 of file DemandParserHelper.hpp.

22.19.2 Constructor & Destructor Documentation

22.19.2.1 TRADEMGEN::DemandParserHelper::DemandParser::DemandParser (SEVMGR::SEVMGR_ServicePtr_T *ioSEVMGR_ServicePtr,* stdair::RandomGeneration & *ioSharedGenerator,* const **POSProbabilityMass_T** & *iPOSProbMass,* **DemandStruct** & *ioDemand*)

Definition at line 568 of file DemandParserHelper.cpp.

22.19.3 Member Data Documentation

22.19.3.1 SEVMGR::SEVMGR_ServicePtr_T TRADEMGEN::DemandParserHelper::DemandParser::_sevmgrServicePtr

Definition at line 415 of file DemandParserHelper.hpp.

22.19.3.2 stdair::RandomGeneration& TRADEMGEN::DemandParserHelper::DemandParser::_uniformGenerator

Definition at line 416 of file DemandParserHelper.hpp.

22.19.3.3 const POSProbabilityMass_T& TRADEMGEN::DemandParserHelper::DemandParser::_posProbabilityMass

Definition at line 417 of file DemandParserHelper.hpp.

22.19.3.4 DemandStruct& TRADEMGEN::DemandParserHelper::DemandParser::_demand

Definition at line 418 of file DemandParserHelper.hpp.

The documentation for this struct was generated from the following files:

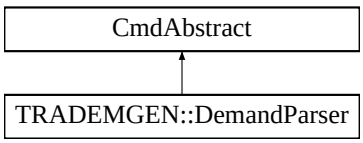
- trademgen/command/DemandParserHelper.hpp
- trademgen/command/DemandParserHelper.cpp

22.20 TRADEMGEN::DemandParser Class Reference

Class wrapping the parser entry point.

`#include <trademgen/command/DemandParser.hpp>`

Inheritance diagram for TRADEMGEN::DemandParser:



Static Public Member Functions

- static void generateDemand (const DemandFilePath &, SEVMGR::SEVMGR_ServicePtr_T, stdair::Random-Generation &, const POSProbabilityMass_T &)

22.20.1 Detailed Description

Class wrapping the parser entry point.

Definition at line 28 of file DemandParser.hpp.

22.20.2 Member Function Documentation

22.20.2.1 void TRADEMGEN::DemandParser::generateDemand (const DemandFilePath & *iDemandFilename,* SEVMGR::SEVMGR_ServicePtr_T *ioSEVMGR_ServicePtr,* stdair::RandomGeneration & *ioSharedGenerator,* const POSProbabilityMass_T & *iDefaultPOSProbablityMass*) `[static]`

Parse the CSV file describing travel demand, for instance for generating simulated booking request in a simulator.

The state of the random generator, given as parameter, evolves each time a demand request is generated.

Parameters

const	DemandFilePath& The file-name of the CSV-formatted demand input file.
SEVMGR::SEV-MGR_Service-Ptr_T	Pointer on the SEvMgr service handler to update the queue with the parsed information.
stdair::Random-Generation&	Random generator.

Definition at line 18 of file DemandParser.cpp.

References TRADEMGEN::DemandFileParser::generateDemand().

The documentation for this class was generated from the following files:

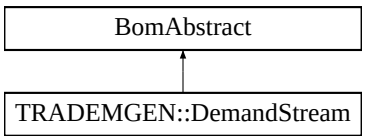
- trademgen/command/DemandParser.hpp
- trademgen/command/DemandParser.cpp

22.21 TRADEMGEN::DemandStream Class Reference

Class modeling a demand stream.

`#include <trademgen/bom/DemandStream.hpp>`

Inheritance diagram for TRADEMGEN::DemandStream:



Public Types

- typedef DemandStreamKey Key_T

Public Member Functions

- const Key_T & getKey () const
- BomAbstract *const getParent () const
- const stdair::AirportCode_T & getOrigin () const
- const stdair::AirportCode_T & getDestination () const
- const stdair::Date_T & getPreferredDepartureDate () const
- const stdair::CabinCode_T & getPreferredCabin () const
- const stdair::HolderMap_T & getHolderMap () const
- const DemandCharacteristics & getDemandCharacteristics () const
- const DemandDistribution & getDemandDistribution () const
- const stdair::NbOfRequests_T & getTotalNumberOfRequestsToBeGenerated () const
- const stdair::NbOfRequests_T & getMeanNumberOfRequests () const
- const stdair::StdDevValue_T & getStdDevNumberOfRequests () const
- const stdair::Count_T & getNumberOfRequestsGeneratedSoFar () const
- const stdair::Disutility_T & getChangeFeeDisutility () const
- const stdair::Disutility_T & getNonRefundableDisutility () const
- const POSProbabilityMass_T & getPOSProbabilityMass () const
- void setNumberOfRequestsGeneratedSoFar (const stdair::Count_T &iCount)
- void setDemandDistribution (const DemandDistribution &iDemandDistribution)
- void setDemandCharacteristics (const ArrivalPatternCumulativeDistribution_T &iArrivalPattern, const POSProbabilityMassFunction_T &iPOSProbMass, const ChannelProbabilityMassFunction_T &iChannelProbMass, const TripTypeProbabilityMassFunction_T &iTripTypeProbMass, const StayDurationProbabilityMassFunction_T &iStayDurationProbMass, const FrequentFlyerProbabilityMassFunction_T &iFrequentFlyerProbMass, const stdair::ChangeFeesRatio_T &iChangeFeeProb, const stdair::Disutility_T &iChangeFeeDisutility, const stdair::NonRefundableRatio_T &iNonRefundableProb, const stdair::Disutility_T &iNonRefundableDisutility, const PreferredDepartureTimeContinuousDistribution_T &iPreferredDepartureTimeContinuousDistribution, const stdair::WTP_T &iMinWTP, const ValueOfTimeContinuousDistribution_T &iValueOfTimeContinuousDistribution)
- void setTotalNumberOfRequestsToBeGenerated (const stdair::NbOfRequests_T &iNbOfRequests)
- void setRequestDateTimeRandomGeneratorSeed (const stdair::RandomSeed_T &iSeed)
- void setDemandCharacteristicsRandomGeneratorSeed (const stdair::RandomSeed_T &iSeed)
- void setPOSProbabilityMass (const POSProbabilityMass_T &iProbMass)
- void setAll (const ArrivalPatternCumulativeDistribution_T &, const POSProbabilityMassFunction_T &, const ChannelProbabilityMassFunction_T &, const TripTypeProbabilityMassFunction_T &, const StayDurationProbabilityMassFunction_T &, const FrequentFlyerProbabilityMassFunction_T &, const stdair::ChangeFeesRatio_T &, const stdair::Disutility_T &, const stdair::NonRefundableRatio_T &, const stdair::Disutility_T &, const PreferredDepartureTimeContinuousDistribution_T &, const stdair::WTP_T &, const ValueOfTimeContinuousDistribution_T &, const DemandDistribution &, stdair::BaseGenerator_T &ioSharedGenerator, const stdair::RandomSeed_T &iRequestDateTimeSeed, const stdair::RandomSeed_T &iDemandCharacteristicsSeed, const POSProbabilityMass_T &)
- void setBoolFirstDateTimeRequest (const bool &iFirstDateTimeRequest)

- void incrementGeneratedRequestsCounter ()
- const bool stillHavingRequestsToBeGenerated (const stdair::DemandGenerationMethod &iDemandGenerationMethod) const
- const stdair::DateTime_T generateTimeOfRequestPoissonProcess ()
- const stdair::DateTime_T generateTimeOfRequestStatisticsOrder ()
- const stdair::AirportCode_T generatePOS ()
- const stdair::ChannelLabel_T generateChannel ()
- const stdair::TripType_T generateTripType ()
- const stdair::DayDuration_T generateStayDuration ()
- const stdair::FrequentFlyer_T generateFrequentFlyer ()
- const stdair::ChangeFees_T generateChangeFees ()
- const stdair::NonRefundable_T generateNonRefundable ()
- const stdair::Duration_T generatePreferredDepartureTime ()
- const stdair::WTP_T generateWTP (stdair::RandomGeneration &, const stdair::Date_T &, const stdair::DateTime_T &, const stdair::DayDuration_T &)
- const stdair::PriceValue_T generateValueOfTime ()
- stdair::BookingRequestPtr_T generateNextRequest (stdair::RandomGeneration &, const stdair::DemandGenerationMethod &)
- void reset (stdair::BaseGenerator_T &ioSharedGenerator)
- void toStream (std::ostream &ioOut) const
- void fromStream (std::istream &ioIn)
- std::string toString () const
- const std::string describeKey () const
- std::string display () const
- const stdair::Duration_T convertFloatIntoDuration (const stdair::FloatDuration_T)

Protected Member Functions

- DemandStream (const Key_T &)
- virtual ~DemandStream ()

Protected Attributes

- Key_T _key
- BomAbstract * _parent
- stdair::HolderMap_T _holderMap
- DemandCharacteristics _demandCharacteristics
- DemandDistribution _demandDistribution
- stdair::NbOfRequests_T _totalNumberOfRequestsToBeGenerated
- RandomGenerationContext _randomGenerationContext
- stdair::RandomGeneration _requestDateTimeRandomGenerator
- stdair::RandomGeneration _demandCharacteristicsRandomGenerator
- POSProbabilityMass_T _posProMass

Friends

- class stdair::FacBom
- class stdair::FacBomManager

22.21.1 Detailed Description

Class modeling a demand stream.

Definition at line 30 of file DemandStream.hpp.

22.21.2 Member Typedef Documentation

22.21.2.1 typedef DemandStreamKey TRADEMGEN::DemandStream::Key_T

Definition allowing to retrieve the associated BOM key type.

Definition at line 39 of file DemandStream.hpp.

22.21.3 Constructor & Destructor Documentation

22.21.3.1 TRADEMGEN::DemandStream::DemandStream (const Key_T & *iKey*) [protected]

Main constructor.

Definition at line 64 of file DemandStream.cpp.

22.21.3.2 TRADEMGEN::DemandStream::~DemandStream ( ) [protected], [virtual]

Destructor.

Definition at line 69 of file DemandStream.cpp.

22.21.4 Member Function Documentation

22.21.4.1 const Key_T& TRADEMGEN::DemandStream::getKey ( ) const [inline]

Get the key

Definition at line 45 of file DemandStream.hpp.

References _key.

22.21.4.2 BomAbstract* const TRADEMGEN::DemandStream::getParent ( ) const [inline]

Get the parent object (EventQueue).

Definition at line 50 of file DemandStream.hpp.

References _parent.

22.21.4.3 const stdair::AirportCode_T& TRADEMGEN::DemandStream::getOrigin ( ) const [inline]

Get the origin (part of the primary key).

Definition at line 55 of file DemandStream.hpp.

References _key, and TRADEMGEN::DemandStreamKey::getOrigin().

22.21.4.4 const stdair::AirportCode_T& TRADEMGEN::DemandStream::getDestination ( ) const [inline]

Get the destination (part of the primary key).

Definition at line 60 of file DemandStream.hpp.

References _key, and TRADEMGEN::DemandStreamKey::getDestination().

22.21.4.5 const stdair::Date_T& TRADEMGEN::DemandStream::getPreferredDepartureDate ( ) const [inline]

Get the preferred departure date (part of the primary key).

Definition at line 65 of file DemandStream.hpp.

References _key, and TRADEMGEN::DemandStreamKey::getPreferredDepartureDate().

22.21.4.6 const stdair::CabinCode_T& TRADEMGEN::DemandStream::getPreferredCabin ( ) const [inline]

Get the preferred cabin (part of the primary key).

Definition at line 70 of file DemandStream.hpp.

References _key, and TRADEMGEN::DemandStreamKey::getPreferredCabin().

22.21.4.7 const stdair::HolderMap_T& TRADEMGEN::DemandStream::getHolderMap ( ) const [inline]

Get the map of children holders.

Definition at line 75 of file DemandStream.hpp.

References _holderMap.

22.21.4.8 const DemandCharacteristics& TRADEMGEN::DemandStream::getDemandCharacteristics ( ) const [inline]

Get the demand characteristics.

Definition at line 80 of file DemandStream.hpp.

References _demandCharacteristics.

22.21.4.9 const DemandDistribution& TRADEMGEN::DemandStream::getDemandDistribution ( ) const [inline]

Get the demand distribution.

Definition at line 85 of file DemandStream.hpp.

References _demandDistribution.

22.21.4.10 const stdair::NbOfRequests_T& TRADEMGEN::DemandStream::getTotalNumberOfRequestsToBeGenerated ( ) const [inline]

Get the total number of requests to be generated.

Definition at line 90 of file DemandStream.hpp.

References _totalNumberOfRequestsToBeGenerated.

22.21.4.11 const stdair::NbOfRequests_T& TRADEMGEN::DemandStream::getMeanNumberOfRequests ( ) const [inline]

Get the mean (expected) number of requests.

Definition at line 95 of file DemandStream.hpp.

References _demandDistribution, and TRADEMGEN::DemandDistribution::_meanNumberOfRequests.

22.21.4.12 const stdair::StdDevValue_T& TRADEMGEN::DemandStream::getStdDevNumberOfRequests ( ) const [inline]

Get the standard deviation of number of requests.

Definition at line 100 of file DemandStream.hpp.

References _demandDistribution, and TRADEMGEN::DemandDistribution::_stdDevNumberOfRequests.

22.21.4.13 const stdair::Count_T& TRADEMGEN::DemandStream::getNumberOfRequestsGeneratedSoFar ( ) const [inline]

Get the number of requests generated so far.

Definition at line 105 of file DemandStream.hpp.

References _randomGenerationContext, and TRADEMGEN::RandomGenerationContext::getNumberOfRequests-GeneratedSoFar().

22.21.4.14 const stdair::Disutility_T& TRADEMGEN::DemandStream::getChangeFeeDisutility ( ) const [inline]

Get the change fee disutility.

Definition at line 110 of file DemandStream.hpp.

References TRADEMGEN::DemandCharacteristics::_changeFeeDisutility, and _demandCharacteristics.

22.21.4.15 const stdair::Disutility_T& TRADEMGEN::DemandStream::getNonRefundableDisutility ( ) const [inline]

Get the non refundable disutility.

Definition at line 115 of file DemandStream.hpp.

References _demandCharacteristics, and TRADEMGEN::DemandCharacteristics::_nonRefundableDisutility.

22.21.4.16 const POSProbabilityMass_T& TRADEMGEN::DemandStream::getPOSProbabilityMass ( ) const [inline]

Get the default POS probablity mass, used when "row" (rest of the world) is drawn.

Definition at line 123 of file DemandStream.hpp.

References _posProMass.

22.21.4.17 void TRADEMGEN::DemandStream::setNumberOfRequestsGeneratedSoFar (const stdair::Count_T & *iCount*) [inline]

Set the number of requests generated so far.

Definition at line 131 of file DemandStream.hpp.

References _randomGenerationContext, and TRADEMGEN::RandomGenerationContext::setNumberOfRequestsGeneratedSoFar().

22.21.4.18 void TRADEMGEN::DemandStream::setDemandDistribution (const DemandDistribution & *iDemandDistribution*) [inline]

Set the demand distribution.

Definition at line 136 of file DemandStream.hpp.

References _demandDistribution.

Referenced by setAll().

22.21.4.19 void TRADEMGEN::DemandStream::setDemandCharacteristics (const ArrivalPatternCumulativeDistribution_T & *iArrivalPattern,* const POSProbabilityMassFunction_T & *iPOSProbMass,* const ChannelProbabilityMassFunction_T & *iChannelProbMass,* const TripTypeProbabilityMassFunction_T & *iTripTypeProbMass,* const StayDurationProbabilityMassFunction_T & *iStayDurationProbMass,* const FrequentFlyerProbabilityMassFunction_T & *iFrequentFlyerProbMass,* const stdair::ChangeFeesRatio_T & *iChangeFeeProb,* const stdair::Disutility_T & *iChangeFeeDisutility,* const stdair::NonRefundableRatio_T & *iNonRefundableProb,* const stdair::Disutility_T & *iNonRefundableDisutility,* const PreferredDepartureTimeContinuousDistribution_T & *iPreferredDepartureTimeContinuousDistribution,* const stdair::WTP_T & *iMinWTP,* const ValueOfTimeContinuousDistribution_T & *iValueOfTimeContinuousDistribution*) [inline]

Set the demand characteristics.

Definition at line 142 of file DemandStream.hpp.

References _demandCharacteristics.

Referenced by setAll().

22.21.4.20 void TRADEMGEN::DemandStream::setTotalNumberOfRequestsToBeGenerated (const stdair::NbOfRequests_T & *iNbOfRequests*) [inline]

Set the total number of requests to be generated.

Definition at line 166 of file DemandStream.hpp.

References _totalNumberOfRequestsToBeGenerated.

Referenced by setAll().

22.21.4.21 void TRADEMGEN::DemandStream::setRequestDateTimeRandomGeneratorSeed (const stdair::RandomSeed_T & *iSeed*) [inline]

Set the seed of the random generator for the request datetime.

Definition at line 171 of file DemandStream.hpp.

References _requestDateTimeRandomGenerator.

Referenced by setAll().

22.21.4.22 void TRADEMGEN::DemandStream::setDemandCharacteristicsRandomGeneratorSeed (const stdair::RandomSeed_T & *iSeed*) [inline]

Set the seed of the random generator for the demand characteristics.

Definition at line 176 of file DemandStream.hpp.

References _demandCharacteristicsRandomGenerator.

Referenced by setAll().

22.21.4.23 void TRADEMGEN::DemandStream::setPOSProbabilityMass (const POSProbabilityMass_T & *iProbMass*) [inline]

Set the default POS probablity mass, used when "row" (rest of the world) is drawn.

Definition at line 184 of file DemandStream.hpp.

References _posProMass.

Referenced by setAll().

22.21.4.24 void TRADEMGEN::DemandStream::setAll (const ArrivalPatternCumulativeDistribution_T & *iArrivalPattern,* const POSProbabilityMassFunction_T & *iPOSProbMass,* const ChannelProbabilityMassFunction_T & *iChannelProbMass,* const TripTypeProbabilityMassFunction_T & *iTripTypeProbMass,* const StayDurationProbabilityMassFunction_T & *iStayDurationProbMass,* const FrequentFlyerProbabilityMassFunction_T & *iFrequentFlyerProbMass,* const stdair::ChangeFeesRatio_T & *iChangeFeeProb,* const stdair::Disutility_T & *iChangeFeeDisutility,* const stdair::NonRefundableRatio_T & *iNonRefundableProb,* const stdair::Disutility_T & *iNonRefundableDisutility,* const PreferredDepartureTimeContinuousDistribution_T & *iPreferredDepartureTimeContinuousDistribution,* const stdair::WTP_T & *iMinWTP,* const ValueOfTimeContinuousDistribution_T & *iValueOfTimeContinuousDistribution,* const DemandDistribution & *iDemandDistribution,* stdair::BaseGenerator_T & *ioSharedGenerator,* const stdair::RandomSeed_T & *iRequestDateTimeSeed,* const stdair::RandomSeed_T & *iDemandCharacteristicsSeed,* const POSProbabilityMass_T & *iDefaultPOSProbablityMass*)

Initialisation.

Definition at line 81 of file DemandStream.cpp.

References setDemandCharacteristics(), setDemandCharacteristicsRandomGeneratorSeed(), setDemandDistribution(), setPOSProbabilityMass(), setRequestDateTimeRandomGeneratorSeed(), and setTotalNumberOfRequestsToBeGenerated().

22.21.4.25 void TRADEMGEN::DemandStream::setBoolFirstDateTimeRequest (const bool & *iFirstDateTimeRequest*) [inline]

Set the boolean describing if it is the first time we generate a request for a demand stream.

Definition at line 214 of file DemandStream.hpp.

22.21.4.26 void TRADEMGEN::DemandStream::incrementGeneratedRequestsCounter ( ) [inline]

Increment counter of requests generated so far

Definition at line 222 of file DemandStream.hpp.

References _randomGenerationContext, and TRADEMGEN::RandomGenerationContext::incrementGeneratedRequestsCounter().

Referenced by generateTimeOfRequestPoissonProcess(), and generateTimeOfRequestStatisticsOrder().

22.21.4.27 const bool TRADEMGEN::DemandStream::stillHavingRequestsToBeGenerated (const stdair::DemandGenerationMethod & *iDemandGenerationMethod*) const

Check whether enough requests have already been generated.

Definition at line 172 of file DemandStream.cpp.

References _randomGenerationContext, _totalNumberOfRequestsToBeGenerated, and TRADEMGEN::RandomGenerationContext::getNumberOfRequestsGeneratedSoFar().

22.21.4.28 const stdair::DateTime_T TRADEMGEN::DemandStream::generateTimeOfRequestPoissonProcess ( )

Generate the time of the next request with poisson process.

Definition at line 197 of file DemandStream.cpp.

References TRADEMGEN::DemandCharacteristics::_arrivalPattern, _demandCharacteristics, _demandDistribution, _key, TRADEMGEN::DemandDistribution::_meanNumberOfRequests, _requestDateTimeRandomGenerator, convertFloatIntoDuration(), TRADEMGEN::DEFAULT_LAST_LOWER_BOUND_ARRIVAL_PATTERN, TRADEMGEN::ContinuousAttributeLite< T >::getDerivativeValue(), TRADEMGEN::DemandStreamKey::getPreferredDepartureDate(), TRADEMGEN::ContinuousAttributeLite< T >::getUpperBound(), TRADEMGEN::ContinuousAttributeLite< T >::getValue(), and incrementGeneratedRequestsCounter().

Referenced by generateNextRequest().

22.21.4.29 const stdair::DateTime_T TRADEMGEN::DemandStream::generateTimeOfRequestStatisticsOrder ( )

Generate the time of the next request with statistics order

Definition at line 299 of file DemandStream.cpp.

References TRADEMGEN::DemandCharacteristics::_arrivalPattern, _demandCharacteristics, _key, _randomGenerationContext, _requestDateTimeRandomGenerator, _totalNumberOfRequestsToBeGenerated, convertFloatIntoDuration(), TRADEMGEN::RandomGenerationContext::getCumulativeProbabilitySoFar(), TRADEMGEN::RandomGenerationContext::getNumberOfRequestsGeneratedSoFar(), TRADEMGEN::DemandStreamKey::getPreferredDepartureDate(), TRADEMGEN::ContinuousAttributeLite< T >::getValue(), incrementGeneratedRequestsCounter(), and TRADEMGEN::RandomGenerationContext::setCumulativeProbabilitySoFar().

Referenced by generateNextRequest().

22.21.4.30 const stdair::AirportCode_T TRADEMGEN::DemandStream::generatePOS ( )

Generate the POS.

Definition at line 430 of file DemandStream.cpp.

References _demandCharacteristics, _demandCharacteristicsRandomGenerator, and TRADEMGEN::DemandCharacteristics::getPOSValue().

Referenced by generateNextRequest().

22.21.4.31 const stdair::ChannelLabel_T TRADEMGEN::DemandStream::generateChannel ( )

Generate the reservation channel.

Definition at line 440 of file DemandStream.cpp.

References TRADEMGEN::DemandCharacteristics::_channelProbabilityMass, _demandCharacteristics, _demandCharacteristicsRandomGenerator, and TRADEMGEN::CategoricalAttributeLite< T >::getValue().

Referenced by generateNextRequest().

22.21.4.32 const stdair::TripType_T TRADEMGEN::DemandStream::generateTripType ( )

Generate the trip type.

Definition at line 449 of file DemandStream.cpp.

References _demandCharacteristics, _demandCharacteristicsRandomGenerator, TRADEMGEN::DemandCharacteristics::_tripTypeProbabilityMass, and TRADEMGEN::CategoricalAttributeLite< T >::getValue().

Referenced by generateNextRequest().

22.21.4.33 const stdair::DayDuration_T TRADEMGEN::DemandStream::generateStayDuration ( )

Generate the stay duration.

Definition at line 458 of file DemandStream.cpp.

References _demandCharacteristics, _demandCharacteristicsRandomGenerator, TRADEMGEN::DemandCharacteristics::_stayDurationProbabilityMass, and TRADEMGEN::CategoricalAttributeLite< T >::getValue().

Referenced by generateNextRequest().

22.21.4.34 const stdair::FrequentFlyer_T TRADEMGEN::DemandStream::generateFrequentFlyer ( )

Generate the frequent flyer type.

Definition at line 467 of file DemandStream.cpp.

References _demandCharacteristics, _demandCharacteristicsRandomGenerator, TRADEMGEN::DemandCharacteristics::_frequentFlyerProbabilityMass, and TRADEMGEN::CategoricalAttributeLite< T >::getValue().

Referenced by generateNextRequest().

22.21.4.35 const stdair::ChangeFees_T TRADEMGEN::DemandStream::generateChangeFees ( )

Generate the change fee acceptation.

Definition at line 476 of file DemandStream.cpp.

References TRADEMGEN::DemandCharacteristics::_changeFeeProb, _demandCharacteristics, and _demandCharacteristicsRandomGenerator.

Referenced by generateNextRequest().

22.21.4.36 const stdair::NonRefundable_T TRADEMGEN::DemandStream::generateNonRefundable ( )

Generate the non refundable acceptation.

Definition at line 487 of file DemandStream.cpp.

References _demandCharacteristics, _demandCharacteristicsRandomGenerator, and TRADEMGEN::DemandCharacteristics::_nonRefundableProb.

Referenced by generateNextRequest().

22.21.4.37 const stdair::Duration_T TRADEMGEN::DemandStream::generatePreferredDepartureTime ( )

Generate the preferred departure time.

Definition at line 498 of file DemandStream.cpp.

References _demandCharacteristics, and _demandCharacteristicsRandomGenerator.

Referenced by generateNextRequest().

22.21.4.38 const stdair::WTP_T TRADEMGEN::DemandStream::generateWTP (stdair::RandomGeneration & *ioGenerator,* const stdair::Date_T & *iDepartureDate,* const stdair::DateTime_T & *iDateTimeThisRequest,* const stdair::DayDuration_T & *iDurationOfStay*)

Generate the WTP.

Definition at line 512 of file DemandStream.cpp.

References _demandCharacteristics, TRADEMGEN::DemandCharacteristics::_frat5Pattern, TRADEMGEN::DemandCharacteristics::_minWTP, and TRADEMGEN::ContinuousAttributeLite< T >::getValue().

Referenced by generateNextRequest().

22.21.4.39 const stdair::PriceValue_T TRADEMGEN::DemandStream::generateValueOfTime ( )

Generate the value of time.

Definition at line 531 of file DemandStream.cpp.

References _demandCharacteristics, _demandCharacteristicsRandomGenerator, TRADEMGEN::DemandCharacteristics::_valueOfTimeCumulativeDistribution, and TRADEMGEN::ContinuousAttributeLite< T >::getValue().

Referenced by generateNextRequest().

22.21.4.40 stdair::BookingRequestPtr_T TRADEMGEN::DemandStream::generateNextRequest (stdair::RandomGeneration & *ioGenerator,* const stdair::DemandGenerationMethod & *iDemandGenerationMethod*)

Generate the next request.

Parameters

stdair::RandomGeneration	Random generator.
const	stdair::DemandGenerationMethod::EN_DemandGenerationMethod Method used to generate the date time of the next booking request: statistic order or poisson process.

Returns

stdair::BookingRequestPtr_T Next request to be simulate.

Definition at line 541 of file DemandStream.cpp.

References TRADEMGEN::DemandCharacteristics::_changeFeeDisutility, _demandCharacteristics, _key, TRADEMGEN::DemandCharacteristics::_nonRefundableDisutility, describeKey(), generateChangeFees(), generateChannel(), generateFrequentFlyer(), generateNonRefundable(), generatePOS(), generatePreferredDepartureTime(), generateStayDuration(), generateTimeOfRequestPoissonProcess(), generateTimeOfRequestStatisticsOrder(), generateTripType(), generateValueOfTime(), generateWTP(), TRADEMGEN::DemandStreamKey::getDestination(), TRADEMGEN::DemandStreamKey::getOrigin(), TRADEMGEN::DemandStreamKey::getPreferredCabin(), and TRADEMGEN::DemandStreamKey::getPreferredDepartureDate().

22.21.4.41 void TRADEMGEN::DemandStream::reset (stdair::BaseGenerator_T & *ioSharedGenerator*)

Reset all the contexts of the demand stream.

Definition at line 623 of file DemandStream.cpp.

References _randomGenerationContext, and TRADEMGEN::RandomGenerationContext::reset().

22.21.4.42 void TRADEMGEN::DemandStream::toStream (std::ostream & *ioOut*) const [inline]

Dump a Business Object into an output stream.

Parameters

ostream&	the output stream.

Definition at line 292 of file DemandStream.hpp.

References toString().

22.21.4.43 void TRADEMGEN::DemandStream::fromStream (std::istream & *ioIn*) [inline]

Read a Business Object from an input stream.

Parameters

istream&	the input stream.

Definition at line 300 of file DemandStream.hpp.

22.21.4.44 std::string TRADEMGEN::DemandStream::toString ( ) const

Get the serialised version of the Business Object.

Definition at line 73 of file DemandStream.cpp.

References _key, and TRADEMGEN::DemandStreamKey::toString().

Referenced by toStream().

22.21.4.45 const std::string TRADEMGEN::DemandStream::describeKey ( ) const [inline]

Get a string describing the key.

Definition at line 311 of file DemandStream.hpp.

References _key, and TRADEMGEN::DemandStreamKey::toString().

Referenced by TRADEMGEN::TRADEMGEN_Service::displayDemandStream(), and generateNextRequest().

22.21.4.46 std::string TRADEMGEN::DemandStream::display ( ) const

Dump recursively the content of the DemandStream object.

Definition at line 119 of file DemandStream.cpp.

References _demandCharacteristics, _demandCharacteristicsRandomGenerator, _demandDistribution, _key, _posProMass, _randomGenerationContext, _requestDateTimeRandomGenerator, _totalNumberOfRequestsToBeGenerated, TRADEMGEN::DemandCharacteristics::describe(), TRADEMGEN::DemandDistribution::describe(), TRADEMGEN::CategoricalAttributeLite< T >::displayProbabilityMass(), and TRADEMGEN::DemandStreamKey::toString().

Referenced by TRADEMGEN::BomDisplay::csvDisplay().

22.21.4.47 const stdair::Duration_T TRADEMGEN::DemandStream::convertFloatIntoDuration (const stdair::FloatDuration_T *iNumberOfDays*)

Definition at line 401 of file DemandStream.cpp.

Referenced by generateTimeOfRequestPoissonProcess(), and generateTimeOfRequestStatisticsOrder().

22.21.5 Friends And Related Function Documentation

22.21.5.1 friend class stdair::FacBom [friend]

Definition at line 31 of file DemandStream.hpp.

22.21.5.2 friend class stdair::FacBomManager [friend]

Definition at line 32 of file DemandStream.hpp.

22.21.6 Member Data Documentation

22.21.6.1 Key_T TRADEMGEN::DemandStream::_key [protected]

Primary key (string gathering the origin, destination, POS and date).

Definition at line 346 of file DemandStream.hpp.

Referenced by describeKey(), display(), generateNextRequest(), generateTimeOfRequestPoissonProcess(), generateTimeOfRequestStatisticsOrder(), getDestination(), getKey(), getOrigin(), getPreferredCabin(), getPreferredDepartureDate(), and toString().

22.21.6.2 BomAbstract* TRADEMGEN::DemandStream::_parent [protected]

Pointer on the parent class (EventQueue).

Definition at line 351 of file DemandStream.hpp.

Referenced by getParent().

22.21.6.3 stdair::HolderMap_T TRADEMGEN::DemandStream::_holderMap [protected]

Map holding the children (not used for now).

Definition at line 356 of file DemandStream.hpp.

Referenced by getHolderMap().

22.21.6.4 DemandCharacteristics TRADEMGEN::DemandStream::_demandCharacteristics [protected]

Demand characteristics.

Definition at line 361 of file DemandStream.hpp.

Referenced by display(), generateChangeFees(), generateChannel(), generateFrequentFlyer(), generateNextRequest(), generateNonRefundable(), generatePOS(), generatePreferredDepartureTime(), generateStayDuration(), generateTimeOfRequestPoissonProcess(), generateTimeOfRequestStatisticsOrder(), generateTripType(), generateValueOfTime(), generateWTP(), getChangeFeeDisutility(), getDemandCharacteristics(), getNonRefundableDisutility(), and setDemandCharacteristics().

22.21.6.5 DemandDistribution TRADEMGEN::DemandStream::_demandDistribution [protected]

Demand distribution.

Definition at line 366 of file DemandStream.hpp.

Referenced by display(), generateTimeOfRequestPoissonProcess(), getDemandDistribution(), getMeanNumberOfRequests(), getStdDevNumberOfRequests(), and setDemandDistribution().

22.21.6.6 stdair::NbOfRequests_T TRADEMGEN::DemandStream::_totalNumberOfRequestsToBeGenerated [protected]

Total number of requests to be generated.

Definition at line 371 of file DemandStream.hpp.

Referenced by display(), generateTimeOfRequestStatisticsOrder(), getTotalNumberOfRequestsToBeGenerated(), setTotalNumberOfRequestsToBeGenerated(), and stillHavingRequestsToBeGenerated().

22.21.6.7 RandomGenerationContext TRADEMGEN::DemandStream::_randomGenerationContext [protected]

Random generation context.

Definition at line 376 of file DemandStream.hpp.

Referenced by display(), generateTimeOfRequestStatisticsOrder(), getNumberOfRequestsGeneratedSoFar(), incrementGeneratedRequestsCounter(), reset(), setNumberOfRequestsGeneratedSoFar(), and stillHaving-RequestsToBeGenerated().

22.21.6.8 stdair::RandomGeneration TRADEMGEN::DemandStream::_requestDateTimeRandomGenerator [protected]

Random generator for request date-time.

Definition at line 381 of file DemandStream.hpp.

Referenced by display(), generateTimeOfRequestPoissonProcess(), generateTimeOfRequestStatisticsOrder(), and setRequestDateTimeRandomGeneratorSeed().

22.21.6.9 stdair::RandomGeneration TRADEMGEN::DemandStream::_demandCharacteristicsRandomGenerator [protected]

Random generator for demand characteristics.

Definition at line 386 of file DemandStream.hpp.

Referenced by display(), generateChangeFees(), generateChannel(), generateFrequentFlyer(), generateNon-Refundable(), generatePOS(), generatePreferredDepartureTime(), generateStayDuration(), generateTripType(), generateValueOfTime(), and setDemandCharacteristicsRandomGeneratorSeed().

22.21.6.10 POSProbabilityMass_T TRADEMGEN::DemandStream::_posProMass [protected]

Defaut POS probablity mass, used when "row" (rest of the world) is drawn.

Definition at line 392 of file DemandStream.hpp.

Referenced by display(), getPOSProbabilityMass(), and setPOSProbabilityMass().

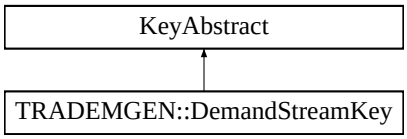
The documentation for this class was generated from the following files:

- trademgen/bom/DemandStream.hpp
- trademgen/bom/DemandStream.cpp

22.22 TRADEMGEN::DemandStreamKey Struct Reference

`#include <trademgen/bom/DemandStreamKey.hpp>`

Inheritance diagram for TRADEMGEN::DemandStreamKey:



Public Member Functions

- DemandStreamKey (const stdair::AirportCode_T &iOrigin, const stdair::AirportCode_T &iDestination, const stdair::Date_T &iPreferredDepartureDate, const stdair::CabinCode_T &iPreferredCabin)
- DemandStreamKey (const DemandStreamKey &)
- ~DemandStreamKey ()
- const stdair::AirportCode_T & getOrigin () const

- const stdair::AirportCode_T & getDestination () const
- const stdair::Date_T & getPreferredDepartureDate () const
- const stdair::CabinCode_T & getPreferredCabin () const
- void toStream (std::ostream &ioOut) const
- void fromStream (std::istream &ioIn)
- const std::string toString () const

22.22.1 Detailed Description

Key of a given demand-stream, made of a pair of required airports/cities (origin and destination), a preferred departure date and a preferred cabin. Those attributes correspond to a the travel requirements of a simulated traveller.

Definition at line 20 of file DemandStreamKey.hpp.

22.22.2 Constructor & Destructor Documentation

22.22.2.1 TRADEMGEN::DemandStreamKey::DemandStreamKey (const stdair::AirportCode_T & *iOrigin,* const stdair::AirportCode_T & *iDestination,* const stdair::Date_T & *iPreferredDepartureDate,* const stdair::CabinCode_T & *iPreferredCabin*)

Constructor.

Definition at line 25 of file DemandStreamKey.cpp.

22.22.2.2 TRADEMGEN::DemandStreamKey::DemandStreamKey (const DemandStreamKey & *iKey*)

Default copy constructor.

Definition at line 35 of file DemandStreamKey.cpp.

22.22.2.3 TRADEMGEN::DemandStreamKey::~DemandStreamKey ( )

Destructor.

Definition at line 42 of file DemandStreamKey.cpp.

22.22.3 Member Function Documentation

22.22.3.1 const stdair::AirportCode_T& TRADEMGEN::DemandStreamKey::getOrigin ( ) const [inline]

Get the origin.

Definition at line 43 of file DemandStreamKey.hpp.

Referenced by TRADEMGEN::DemandStream::generateNextRequest(), and TRADEMGEN::DemandStream::getOrigin().

22.22.3.2 const stdair::AirportCode_T& TRADEMGEN::DemandStreamKey::getDestination ( ) const [inline]

Get the destination.

Definition at line 48 of file DemandStreamKey.hpp.

Referenced by TRADEMGEN::DemandStream::generateNextRequest(), and TRADEMGEN::DemandStream::getDestination().

22.22.3.3 const stdair::Date_T& TRADEMGEN::DemandStreamKey::getPreferredDepartureDate ( ) const [inline]

Get the preferred departure date.

Definition at line 53 of file DemandStreamKey.hpp.

Referenced by TRADEMGEN::DemandStream::generateNextRequest(), TRADEMGEN::DemandStream::generateTimeOfRequestPoissonProcess(), TRADEMGEN::DemandStream::generateTimeOfRequestStatisticsOrder(), and TRADEMGEN::DemandStream::getPreferredDepartureDate().

22.22.3.4 const stdair::CabinCode_T& TRADEMGEN::DemandStreamKey::getPreferredCabin ( ) const [inline]

Get the preferred cabin.

Definition at line 58 of file DemandStreamKey.hpp.

Referenced by TRADEMGEN::DemandStream::generateNextRequest(), and TRADEMGEN::DemandStream::getPreferredCabin().

22.22.3.5 void TRADEMGEN::DemandStreamKey::toStream (std::ostream & *ioOut*) const

Dump a Business Object Key into an output stream.

Parameters

ostream&	the output stream.

Definition at line 46 of file DemandStreamKey.cpp.

References toString().

22.22.3.6 void TRADEMGEN::DemandStreamKey::fromStream (std::istream & *ioIn*)

Read a Business Object Key from an input stream.

Parameters

istream&	the input stream.

Definition at line 51 of file DemandStreamKey.cpp.

22.22.3.7 const std::string TRADEMGEN::DemandStreamKey::toString ( ) const

Get the serialised version of the Business Object Key.

That string is unique, at the level of a given Business Object, when among children of a given parent Business Object.

For instance, "H" and "K" allow to differentiate among two marketing classes for the same segment-stream.

Definition at line 55 of file DemandStreamKey.cpp.

Referenced by TRADEMGEN::DemandStream::describeKey(), TRADEMGEN::DemandStream::display(), toStream(), and TRADEMGEN::DemandStream::toString().

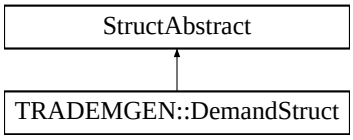
The documentation for this struct was generated from the following files:

- trademgen/bom/DemandStreamKey.hpp
- trademgen/bom/DemandStreamKey.cpp

22.23 TRADEMGEN::DemandStruct Struct Reference

`#include <trademgen/bom/DemandStruct.hpp>`

Inheritance diagram for TRADEMGEN::DemandStruct:



Public Member Functions

- stdair::Date_T getDate () const
- stdair::Duration_T getTime () const
- const std::string describe () const
- DemandStruct ()
- ~DemandStruct ()

Public Attributes

- stdair::DatePeriod_T _dateRange
- stdair::DoWStruct _dow
- stdair::AirportCode_T _origin
- stdair::AirportCode_T _destination
- stdair::CabinCode_T _prefCabin
- stdair::MeanValue_T _demandMean
- stdair::StdDevValue_T _demandStdDev
- stdair::ChangeFeesRatio_T _changeFeeProb
- stdair::Disutility_T _changeFeeDisutility
- stdair::NonRefundableRatio_T _nonRefundableProb
- stdair::Disutility_T _nonRefundableDisutility
- POSProbabilityMassFunction_T _posProbDist
- ChannelProbabilityMassFunction_T _channelProbDist
- TripTypeProbabilityMassFunction_T _tripProbDist
- StayDurationProbabilityMassFunction_T _stayProbDist
- FrequentFlyerProbabilityMassFunction_T _ffProbDist
- PreferredDepartureTimeContinuousDistribution_T _prefDepTimeProbDist
- stdair::WTP_T _minWTP
- ValueOfTimeContinuousDistribution_T _timeValueProbDist
- ArrivalPatternCumulativeDistribution_T _dtdProbDist
- stdair::Date_T _prefDepDateStart
- stdair::Date_T _prefDepDateEnd
- unsigned int _itYear
- unsigned int _itMonth
- unsigned int _itDay
- long _itHours
- long _itMinutes
- long _itSeconds
- stdair::AirportCode_T _itPosCode
- stdair::ChannelLabel_T _itChannelCode
- stdair::TripType_T _itTripCode
- stdair::DayDuration_T _itStayDuration
- stdair::FrequentFlyer_T _itFFCode
- stdair::Duration_T _itPrefDepTime
- stdair::PriceValue_T _itTimeValue
- stdair::DayDuration_T _itDTD

22.23.1 Detailed Description

Utility Structure for the parsing of Demand structures.

Definition at line 21 of file DemandStruct.hpp.

22.23.2 Constructor & Destructor Documentation

22.23.2.1 TRADEMGEN::DemandStruct::DemandStruct ( )

Default constructor.

Definition at line 18 of file DemandStruct.cpp.

22.23.2.2 TRADEMGEN::DemandStruct::∼DemandStruct ( )

Destructor

Definition at line 26 of file DemandStruct.cpp.

22.23.3 Member Function Documentation

22.23.3.1 stdair::Date_T TRADEMGEN::DemandStruct::getDate ( ) const

Get the date from the staging details.

Definition at line 30 of file DemandStruct.cpp.

References _itDay, _itMonth, and _itYear.

Referenced by TRADEMGEN::DemandParserHelper::storePrefDepDateRangeStart::operator()(), and TRADEMGEN::DemandParserHelper::storePrefDepDateRangeEnd::operator()().

22.23.3.2 stdair::Duration_T TRADEMGEN::DemandStruct::getTime ( ) const

Get the time from the staging details.

Definition at line 35 of file DemandStruct.cpp.

References _itHours, _itMinutes, and _itSeconds.

Referenced by TRADEMGEN::DemandParserHelper::storePrefDepTime::operator()().

22.23.3.3 const std::string TRADEMGEN::DemandStruct::describe ( ) const

Give a description of the structure (for display purposes).

Definition at line 42 of file DemandStruct.cpp.

References _changeFeeProb, _channelProbDist, _dateRange, _demandMean, _demandStdDev, _destination, _dow, _dtdProbDist, _ffProbDist, _minWTP, _nonRefundableProb, _origin, _posProbDist, _prefCabin, _prefDepTimeProbDist, _stayProbDist, _timeValueProbDist, and _tripProbDist.

22.23.4 Member Data Documentation

22.23.4.1 stdair::DatePeriod_T TRADEMGEN::DemandStruct::_dateRange

Definition at line 51 of file DemandStruct.hpp.

Referenced by describe(), and TRADEMGEN::DemandParserHelper::storePrefDepDateRangeEnd::operator()().

22.23.4.2 stdair::DoWStruct TRADEMGEN::DemandStruct::_dow

Definition at line 52 of file DemandStruct.hpp.

Referenced by describe(), and TRADEMGEN::DemandParserHelper::storeDow::operator()().

22.23.4.3 stdair::AirportCode_T TRADEMGEN::DemandStruct::_origin

Definition at line 53 of file DemandStruct.hpp.

Referenced by describe(), and TRADEMGEN::DemandParserHelper::storeOrigin::operator()().

22.23.4.4 stdair::AirportCode_T TRADEMGEN::DemandStruct::_destination

Definition at line 54 of file DemandStruct.hpp.

Referenced by describe(), and TRADEMGEN::DemandParserHelper::storeDestination::operator()().

22.23.4.5 stdair::CabinCode_T TRADEMGEN::DemandStruct::_prefCabin

Definition at line 55 of file DemandStruct.hpp.

Referenced by describe(), and TRADEMGEN::DemandParserHelper::storePrefCabin::operator()().

22.23.4.6 stdair::MeanValue_T TRADEMGEN::DemandStruct::_demandMean

Definition at line 56 of file DemandStruct.hpp.

Referenced by describe(), and TRADEMGEN::DemandParserHelper::storeDemandMean::operator()().

22.23.4.7 stdair::StdDevValue_T TRADEMGEN::DemandStruct::_demandStdDev

Definition at line 57 of file DemandStruct.hpp.

Referenced by describe(), and TRADEMGEN::DemandParserHelper::storeDemandStdDev::operator()().

22.23.4.8 stdair::ChangeFeesRatio_T TRADEMGEN::DemandStruct::_changeFeeProb

Definition at line 58 of file DemandStruct.hpp.

Referenced by describe(), and TRADEMGEN::DemandParserHelper::storeDemandChangeFeeProb::operator()().

22.23.4.9 stdair::Disutility_T TRADEMGEN::DemandStruct::_changeFeeDisutility

Definition at line 59 of file DemandStruct.hpp.

Referenced by TRADEMGEN::DemandParserHelper::storeDemandChangeFeeDisutility::operator()().

22.23.4.10 stdair::NonRefundableRatio_T TRADEMGEN::DemandStruct::_nonRefundableProb

Definition at line 60 of file DemandStruct.hpp.

Referenced by describe(), and TRADEMGEN::DemandParserHelper::storeDemandNonRefundableProb-::operator()().

22.23.4.11 stdair::Disutility_T TRADEMGEN::DemandStruct::_nonRefundableDisutility

Definition at line 61 of file DemandStruct.hpp.

Referenced by TRADEMGEN::DemandParserHelper::storeDemandNonRefundableDisutility::operator()().

22.23.4.12 POSProbabilityMassFunction_T TRADEMGEN::DemandStruct::_posProbDist

Definition at line 62 of file DemandStruct.hpp.

Referenced by describe(), TRADEMGEN::DemandParserHelper::storePosProbMass::operator()(), and TRADEMG-EN::DemandParserHelper::doEndDemand::operator()().

22.23.4.13 ChannelProbabilityMassFunction_T TRADEMGEN::DemandStruct::_channelProbDist

Definition at line 63 of file DemandStruct.hpp.

Referenced by describe(), TRADEMGEN::DemandParserHelper::storeChannelProbMass::operator()(), and TRADEMGEN::DemandParserHelper::doEndDemand::operator()().

22.23.4.14 TripTypeProbabilityMassFunction_T TRADEMGEN::DemandStruct::_tripProbDist

Definition at line 64 of file DemandStruct.hpp.

Referenced by describe(), TRADEMGEN::DemandParserHelper::storeTripProbMass::operator()(), and TRADEMGEN::DemandParserHelper::doEndDemand::operator()().

22.23.4.15 StayDurationProbabilityMassFunction_T TRADEMGEN::DemandStruct::_stayProbDist

Definition at line 65 of file DemandStruct.hpp.

Referenced by describe(), TRADEMGEN::DemandParserHelper::storeStayProbMass::operator()(), and TRADEMGEN::DemandParserHelper::doEndDemand::operator()().

22.23.4.16 FrequentFlyerProbabilityMassFunction_T TRADEMGEN::DemandStruct::_ffProbDist

Definition at line 66 of file DemandStruct.hpp.

Referenced by describe(), TRADEMGEN::DemandParserHelper::storeFFProbMass::operator()(), and TRADEMGEN::DemandParserHelper::doEndDemand::operator()().

22.23.4.17 PreferredDepartureTimeContinuousDistribution_T TRADEMGEN::DemandStruct::_prefDepTimeProbDist

Definition at line 67 of file DemandStruct.hpp.

Referenced by describe(), TRADEMGEN::DemandParserHelper::storePrefDepTimeProbMass::operator()(), and TRADEMGEN::DemandParserHelper::doEndDemand::operator()().

22.23.4.18 stdair::WTP_T TRADEMGEN::DemandStruct::_minWTP

Definition at line 68 of file DemandStruct.hpp.

Referenced by describe(), and TRADEMGEN::DemandParserHelper::storeWTP::operator()().

22.23.4.19 ValueOfTimeContinuousDistribution_T TRADEMGEN::DemandStruct::_timeValueProbDist

Definition at line 69 of file DemandStruct.hpp.

Referenced by describe(), TRADEMGEN::DemandParserHelper::storeTimeValueProbMass::operator()(), and TRADEMGEN::DemandParserHelper::doEndDemand::operator()().

22.23.4.20 ArrivalPatternCumulativeDistribution_T TRADEMGEN::DemandStruct::_dtdProbDist

Definition at line 70 of file DemandStruct.hpp.

Referenced by describe(), TRADEMGEN::DemandParserHelper::storeDTDProbMass::operator()(), and TRADEMGEN::DemandParserHelper::doEndDemand::operator()().

22.23.4.21 stdair::Date_T TRADEMGEN::DemandStruct::_prefDepDateStart

Staging Date.

Definition at line 75 of file DemandStruct.hpp.

Referenced by TRADEMGEN::DemandParserHelper::storePrefDepDateRangeStart::operator()(), and TRADEMGEN::DemandParserHelper::storePrefDepDateRangeEnd::operator()().

22.23.4.22 stdair::Date_T TRADEMGEN::DemandStruct::_prefDepDateEnd

Definition at line 76 of file DemandStruct.hpp.

Referenced by TRADEMGEN::DemandParserHelper::storePrefDepDateRangeEnd::operator()().

22.23.4.23 unsigned int TRADEMGEN::DemandStruct::_itYear

Definition at line 77 of file DemandStruct.hpp.

Referenced by getDate().

22.23.4.24 unsigned int TRADEMGEN::DemandStruct::_itMonth

Definition at line 78 of file DemandStruct.hpp.

Referenced by getDate().

22.23.4.25 unsigned int TRADEMGEN::DemandStruct::_itDay

Definition at line 79 of file DemandStruct.hpp.

Referenced by getDate().

22.23.4.26 long TRADEMGEN::DemandStruct::_itHours

Staging Time.

Definition at line 82 of file DemandStruct.hpp.

Referenced by getTime().

22.23.4.27 long TRADEMGEN::DemandStruct::_itMinutes

Definition at line 83 of file DemandStruct.hpp.

Referenced by getTime(), and TRADEMGEN::DemandParserHelper::storePrefDepTime::operator()().

22.23.4.28 long TRADEMGEN::DemandStruct::_itSeconds

Definition at line 84 of file DemandStruct.hpp.

Referenced by getTime(), TRADEMGEN::DemandParserHelper::storePrefDepDateRangeStart::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepDateRangeEnd::operator()(), and TRADEMGEN::DemandParserHelper::storePrefDepTime::operator()().

22.23.4.29 stdair::AirportCode_T TRADEMGEN::DemandStruct::_itPosCode

Staging Point-Of-Sale (POS) code.

Definition at line 87 of file DemandStruct.hpp.

Referenced by TRADEMGEN::DemandParserHelper::storePosCode::operator()(), and TRADEMGEN::DemandParserHelper::storePosProbMass::operator()().

22.23.4.30 stdair::ChannelLabel_T TRADEMGEN::DemandStruct::_itChannelCode

Staging channel type code.

Definition at line 90 of file DemandStruct.hpp.

Referenced by TRADEMGEN::DemandParserHelper::storeChannelCode::operator()(), and TRADEMGEN::DemandParserHelper::storeChannelProbMass::operator()().

22.23.4.31 stdair::TripType_T TRADEMGEN::DemandStruct::_itTripCode

Staging trip type code.

Definition at line 93 of file DemandStruct.hpp.

Referenced by TRADEMGEN::DemandParserHelper::storeTripCode::operator()(), and TRADEMGEN::DemandParserHelper::storeTripProbMass::operator()().

22.23.4.32 stdair::DayDuration_T TRADEMGEN::DemandStruct::_itStayDuration

Staging stay duration.

Definition at line 96 of file DemandStruct.hpp.

Referenced by TRADEMGEN::DemandParserHelper::storeStayCode::operator()(), and TRADEMGEN::DemandParserHelper::storeStayProbMass::operator()().

22.23.4.33 stdair::FrequentFlyer_T TRADEMGEN::DemandStruct::_itFFCode

Staging Frequent Flyer code.

Definition at line 99 of file DemandStruct.hpp.

Referenced by TRADEMGEN::DemandParserHelper::storeFFCode::operator()(), and TRADEMGEN::DemandParserHelper::storeFFProbMass::operator()().

22.23.4.34 stdair::Duration_T TRADEMGEN::DemandStruct::_itPrefDepTime

Staging preferred departure time.

Definition at line 102 of file DemandStruct.hpp.

Referenced by TRADEMGEN::DemandParserHelper::storePrefDepTime::operator()(), and TRADEMGEN::DemandParserHelper::storePrefDepTimeProbMass::operator()().

22.23.4.35 stdair::PriceValue_T TRADEMGEN::DemandStruct::_itTimeValue

Staging time value.

Definition at line 105 of file DemandStruct.hpp.

Referenced by TRADEMGEN::DemandParserHelper::storeTimeValue::operator()(), and TRADEMGEN::DemandParserHelper::storeTimeValueProbMass::operator()().

22.23.4.36 stdair::DayDuration_T TRADEMGEN::DemandStruct::_itDTD

Staging DTD (Days-To-Departure).

Definition at line 108 of file DemandStruct.hpp.

Referenced by TRADEMGEN::DemandParserHelper::storeDTD::operator()(), and TRADEMGEN::DemandParserHelper::storeDTDProbMass::operator()().

The documentation for this struct was generated from the following files:

- trademgen/bom/DemandStruct.hpp
- trademgen/bom/DemandStruct.cpp

22.24 TRADEMGEN::DictionaryManager Class Reference

Class wrapper of dictionary business methods.

`#include <trademgen/basic/DictionaryManager.hpp>`

Static Public Member Functions

- static const stdair::Probability_T keyToValue (const DictionaryKey_T)
- static const DictionaryKey_T valueToKey (const stdair::Probability_T)

22.24.1 Detailed Description

Class wrapper of dictionary business methods.

Definition at line 21 of file DictionaryManager.hpp.

22.24.2 Member Function Documentation

22.24.2.1 const stdair::Probability_T TRADEMGEN::DictionaryManager::keyToValue (const DictionaryKey_T *iKey*) [static]

Convert from key to value.

Definition at line 10 of file DictionaryManager.cpp.

Referenced by TRADEMGEN::ContinuousAttribute< T >::displayCumulativeDistribution(), TRADEMGEN::ContinuousAttributeLite< stdair::FloatDuration_T >::displayCumulativeDistribution(), TRADEMGEN::ContinuousAttribute< T >::displayInverseCumulativeDistribution(), TRADEMGEN::CategoricalAttributeLite< stdair::TripType_T >::displayProbabilityMass(), TRADEMGEN::ContinuousAttributeLite< stdair::FloatDuration_T >::getDerivativeValue(), TRADEMGEN::ContinuousAttributeLite< stdair::FloatDuration_T >::getValue(), and TRADEMGEN::ContinuousAttribute< T >::getValue().

22.24.2.2 const DictionaryKey_T TRADEMGEN::DictionaryManager::valueToKey (const stdair::Probability_T *iValue*) [static]

Convert from value to key.

Definition at line 17 of file DictionaryManager.cpp.

Referenced by TRADEMGEN::ContinuousAttributeLite< stdair::FloatDuration_T >::getValue(), TRADEMGEN::CategoricalAttributeLite< stdair::TripType_T >::getValue(), and TRADEMGEN::ContinuousAttribute< T >::getValue().

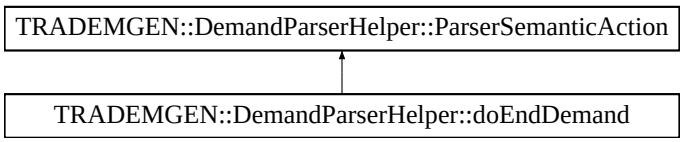
The documentation for this class was generated from the following files:

- trademgen/basic/DictionaryManager.hpp
- trademgen/basic/DictionaryManager.cpp

22.25 TRADEMGEN::DemandParserHelper::doEndDemand Struct Reference

`#include <trademgen/command/DemandParserHelper.hpp>`

Inheritance diagram for TRADEMGEN::DemandParserHelper::doEndDemand:



Public Member Functions

- doEndDemand (SEVMGR::SEVMGR_ServicePtr_T, stdair::RandomGeneration &, const POSProbabilityMass_T &, DemandStruct &)
- void operator() (iterator_t iStr, iterator_t iStrEnd) const

Public Attributes

- SEVMGR::SEVMGR_ServicePtr_T _sevmgrServicePtr

- stdair::RandomGeneration & _uniformGenerator
- const POSProbabilityMass_T & _posProbabilityMass
- DemandStruct & _demand

22.25.1 Detailed Description

Mark the end of the demand parsing.

Definition at line 275 of file DemandParserHelper.hpp.

22.25.2 Constructor & Destructor Documentation

22.25.2.1 TRADEMGEN::DemandParserHelper::doEndDemand::doEndDemand (SEVMGR::SEVMGR_ServicePtr_T *ioSEVMGR_ServicePtr,* stdair::RandomGeneration & *ioSharedGenerator,* const POSProbabilityMass_T & *iPOSProbMass,* DemandStruct & *ioDemand*)

Actor Constructor.

Definition at line 457 of file DemandParserHelper.cpp.

22.25.3 Member Function Documentation

22.25.3.1 void TRADEMGEN::DemandParserHelper::doEndDemand::operator() (iterator_t *iStr,* iterator_t *iStrEnd*) const

Actor Function (functor).

Definition at line 469 of file DemandParserHelper.cpp.

References TRADEMGEN::DemandStruct::_channelProbDist, TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand, TRADEMGEN::DemandStruct::_dtdProbDist, TRADEMGEN::DemandStruct::_ffProbDist, _posProbabilityMass, TRADEMGEN::DemandStruct::_posProbDist, TRADEMGEN::DemandStruct::_prefDepTimeProbDist, _sevmgrServicePtr, TRADEMGEN::DemandStruct::_stayProbDist, TRADEMGEN::DemandStruct::_timeValueProbDist, TRADEMGEN::DemandStruct::_tripProbDist, and _uniformGenerator.

22.25.4 Member Data Documentation

22.25.4.1 SEVMGR::SEVMGR_ServicePtr_T TRADEMGEN::DemandParserHelper::doEndDemand::_sevmgrServicePtr

Actor Specific Context.

Definition at line 282 of file DemandParserHelper.hpp.

Referenced by operator()().

22.25.4.2 stdair::RandomGeneration& TRADEMGEN::DemandParserHelper::doEndDemand::_uniformGenerator

Definition at line 283 of file DemandParserHelper.hpp.

Referenced by operator()().

22.25.4.3 const POSProbabilityMass_T& TRADEMGEN::DemandParserHelper::doEndDemand::_posProbabilityMass

Definition at line 284 of file DemandParserHelper.hpp.

Referenced by operator()().

22.25.4.4 DemandStruct& TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand [inherited]

Actor Context.

Definition at line 35 of file DemandParserHelper.hpp.

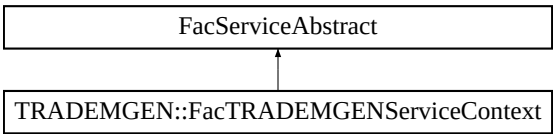
Referenced by TRADEMGEN::DemandParserHelper::storePrefDepDateRangeStart::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepDateRangeEnd::operator()(), TRADEMGEN::DemandParserHelper::storeDow::operator()(), TRADEMGEN::DemandParserHelper::storeOrigin::operator()(), TRADEMGEN::DemandParserHelper::storeDestination::operator()(), TRADEMGEN::DemandParserHelper::storePrefCabin::operator()(), TRADEMGEN::DemandParserHelper::storeDemandMean::operator()(), TRADEMGEN::DemandParserHelper::storeDemandStdDev::operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeProb::operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeDisutility::operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableProb::operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableDisutility::operator()(), TRADEMGEN::DemandParserHelper::storePosCode::operator()(), TRADEMGEN::DemandParserHelper::storePosProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeChannelCode::operator()(), TRADEMGEN::DemandParserHelper::storeChannelProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeTripCode::operator()(), TRADEMGEN::DemandParserHelper::storeTripProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeStayCode::operator()(), TRADEMGEN::DemandParserHelper::storeStayProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeFFCode::operator()(), TRADEMGEN::DemandParserHelper::storeFFProbMass::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepTime::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepTimeProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeWTP::operator()(), TRADEMGEN::DemandParserHelper::storeTimeValue::operator()(), TRADEMGEN::DemandParserHelper::storeTimeValueProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeDTD::operator()(), TRADEMGEN::DemandParserHelper::storeDTDProbMass::operator()(), and operator()().

The documentation for this struct was generated from the following files:

- trademgen/command/DemandParserHelper.hpp
- trademgen/command/DemandParserHelper.cpp

22.26 FacServiceAbstract Class Reference

Inheritance diagram for FacServiceAbstract:



The documentation for this class was generated from the following file:

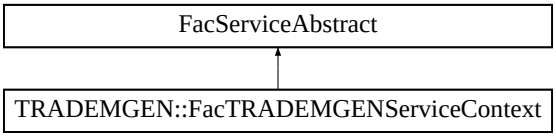
- trademgen/factory/FacTRADEMGENServiceContext.hpp

22.27 TRADEMGEN::FacTRADEMGENServiceContext Class Reference

Factory for creating the TraDemGen service context instance.

`#include <trademgen/factory/FacTRADEMGENServiceContext.hpp>`

Inheritance diagram for TRADEMGEN::FacTRADEMGENServiceContext:



Public Member Functions

- ~FacTRADEMGENServiceContext ()
- TRADEMGEN_ServiceContext & create (const stdair::RandomSeed_T &)

Static Public Member Functions

- static FacTRADEMGENServiceContext & instance ()

Protected Member Functions

- FacTRADEMGENServiceContext ()

22.27.1 Detailed Description

Factory for creating the TraDemGen service context instance.

Definition at line 21 of file FacTRADEMGENServiceContext.hpp.

22.27.2 Constructor & Destructor Documentation

22.27.2.1 TRADEMGEN::FacTRADEMGENServiceContext::~FacTRADEMGENServiceContext ( )

Destructor.

The Destruction put the _instance to NULL in order to be clean for the next FacTRADEMGENServiceContext-::instance().

Definition at line 17 of file FacTRADEMGENServiceContext.cpp.

22.27.2.2 TRADEMGEN::FacTRADEMGENServiceContext::FacTRADEMGENServiceContext ( ) [inline], [protected]

Default Constructor.

This constructor is protected in order to ensure the singleton pattern.

Definition at line 57 of file FacTRADEMGENServiceContext.hpp.

Referenced by instance().

22.27.3 Member Function Documentation

22.27.3.1 FacTRADEMGENServiceContext & TRADEMGEN::FacTRADEMGENServiceContext::instance ( ) [static]

Provide the unique instance.

The singleton is instantiated when first used.

Returns

FacTRADEMGENServiceContext&

Definition at line 22 of file FacTRADEMGENServiceContext.cpp.

References FacTRADEMGENServiceContext().

22.27.3.2 TRADEMGEN_ServiceContext & TRADEMGEN::FacTRADEMGENServiceContext::create (const stdair::RandomSeed_T & *iRandomSeed*)

Create a new TRADEMGEN_ServiceContext object.

This new object is added to the list of instantiated objects.

Parameters

const	stdair::RandomSeed_T& Seed for the random generation.

Returns

TRADEMGEN_ServiceContext& The newly created object.

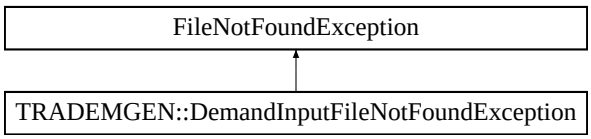
Definition at line 35 of file FacTRADEMGENServiceContext.cpp.

The documentation for this class was generated from the following files:

- trademgen/factory/FacTRADEMGENServiceContext.hpp
- trademgen/factory/FacTRADEMGENServiceContext.cpp

22.28 FileNotFoundException Class Reference

Inheritance diagram for FileNotFoundException:



The documentation for this class was generated from the following file:

- trademgen/TRADEMGEN_Exceptions.hpp

22.29 TRADEMGEN::FlagSaver Struct Reference

Public Member Functions

- FlagSaver (std::ostream &oStream)
- ~FlagSaver ()

22.29.1 Detailed Description

Helper singleton structure to store the current formatting flags of any given output stream. The flags are re-set at the structure destruction.

Definition at line 24 of file BomDisplay.cpp.

22.29.2 Constructor & Destructor Documentation

22.29.2.1 TRADEMGEN::FlagSaver::FlagSaver (std::ostream & *oStream*) [inline]

Constructor.

Definition at line 27 of file BomDisplay.cpp.

22.29.2.2 TRADEMGEN::FlagSaver::~FlagSaver ( ) [inline]

Destructor.

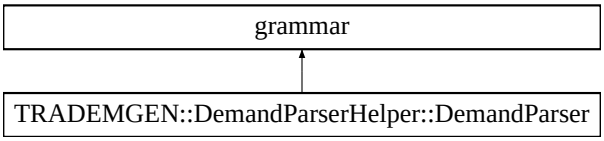
Definition at line 32 of file BomDisplay.cpp.

The documentation for this struct was generated from the following file:

- trademgen/bom/BomDisplay.cpp

22.30 grammar Class Reference

Inheritance diagram for grammar:



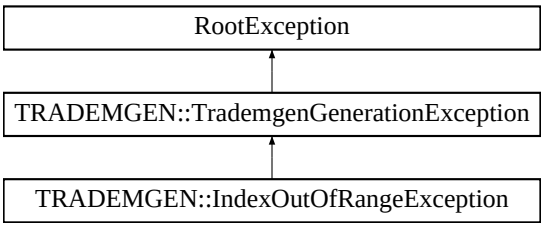
The documentation for this class was generated from the following file:

- trademgen/command/DemandParserHelper.hpp

22.31 TRADEMGEN::IndexOutOfRangeException Class Reference

`#include <trademgen/TRADEMGEN_Exceptions.hpp>`

Inheritance diagram for TRADEMGEN::IndexOutOfRangeException:



Public Member Functions

- IndexOutOfRangeException (const std::string &iWhat)

22.31.1 Detailed Description

Exception when index out of range

Definition at line 43 of file TRADEMGEN_Exceptions.hpp.

22.31.2 Constructor & Destructor Documentation

22.31.2.1 TRADEMGEN::IndexOutOfRangeException::IndexOutOfRangeException (const std::string & *iWhat*) [inline]

Constructor.

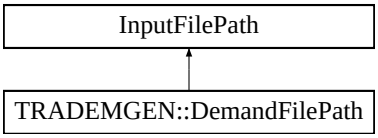
Definition at line 48 of file TRADEMGEN_Exceptions.hpp.

The documentation for this class was generated from the following file:

- trademgen/TRADEMGEN_Exceptions.hpp

22.32 InputFilePath Class Reference

Inheritance diagram for InputFilePath:

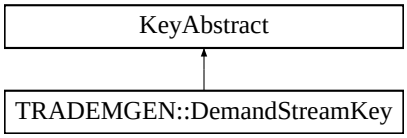


The documentation for this class was generated from the following file:

- trademgen/TRADEMGEN_Types.hpp

22.33 KeyAbstract Class Reference

Inheritance diagram for KeyAbstract:



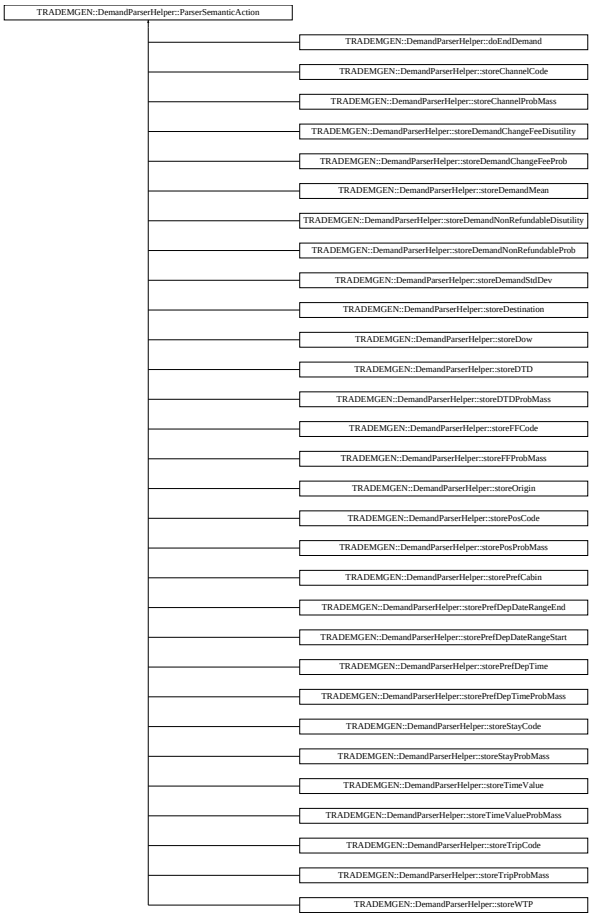
The documentation for this class was generated from the following file:

- trademgen/bom/DemandStreamKey.hpp

22.34 TRADEMGEN::DemandParserHelper::ParserSemanticAction Struct Reference

`#include <trademgen/command/DemandParserHelper.hpp>`

Inheritance diagram for TRADEMGEN::DemandParserHelper::ParserSemanticAction:



Public Member Functions

- ParserSemanticAction (DemandStruct &)

Public Attributes

- DemandStruct & _demand

22.34.1 Detailed Description

Generic Semantic Action (Actor / Functor) for the Demand Parser.

Definition at line 31 of file DemandParserHelper.hpp.

22.34.2 Constructor & Destructor Documentation

22.34.2.1 TRADEMGEN::DemandParserHelper::ParserSemanticAction::ParserSemanticAction (DemandStruct & *ioDemand*)

Actor Constructor.

Definition at line 26 of file DemandParserHelper.cpp.

22.34.3 Member Data Documentation

22.34.3.1 DemandStruct& TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand

Actor Context.

Definition at line 35 of file DemandParserHelper.hpp.

Referenced by TRADEMGEN::DemandParserHelper::storePrefDepDateRangeStart::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepDateRangeEnd::operator()(), TRADEMGEN::DemandParserHelper::storeDow::operator()(), TRADEMGEN::DemandParserHelper::storeOrigin::operator()(), TRADEMGEN::DemandParserHelper::storeDestination::operator()(), TRADEMGEN::DemandParserHelper::storePrefCabin::operator()(), TRADEMGEN::DemandParserHelper::storeDemandMean::operator()(), TRADEMGEN::DemandParserHelper::storeDemandStdDev::operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeProb::operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeDisutility::operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableProb::operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableDisutility::operator()(), TRADEMGEN::DemandParserHelper::storePosCode::operator()(), TRADEMGEN::DemandParserHelper::storePosProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeChannelCode::operator()(), TRADEMGEN::DemandParserHelper::storeChannelProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeTripCode::operator()(), TRADEMGEN::DemandParserHelper::storeTripProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeStayCode::operator()(), TRADEMGEN::DemandParserHelper::storeStayProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeFFCode::operator()(), TRADEMGEN::DemandParserHelper::storeFFProbMass::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepTime::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepTimeProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeWTP::operator()(), TRADEMGEN::DemandParserHelper::storeTimeValue::operator()(), TRADEMGEN::DemandParserHelper::storeTimeValueProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeDTD::operator()(), TRADEMGEN::DemandParserHelper::storeDTDProbMass::operator()(), and TRADEMGEN::DemandParserHelper::doEndDemand::operator()().

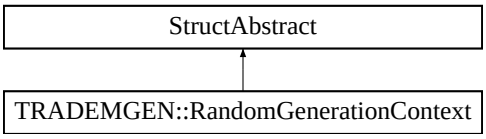
The documentation for this struct was generated from the following files:

- trademgen/command/DemandParserHelper.hpp
- trademgen/command/DemandParserHelper.cpp

22.35 TRADEMGEN::RandomGenerationContext Struct Reference

`#include <trademgen/basic/RandomGenerationContext.hpp>`

Inheritance diagram for TRADEMGEN::RandomGenerationContext:



Public Member Functions

- const stdair::Count_T & getNumberOfRequestsGeneratedSoFar () const
- const stdair::Probability_T & getCumulativeProbabilitySoFar () const
- void setNumberOfRequestsGeneratedSoFar (const stdair::Count_T &iCount)
- void setCumulativeProbabilitySoFar (const stdair::Probability_T &iProb)
- RandomGenerationContext ()
- RandomGenerationContext (const RandomGenerationContext &)
- ~RandomGenerationContext ()
- void incrementGeneratedRequestsCounter ()
- void reset ()
- const std::string describe () const

22.35.1 Detailed Description

Structure holding the context necessary for demand random generation.

Definition at line 20 of file RandomGenerationContext.hpp.

22.35.2 Constructor & Destructor Documentation

22.35.2.1 TRADEMGEN::RandomGenerationContext::RandomGenerationContext ( )

Default constructor.

Definition at line 13 of file RandomGenerationContext.cpp.

22.35.2.2 TRADEMGEN::RandomGenerationContext::RandomGenerationContext (const RandomGenerationContext & *iRGC*)

Default constructors.

Definition at line 20 of file RandomGenerationContext.cpp.

22.35.2.3 TRADEMGEN::RandomGenerationContext::~RandomGenerationContext ( )

Destructor.

Definition at line 26 of file RandomGenerationContext.cpp.

22.35.3 Member Function Documentation

22.35.3.1 const stdair::Count_T& TRADEMGEN::RandomGenerationContext::getNumberOfRequestsGeneratedSoFar ( ) const [inline]

Get the number of requests generated so far.

Definition at line 26 of file RandomGenerationContext.hpp.

Referenced by TRADEMGEN::DemandStream::generateTimeOfRequestStatisticsOrder(), TRADEMGEN::DemandStream::getNumberOfRequestsGeneratedSoFar(), and TRADEMGEN::DemandStream::stillHavingRequestsToBeGenerated().

22.35.3.2 const stdair::Probability_T& TRADEMGEN::RandomGenerationContext::getCumulativeProbabilitySoFar ( ) const [inline]

Get the cumulative probability in arrival pattern for last request generated so far (needed for sequential generation).

Definition at line 34 of file RandomGenerationContext.hpp.

Referenced by TRADEMGEN::DemandStream::generateTimeOfRequestStatisticsOrder().

22.35.3.3 void TRADEMGEN::RandomGenerationContext::setNumberOfRequestsGeneratedSoFar (const stdair::Count_T & *iCount*) [inline]

Set the number of requests generated so far.

Definition at line 43 of file RandomGenerationContext.hpp.

Referenced by TRADEMGEN::DemandStream::setNumberOfRequestsGeneratedSoFar().

22.35.3.4 void TRADEMGEN::RandomGenerationContext::setCumulativeProbabilitySoFar (const stdair::Probability_T & *iProb*) [inline]

Set the cumulative probability in arrival pattern for last request generated so far (needed for sequential generation).

Definition at line 51 of file RandomGenerationContext.hpp.

Referenced by TRADEMGEN::DemandStream::generateTimeOfRequestStatisticsOrder().

22.35.3.5 void TRADEMGEN::RandomGenerationContext::incrementGeneratedRequestsCounter ( )

Increment counter of requests generated so far.

Definition at line 38 of file RandomGenerationContext.cpp.

Referenced by TRADEMGEN::DemandStream::incrementGeneratedRequestsCounter().

22.35.3.6 void TRADEMGEN::RandomGenerationContext::reset ( )

Reset the counters.

Definition at line 43 of file RandomGenerationContext.cpp.

Referenced by TRADEMGEN::DemandStream::reset().

22.35.3.7 const std::string TRADEMGEN::RandomGenerationContext::describe ( ) const

Give a description of the structure (for display purposes).

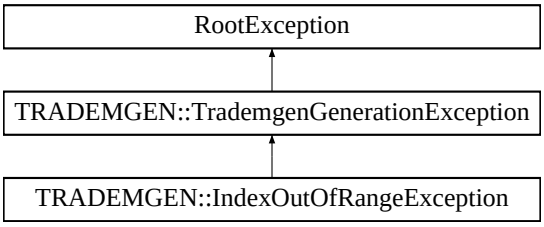
Definition at line 30 of file RandomGenerationContext.cpp.

The documentation for this struct was generated from the following files:

- trademgen/basic/RandomGenerationContext.hpp
- trademgen/basic/RandomGenerationContext.cpp

22.36 RootException Class Reference

Inheritance diagram for RootException:

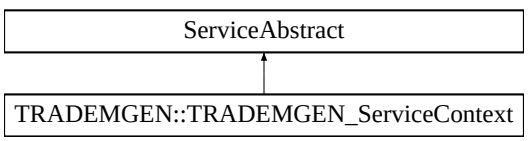


The documentation for this class was generated from the following file:

- trademgen/TRADEMGEN_Exceptions.hpp

22.37 ServiceAbstract Class Reference

Inheritance diagram for ServiceAbstract:



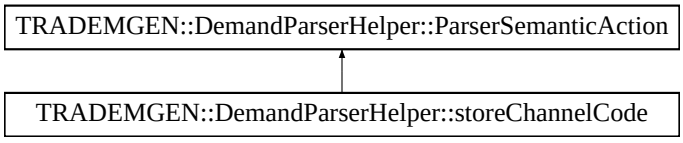
The documentation for this class was generated from the following file:

- trademgen/service/TRADEMGEN_ServiceContext.hpp

22.38 TRADEMGEN::DemandParserHelper::storeChannelCode Struct Reference

`#include <trademgen/command/DemandParserHelper.hpp>`

Inheritance diagram for TRADEMGEN::DemandParserHelper::storeChannelCode:



Public Member Functions

- storeChannelCode (DemandStruct &)
- void operator() (iterator_t iStr, iterator_t iStrEnd) const

Public Attributes

- DemandStruct & _demand

22.38.1 Detailed Description

Store the channel type code.

Definition at line 151 of file DemandParserHelper.hpp.

22.38.2 Constructor & Destructor Documentation

22.38.2.1 TRADEMGEN::DemandParserHelper::storeChannelCode::storeChannelCode (DemandStruct & *ioDemand*)

Actor Constructor.

Definition at line 219 of file DemandParserHelper.cpp.

22.38.3 Member Function Documentation

22.38.3.1 void TRADEMGEN::DemandParserHelper::storeChannelCode::operator() (iterator_t *iStr,* iterator_t *iStrEnd*) const

Actor Function (functor).

Definition at line 224 of file DemandParserHelper.cpp.

References TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand, and TRADEMGEN::DemandStruct::_itChannelCode.

22.38.4 Member Data Documentation

22.38.4.1 DemandStruct& TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand [inherited]

Actor Context.

Definition at line 35 of file DemandParserHelper.hpp.

Referenced by TRADEMGEN::DemandParserHelper::storePrefDepDateRangeStart::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepDateRangeEnd::operator()(), TRADEMGEN::DemandParserHelper::storeDow::operator()(), TRADEMGEN::DemandParserHelper::storeOrigin::operator()(), TRADEMGEN::DemandParserHelper::storeDestination::operator()(), TRADEMGEN::DemandParserHelper::storePrefCabin::operator()(), TRADEMGEN::DemandParserHelper::storeDemandMean::operator()(), TRADEMGEN::DemandParserHelper::storeDemandStdDev::operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeProb::operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeDisutility::operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableProb::operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableDisutility::operator()(), TRADEMGEN::DemandParserHelper::storePosCode::operator()(), TRADEMGEN::DemandParserHelper::storePosProbMass::operator()(), operator()(), TRADEMGEN::DemandParserHelper::storeChannelProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeTripCode::operator()(), TRADEMGEN::DemandParserHelper::storeTripProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeStayCode::operator()(), TRADEMGEN::DemandParserHelper::storeStayProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeFFCode::operator()(), TRADEMGEN::DemandParserHelper::storeFFProbMass::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepTime::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepTimeProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeWTP::operator()(), TRADEMGEN::DemandParserHelper::storeTimeValue::operator()(), TRADEMGEN::DemandParserHelper::storeTimeValueProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeDTD::operator()(), TRADEMGEN::DemandParserHelper::storeDTDProbMass::operator()(), and TRADEMGEN::DemandParserHelper::doEndDemand::operator()().

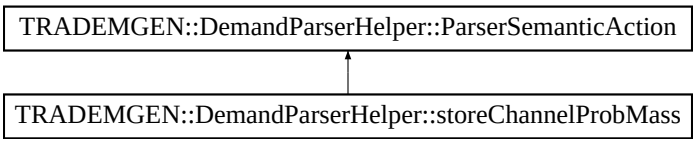
The documentation for this struct was generated from the following files:

- trademgen/command/DemandParserHelper.hpp
- trademgen/command/DemandParserHelper.cpp

22.39 TRADEMGEN::DemandParserHelper::storeChannelProbMass Struct Reference

`#include <trademgen/command/DemandParserHelper.hpp>`

Inheritance diagram for TRADEMGEN::DemandParserHelper::storeChannelProbMass:



Public Member Functions

- storeChannelProbMass (DemandStruct &)
- void operator() (double iReal) const

Public Attributes

- DemandStruct & _demand

22.39.1 Detailed Description

Store the channel type probability mass.

Definition at line 159 of file DemandParserHelper.hpp.

22.39.2 Constructor & Destructor Documentation

22.39.2.1 TRADEMGEN::DemandParserHelper::storeChannelProbMass::storeChannelProbMass (DemandStruct & *ioDemand*)

Actor Constructor.

Definition at line 231 of file DemandParserHelper.cpp.

22.39.3 Member Function Documentation

22.39.3.1 void TRADEMGEN::DemandParserHelper::storeChannelProbMass::operator() (double *iReal*) const

Actor Function (functor).

Definition at line 236 of file DemandParserHelper.cpp.

References TRADEMGEN::DemandStruct::_channelProbDist, TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand, and TRADEMGEN::DemandStruct::_itChannelCode.

22.39.4 Member Data Documentation

22.39.4.1 DemandStruct& TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand [inherited]

Actor Context.

Definition at line 35 of file DemandParserHelper.hpp.

Referenced by TRADEMGEN::DemandParserHelper::storePrefDepDateRangeStart::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepDateRangeEnd::operator()(), TRADEMGEN::DemandParserHelper::storeDow::operator()(), TRADEMGEN::DemandParserHelper::storeOrigin::operator()(), TRADEMGEN::DemandParserHelper::storeDestination::operator()(), TRADEMGEN::DemandParserHelper::storePrefCabin::operator()(), TRADEMGEN::DemandParserHelper::storeDemandMean::operator()(), TRADEMGEN::DemandParserHelper::storeDemandStdDev::operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeProb::operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeDisutility::operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableProb::operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableDisutility::operator()(), TRADEMGEN::DemandParserHelper::storePosCode::operator()(), TRADEMGEN::DemandParserHelper::storePosProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeChannelCode::operator()(), operator()(), TRADEMGEN::DemandParserHelper::storeTripCode::operator()(), TRADEMGEN::DemandParserHelper::storeTripProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeStayCode::operator()(), TRADEMGEN::DemandParserHelper::storeStayProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeFFCode::operator()(), TRADEMGEN::DemandParserHelper::storeFFProbMass::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepTime::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepTimeProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeWTP::operator()(), TRADEMGEN::DemandParserHelper::storeTimeValue::operator()(), TRADEMGEN::DemandParserHelper::storeTimeValueProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeDTD::operator()(), TRADEMGEN::DemandParserHelper::storeDTDProbMass::operator()(), and TRADEMGEN::DemandParserHelper::doEndDemand::operator()().

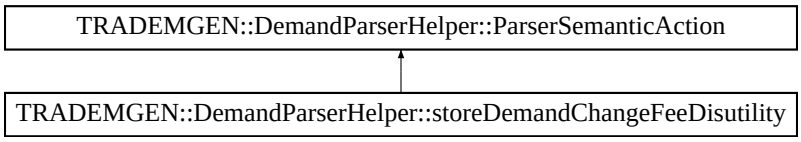
The documentation for this struct was generated from the following files:

- trademgen/command/DemandParserHelper.hpp
- trademgen/command/DemandParserHelper.cpp

22.40 TRADEMGEN::DemandParserHelper::storeDemandChangeFeeDisutility Struct Reference

`#include <trademgen/command/DemandParserHelper.hpp>`

Inheritance diagram for TRADEMGEN::DemandParserHelper::storeDemandChangeFeeDisutility:



Public Member Functions

- storeDemandChangeFeeDisutility (DemandStruct &)
- void operator() (double iReal) const

Public Attributes

- DemandStruct & _demand

22.40.1 Detailed Description

Store the demand change fee disutility.

Definition at line 111 of file DemandParserHelper.hpp.

22.40.2 Constructor & Destructor Documentation

22.40.2.1 TRADEMGEN::DemandParserHelper::storeDemandChangeFeeDisutility::storeDemandChangeFeeDisutility (DemandStruct & *ioDemand*)

Actor Constructor.

Definition at line 150 of file DemandParserHelper.cpp.

22.40.3 Member Function Documentation

22.40.3.1 void TRADEMGEN::DemandParserHelper::storeDemandChangeFeeDisutility::operator() (double *iReal*) const

Actor Function (functor).

Definition at line 155 of file DemandParserHelper.cpp.

References TRADEMGEN::DemandStruct::_changeFeeDisutility, and TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand.

22.40.4 Member Data Documentation

22.40.4.1 DemandStruct& TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand [inherited]

Actor Context.

Definition at line 35 of file DemandParserHelper.hpp.

Referenced by TRADEMGEN::DemandParserHelper::storePrefDepDateRangeStart::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepDateRangeEnd::operator()(), TRADEMGEN::DemandParserHelper::storeDow::operator()(), TRADEMGEN::DemandParserHelper::storeOrigin::operator()(), TRADEMGEN::DemandParserHelper::storeDestination::operator()(), TRADEMGEN::DemandParserHelper::storePrefCabin::operator()(), TRADEMGEN::DemandParserHelper::storeDemandMean::operator()(), TRADEMGEN::DemandParserHelper::storeDemandStdDev::operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeProb::operator()(),

operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableProb::operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableDisutility::operator()(), TRADEMGEN::DemandParserHelper::storePosCode::operator()(), TRADEMGEN::DemandParserHelper::storePosProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeChannelCode::operator()(), TRADEMGEN::DemandParserHelper::storeChannelProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeTripCode::operator()(), TRADEMGEN::DemandParserHelper::storeTripProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeStayCode::operator()(), TRADEMGEN::DemandParserHelper::storeStayProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeFFCode::operator()(), TRADEMGEN::DemandParserHelper::storeFFProbMass::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepTime::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepTimeProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeWTP::operator()(), TRADEMGEN::DemandParserHelper::storeTimeValue::operator()(), TRADEMGEN::DemandParserHelper::storeTimeValueProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeDTD::operator()(), TRADEMGEN::DemandParserHelper::storeDTDProbMass::operator()(), and TRADEMGEN::DemandParserHelper::doEndDemand::operator()().

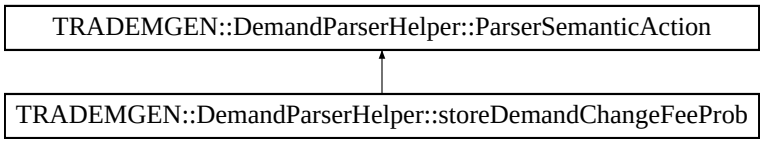
The documentation for this struct was generated from the following files:

- trademgen/command/DemandParserHelper.hpp
- trademgen/command/DemandParserHelper.cpp

22.41 TRADEMGEN::DemandParserHelper::storeDemandChangeFeeProb Struct Reference

`#include <trademgen/command/DemandParserHelper.hpp>`

Inheritance diagram for TRADEMGEN::DemandParserHelper::storeDemandChangeFeeProb:



Public Member Functions

- storeDemandChangeFeeProb (DemandStruct &)
- void operator() (double iReal) const

Public Attributes

- DemandStruct & _demand

22.41.1 Detailed Description

Store the demand change fee probability.

Definition at line 103 of file DemandParserHelper.hpp.

22.41.2 Constructor & Destructor Documentation

22.41.2.1 TRADEMGEN::DemandParserHelper::storeDemandChangeFeeProb::storeDemandChangeFeeProb (DemandStruct & *ioDemand*)

Actor Constructor.

Definition at line 139 of file DemandParserHelper.cpp.

22.41.3 Member Function Documentation

22.41.3.1 void TRADEMGEN::DemandParserHelper::storeDemandChangeFeeProb::operator() (double *iReal*) const

Actor Function (functor).

Definition at line 144 of file DemandParserHelper.cpp.

References TRADEMGEN::DemandStruct::_changeFeeProb, and TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand.

22.41.4 Member Data Documentation

22.41.4.1 DemandStruct& TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand [inherited]

Actor Context.

Definition at line 35 of file DemandParserHelper.hpp.

Referenced by TRADEMGEN::DemandParserHelper::storePrefDepDateRangeStart::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepDateRangeEnd::operator()(), TRADEMGEN::DemandParserHelper::storeDow::operator()(), TRADEMGEN::DemandParserHelper::storeOrigin::operator()(), TRADEMGEN::DemandParserHelper::storeDestination::operator()(), TRADEMGEN::DemandParserHelper::storePrefCabin::operator()(), TRADEMGEN::DemandParserHelper::storeDemandMean::operator()(), TRADEMGEN::DemandParserHelper::storeDemandStdDev::operator()(), operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeDisutility::operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableProb::operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableDisutility::operator()(), TRADEMGEN::DemandParserHelper::storePosCode::operator()(), TRADEMGEN::DemandParserHelper::storePosProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeChannelCode::operator()(), TRADEMGEN::DemandParserHelper::storeChannelProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeTripCode::operator()(), TRADEMGEN::DemandParserHelper::storeTripProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeStayCode::operator()(), TRADEMGEN::DemandParserHelper::storeStayProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeFFCode::operator()(), TRADEMGEN::DemandParserHelper::storeFFProbMass::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepTime::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepTimeProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeWTP::operator()(), TRADEMGEN::DemandParserHelper::storeTimeValue::operator()(), TRADEMGEN::DemandParserHelper::storeTimeValueProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeDTD::operator()(), TRADEMGEN::DemandParserHelper::storeDTDProbMass::operator()(), and TRADEMGEN::DemandParserHelper::doEndDemand::operator()().

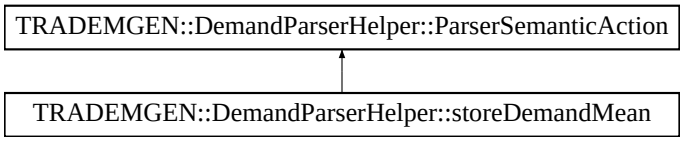
The documentation for this struct was generated from the following files:

- trademgen/command/DemandParserHelper.hpp
- trademgen/command/DemandParserHelper.cpp

22.42 TRADEMGEN::DemandParserHelper::storeDemandMean Struct Reference

`#include <trademgen/command/DemandParserHelper.hpp>`

Inheritance diagram for TRADEMGEN::DemandParserHelper::storeDemandMean:



Public Member Functions

- storeDemandMean (DemandStruct &)
- void operator() (double iReal) const

Public Attributes

- DemandStruct & _demand

22.42.1 Detailed Description

Store the demand mean value.

Definition at line 87 of file DemandParserHelper.hpp.

22.42.2 Constructor & Destructor Documentation

22.42.2.1 TRADEMGEN::DemandParserHelper::storeDemandMean::storeDemandMean (DemandStruct & *ioDemand*)

Actor Constructor.

Definition at line 117 of file DemandParserHelper.cpp.

22.42.3 Member Function Documentation

22.42.3.1 void TRADEMGEN::DemandParserHelper::storeDemandMean::operator() (double *iReal*) const

Actor Function (functor).

Definition at line 122 of file DemandParserHelper.cpp.

References TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand, and TRADEMGEN::DemandStruct::_demandMean.

22.42.4 Member Data Documentation

22.42.4.1 DemandStruct& TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand [inherited]

Actor Context.

Definition at line 35 of file DemandParserHelper.hpp.

Referenced by TRADEMGEN::DemandParserHelper::storePrefDepDateRangeStart::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepDateRangeEnd::operator()(), TRADEMGEN::DemandParserHelper::storeDow::operator()(), TRADEMGEN::DemandParserHelper::storeOrigin::operator()(), TRADEMGEN::DemandParserHelper::storeDestination::operator()(), TRADEMGEN::DemandParserHelper::storePrefCabin::operator()(), operator()(), TRADEMGEN::DemandParserHelper::storeDemandStdDev::operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeProb::operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeDisutility::operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableProb::operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableDisutility::operator()(), TRADEMGEN::DemandParserHelper::storePosCode::operator()(), TRADEMGEN::DemandParserHelper::storePosProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeChannelCode::operator()(), TRADEMGEN::DemandParserHelper::storeChannelProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeTripCode::operator()(), TRADEMGEN::DemandParserHelper::storeTripProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeStayCode::operator()(), TRADEMGEN::DemandParserHelper::storeStayProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeFFCode::operator()(), TRADEMGEN::DemandParserHelper::storeFFProbMass::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepTime::operator()(),

TRADEMGEN::DemandParserHelper::storePrefDepTimeProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeWTP::operator()(), TRADEMGEN::DemandParserHelper::storeTimeValue::operator()(), TRADEMGEN::DemandParserHelper::storeTimeValueProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeDTD::operator()(), TRADEMGEN::DemandParserHelper::storeDTDProbMass::operator()(), and TRADEMGEN::DemandParserHelper::doEndDemand::operator()().

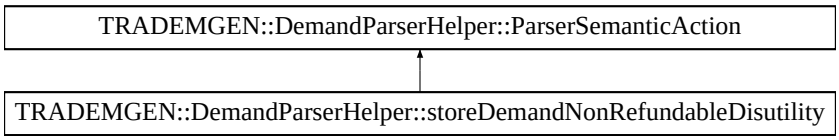
The documentation for this struct was generated from the following files:

- trademgen/command/DemandParserHelper.hpp
- trademgen/command/DemandParserHelper.cpp

22.43 TRADEMGEN::DemandParserHelper::storeDemandNonRefundableDisutility Struct Reference

`#include <trademgen/command/DemandParserHelper.hpp>`

Inheritance diagram for TRADEMGEN::DemandParserHelper::storeDemandNonRefundableDisutility:



Public Member Functions

- storeDemandNonRefundableDisutility (DemandStruct &)
- void operator() (double iReal) const

Public Attributes

- DemandStruct & _demand

22.43.1 Detailed Description

Store the demand non refundable disutility.

Definition at line 127 of file DemandParserHelper.hpp.

22.43.2 Constructor & Destructor Documentation

22.43.2.1 TRADEMGEN::DemandParserHelper::storeDemandNonRefundableDisutility::storeDemandNonRefundableDisutility (DemandStruct & *ioDemand*)

Actor Constructor.

Definition at line 174 of file DemandParserHelper.cpp.

22.43.3 Member Function Documentation

22.43.3.1 void TRADEMGEN::DemandParserHelper::storeDemandNonRefundableDisutility::operator() (double *iReal*) const

Actor Function (functor).

Definition at line 179 of file DemandParserHelper.cpp.

References TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand, and TRADEMGEN::DemandStruct::_nonRefundableDisutility.

22.43.4 Member Data Documentation

22.43.4.1 DemandStruct& TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand [inherited]

Actor Context.

Definition at line 35 of file DemandParserHelper.hpp.

Referenced by TRADEMGEN::DemandParserHelper::storePrefDepDateRangeStart::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepDateRangeEnd::operator()(), TRADEMGEN::DemandParserHelper::storeDow::operator()(), TRADEMGEN::DemandParserHelper::storeOrigin::operator()(), TRADEMGEN::DemandParserHelper::storeDestination::operator()(), TRADEMGEN::DemandParserHelper::storePrefCabin::operator()(), TRADEMGEN::DemandParserHelper::storeDemandMean::operator()(), TRADEMGEN::DemandParserHelper::storeDemandStdDev::operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeProb::operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeDisutility::operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableProb::operator()(), operator()(), TRADEMGEN::DemandParserHelper::storePosCode::operator()(), TRADEMGEN::DemandParserHelper::storePosProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeChannelCode::operator()(), TRADEMGEN::DemandParserHelper::storeChannelProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeTripCode::operator()(), TRADEMGEN::DemandParserHelper::storeTripProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeStayCode::operator()(), TRADEMGEN::DemandParserHelper::storeStayProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeFFCode::operator()(), TRADEMGEN::DemandParserHelper::storeFFProbMass::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepTime::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepTimeProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeWTP::operator()(), TRADEMGEN::DemandParserHelper::storeTimeValue::operator()(), TRADEMGEN::DemandParserHelper::storeTimeValueProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeDTD::operator()(), TRADEMGEN::DemandParserHelper::storeDTDProbMass::operator()(), and TRADEMGEN::DemandParserHelper::doEndDemand::operator()().

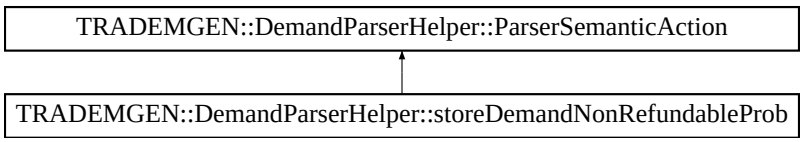
The documentation for this struct was generated from the following files:

- trademgen/command/DemandParserHelper.hpp
- trademgen/command/DemandParserHelper.cpp

22.44 TRADEMGEN::DemandParserHelper::storeDemandNonRefundableProb Struct Reference

`#include <trademgen/command/DemandParserHelper.hpp>`

Inheritance diagram for TRADEMGEN::DemandParserHelper::storeDemandNonRefundableProb:



Public Member Functions

- storeDemandNonRefundableProb (DemandStruct &)
- void operator() (double iReal) const

Public Attributes

- DemandStruct & _demand

22.44.1 Detailed Description

Store the demand non refundable probability.

Definition at line 119 of file DemandParserHelper.hpp.

22.44.2 Constructor & Destructor Documentation

22.44.2.1 TRADEMGEN::DemandParserHelper::storeDemandNonRefundableProb::storeDemandNonRefundableProb (DemandStruct & *ioDemand*)

Actor Constructor.

Definition at line 162 of file DemandParserHelper.cpp.

22.44.3 Member Function Documentation

22.44.3.1 void TRADEMGEN::DemandParserHelper::storeDemandNonRefundableProb::operator() (double *iReal*) const

Actor Function (functor).

Definition at line 167 of file DemandParserHelper.cpp.

References TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand, and TRADEMGEN::DemandStruct::_nonRefundableProb.

22.44.4 Member Data Documentation

22.44.4.1 DemandStruct& TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand [inherited]

Actor Context.

Definition at line 35 of file DemandParserHelper.hpp.

Referenced by TRADEMGEN::DemandParserHelper::storePrefDepDateRangeStart::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepDateRangeEnd::operator()(), TRADEMGEN::DemandParserHelper::storeDow::operator()(), TRADEMGEN::DemandParserHelper::storeOrigin::operator()(), TRADEMGEN::DemandParserHelper::storeDestination::operator()(), TRADEMGEN::DemandParserHelper::storePrefCabin::operator()(), TRADEMGEN::DemandParserHelper::storeDemandMean::operator()(), TRADEMGEN::DemandParserHelper::storeDemandStdDev::operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeProb::operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeDisutility::operator()(), operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableDisutility::operator()(), TRADEMGEN::DemandParserHelper::storePosCode::operator()(), TRADEMGEN::DemandParserHelper::storePosProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeChannelCode::operator()(), TRADEMGEN::DemandParserHelper::storeChannelProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeTripCode::operator()(), TRADEMGEN::DemandParserHelper::storeTripProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeStayCode::operator()(), TRADEMGEN::DemandParserHelper::storeStayProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeFFCode::operator()(), TRADEMGEN::DemandParserHelper::storeFFProbMass::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepTime::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepTimeProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeWTP::operator()(), TRADEMGEN::DemandParserHelper::storeTimeValue::operator()(), TRADEMGEN::DemandParserHelper::storeTimeValueProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeDTD::operator()(), TRADEMGEN::DemandParserHelper::storeDTDProbMass::operator()(), and TRADEMGEN::DemandParserHelper::doEndDemand::operator()().

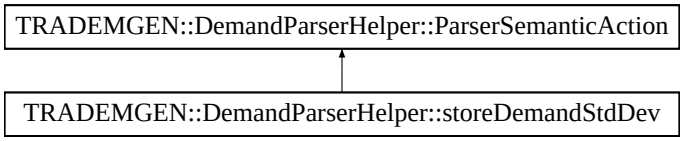
The documentation for this struct was generated from the following files:

- trademgen/command/DemandParserHelper.hpp
- trademgen/command/DemandParserHelper.cpp

22.45 TRADEMGEN::DemandParserHelper::storeDemandStdDev Struct Reference

`#include <trademgen/command/DemandParserHelper.hpp>`

Inheritance diagram for TRADEMGEN::DemandParserHelper::storeDemandStdDev:



Public Member Functions

- storeDemandStdDev (DemandStruct &)
- void operator() (double iReal) const

Public Attributes

- DemandStruct & _demand

22.45.1 Detailed Description

Store the demand stdandard deviation value.

Definition at line 95 of file DemandParserHelper.hpp.

22.45.2 Constructor & Destructor Documentation

22.45.2.1 TRADEMGEN::DemandParserHelper::storeDemandStdDev::storeDemandStdDev (DemandStruct & *ioDemand*)

Actor Constructor.

Definition at line 128 of file DemandParserHelper.cpp.

22.45.3 Member Function Documentation

22.45.3.1 void TRADEMGEN::DemandParserHelper::storeDemandStdDev::operator() (double *iReal*) const

Actor Function (functor).

Definition at line 133 of file DemandParserHelper.cpp.

References TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand, and TRADEMGEN::DemandStruct::_demandStdDev.

22.45.4 Member Data Documentation

22.45.4.1 DemandStruct& TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand [inherited]

Actor Context.

Definition at line 35 of file DemandParserHelper.hpp.

Referenced by TRADEMGEN::DemandParserHelper::storePrefDepDateRangeStart::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepDateRangeEnd::operator()(), TRADEMGEN::DemandParserHelper::storeDow::operator()(), TRADEMGEN::DemandParserHelper::storeOrigin::operator()(), TRADEMGEN::DemandParserHelper::storeDestination::operator()(), TRADEMGEN::DemandParserHelper::storePrefCabin::operator()(),

TRADEMGEN::DemandParserHelper::storeDemandMean::operator()(), operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeProb::operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeDisutility::operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableProb::operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableDisutility::operator()(), TRADEMGEN::DemandParserHelper::storePosCode::operator()(), TRADEMGEN::DemandParserHelper::storePosProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeChannelCode::operator()(), TRADEMGEN::DemandParserHelper::storeChannelProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeTripCode::operator()(), TRADEMGEN::DemandParserHelper::storeTripProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeStayCode::operator()(), TRADEMGEN::DemandParserHelper::storeStayProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeFFCode::operator()(), TRADEMGEN::DemandParserHelper::storeFFProbMass::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepTime::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepTimeProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeWTP::operator()(), TRADEMGEN::DemandParserHelper::storeTimeValue::operator()(), TRADEMGEN::DemandParserHelper::storeTimeValueProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeDTD::operator()(), TRADEMGEN::DemandParserHelper::storeDTDProbMass::operator()(), and TRADEMGEN::DemandParserHelper::doEndDemand::operator()().

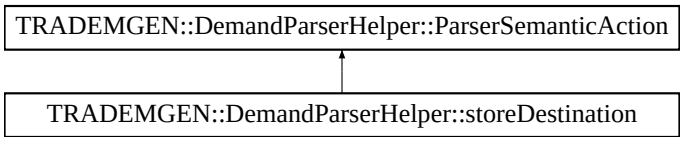
The documentation for this struct was generated from the following files:

- trademgen/command/DemandParserHelper.hpp
- trademgen/command/DemandParserHelper.cpp

22.46 TRADEMGEN::DemandParserHelper::storeDestination Struct Reference

`#include <trademgen/command/DemandParserHelper.hpp>`

Inheritance diagram for TRADEMGEN::DemandParserHelper::storeDestination:



Public Member Functions

- storeDestination (DemandStruct &)
- void operator() (iterator_t iStr, iterator_t iStrEnd) const

Public Attributes

- DemandStruct & _demand

22.46.1 Detailed Description

Store the destination.

Definition at line 71 of file DemandParserHelper.hpp.

22.46.2 Constructor & Destructor Documentation

22.46.2.1 TRADEMGEN::DemandParserHelper::storeDestination::storeDestination (DemandStruct & *ioDemand*)

Actor Constructor.

Definition at line 92 of file DemandParserHelper.cpp.

22.46.3 Member Function Documentation

22.46.3.1 void TRADEMGEN::DemandParserHelper::storeDestination::operator() (iterator_t *iStr,* iterator_t *iStrEnd*) const

Actor Function (functor).

Definition at line 97 of file DemandParserHelper.cpp.

References TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand, and TRADEMGEN::DemandStruct::_destination.

22.46.4 Member Data Documentation

22.46.4.1 DemandStruct& TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand [inherited]

Actor Context.

Definition at line 35 of file DemandParserHelper.hpp.

Referenced by TRADEMGEN::DemandParserHelper::storePrefDepDateRangeStart::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepDateRangeEnd::operator()(), TRADEMGEN::DemandParserHelper::storeDow::operator()(), TRADEMGEN::DemandParserHelper::storeOrigin::operator()(), operator()(), TRADEMGEN::DemandParserHelper::storePrefCabin::operator()(), TRADEMGEN::DemandParserHelper::storeDemandMean::operator()(), TRADEMGEN::DemandParserHelper::storeDemandStdDev::operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeProb::operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeDisutility::operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableProb::operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableDisutility::operator()(), TRADEMGEN::DemandParserHelper::storePosCode::operator()(), TRADEMGEN::DemandParserHelper::storePosProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeChannelCode::operator()(), TRADEMGEN::DemandParserHelper::storeChannelProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeTripCode::operator()(), TRADEMGEN::DemandParserHelper::storeTripProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeStayCode::operator()(), TRADEMGEN::DemandParserHelper::storeStayProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeFFCode::operator()(), TRADEMGEN::DemandParserHelper::storeFFProbMass::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepTime::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepTimeProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeWTP::operator()(), TRADEMGEN::DemandParserHelper::storeTimeValue::operator()(), TRADEMGEN::DemandParserHelper::storeTimeValueProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeDTD::operator()(), TRADEMGEN::DemandParserHelper::storeDTDProbMass::operator()(), and TRADEMGEN::DemandParserHelper::doEndDemand::operator()().

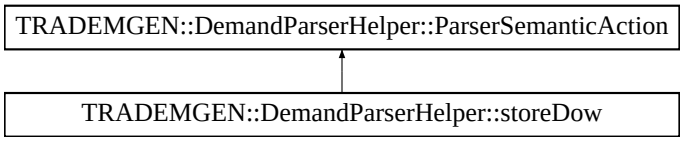
The documentation for this struct was generated from the following files:

- trademgen/command/DemandParserHelper.hpp
- trademgen/command/DemandParserHelper.cpp

22.47 TRADEMGEN::DemandParserHelper::storeDow Struct Reference

`#include <trademgen/command/DemandParserHelper.hpp>`

Inheritance diagram for TRADEMGEN::DemandParserHelper::storeDow:



Public Member Functions

- storeDow (DemandStruct &)
- void operator() (iterator_t iStr, iterator_t iStrEnd) const

Public Attributes

- DemandStruct & _demand

22.47.1 Detailed Description

Store the DOW (day of the Week).

Definition at line 55 of file DemandParserHelper.hpp.

22.47.2 Constructor & Destructor Documentation

22.47.2.1 TRADEMGEN::DemandParserHelper::storeDow::storeDow (DemandStruct & *ioDemand*)

Actor Constructor.

Definition at line 70 of file DemandParserHelper.cpp.

22.47.3 Member Function Documentation

22.47.3.1 void TRADEMGEN::DemandParserHelper::storeDow::operator() (iterator_t *iStr,* iterator_t *iStrEnd*) const

Actor Function (functor).

Definition at line 75 of file DemandParserHelper.cpp.

References TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand, and TRADEMGEN::DemandStruct::_dow.

22.47.4 Member Data Documentation

22.47.4.1 DemandStruct& TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand [inherited]

Actor Context.

Definition at line 35 of file DemandParserHelper.hpp.

Referenced by TRADEMGEN::DemandParserHelper::storePrefDepDateRangeStart::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepDateRangeEnd::operator()(), operator()(), TRADEMGEN::DemandParserHelper::storeOrigin::operator()(), TRADEMGEN::DemandParserHelper::storeDestination::operator()(), TRADEMGEN::DemandParserHelper::storePrefCabin::operator()(), TRADEMGEN::DemandParserHelper::storeDemandMean::operator()(), TRADEMGEN::DemandParserHelper::storeDemandStdDev::operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeProb::operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeDisutility::operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableProb::operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableDisutility::operator()(), TRADEMGEN::DemandParserHelper::storePosCode::operator()(), TRADEMGEN::DemandParserHelper::storePosProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeChannelCode::operator()(), TRADEMGEN::DemandParserHelper::storeChannelProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeTripCode::operator()(), TRADEMGEN::DemandParserHelper::storeTripProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeStayCode::operator()(), TRADEMGEN::DemandParserHelper::storeStayProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeFFCode::operator()(), TRADEMGEN::DemandParserHelper::storeFFProbMass::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepTime::operator()(),

TRADEMGEN::DemandParserHelper::storePrefDepTimeProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeWTP::operator()(), TRADEMGEN::DemandParserHelper::storeTimeValue::operator()(), TRADEMGEN::DemandParserHelper::storeTimeValueProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeDTD::operator()(), TRADEMGEN::DemandParserHelper::storeDTDProbMass::operator()(), and TRADEMGEN::DemandParserHelper::doEndDemand::operator()().

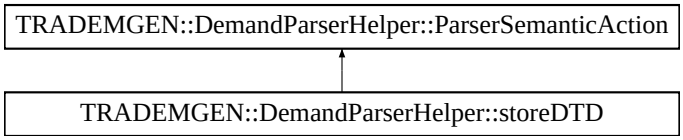
The documentation for this struct was generated from the following files:

- trademgen/command/DemandParserHelper.hpp
- trademgen/command/DemandParserHelper.cpp

22.48 TRADEMGEN::DemandParserHelper::storeDTD Struct Reference

`#include <trademgen/command/DemandParserHelper.hpp>`

Inheritance diagram for TRADEMGEN::DemandParserHelper::storeDTD:



Public Member Functions

- storeDTD (DemandStruct &)
- void operator() (unsigned int iInteger) const

Public Attributes

- DemandStruct & _demand

22.48.1 Detailed Description

Store the parameters for the arrival pattern (as expressed in DTD) continuous probability distribution.

Definition at line 258 of file DemandParserHelper.hpp.

22.48.2 Constructor & Destructor Documentation

22.48.2.1 TRADEMGEN::DemandParserHelper::storeDTD::storeDTD (DemandStruct & *ioDemand*)

Actor Constructor.

Definition at line 428 of file DemandParserHelper.cpp.

22.48.3 Member Function Documentation

22.48.3.1 void TRADEMGEN::DemandParserHelper::storeDTD::operator() (unsigned int *iInteger*) const

Actor Function (functor).

Definition at line 433 of file DemandParserHelper.cpp.

References TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand, and TRADEMGEN::DemandStruct::_itDTD.

22.48.4 Member Data Documentation

22.48.4.1 DemandStruct& TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand [inherited]

Actor Context.

Definition at line 35 of file DemandParserHelper.hpp.

Referenced by TRADEMGEN::DemandParserHelper::storePrefDepDateRangeStart::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepDateRangeEnd::operator()(), TRADEMGEN::DemandParserHelper::storeDow::operator()(), TRADEMGEN::DemandParserHelper::storeOrigin::operator()(), TRADEMGEN::DemandParserHelper::storeDestination::operator()(), TRADEMGEN::DemandParserHelper::storePrefCabin::operator()(), TRADEMGEN::DemandParserHelper::storeDemandMean::operator()(), TRADEMGEN::DemandParserHelper::storeDemandStdDev::operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeProb::operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeDisutility::operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableProb::operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableDisutility::operator()(), TRADEMGEN::DemandParserHelper::storePosCode::operator()(), TRADEMGEN::DemandParserHelper::storePosProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeChannelCode::operator()(), TRADEMGEN::DemandParserHelper::storeChannelProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeTripCode::operator()(), TRADEMGEN::DemandParserHelper::storeTripProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeStayCode::operator()(), TRADEMGEN::DemandParserHelper::storeStayProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeFFCode::operator()(), TRADEMGEN::DemandParserHelper::storeFFProbMass::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepTime::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepTimeProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeWTP::operator()(), TRADEMGEN::DemandParserHelper::storeTimeValue::operator()(), TRADEMGEN::DemandParserHelper::storeTimeValueProbMass::operator()(), operator()(), TRADEMGEN::DemandParserHelper::storeDTDProbMass::operator()(), and TRADEMGEN::DemandParserHelper::doEndDemand::operator()().

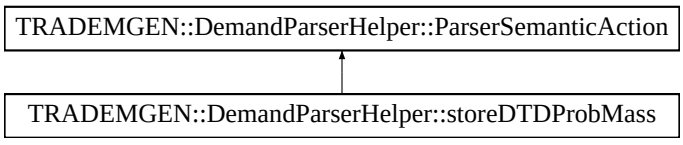
The documentation for this struct was generated from the following files:

- trademgen/command/DemandParserHelper.hpp
- trademgen/command/DemandParserHelper.cpp

22.49 TRADEMGEN::DemandParserHelper::storeDTDProbMass Struct Reference

`#include <trademgen/command/DemandParserHelper.hpp>`

Inheritance diagram for TRADEMGEN::DemandParserHelper::storeDTDProbMass:



Public Member Functions

- storeDTDProbMass (DemandStruct &)
- void operator() (double iReal) const

Public Attributes

- DemandStruct & _demand

22.49.1 Detailed Description

Store the parameters for the arrival pattern (as expressed in DTD) continuous probability distribution.

Definition at line 267 of file DemandParserHelper.hpp.

22.49.2 Constructor & Destructor Documentation

22.49.2.1 TRADEMGEN::DemandParserHelper::storeDTDProbMass::storeDTDProbMass (DemandStruct & *ioDemand*)

Actor Constructor.

Definition at line 440 of file DemandParserHelper.cpp.

22.49.3 Member Function Documentation

22.49.3.1 void TRADEMGEN::DemandParserHelper::storeDTDProbMass::operator() (double *iReal*) const

Actor Function (functor).

Definition at line 445 of file DemandParserHelper.cpp.

References TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand, TRADEMGEN::DemandStruct::_dtdProbDist, and TRADEMGEN::DemandStruct::_itDTD.

22.49.4 Member Data Documentation

22.49.4.1 DemandStruct& TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand [inherited]

Actor Context.

Definition at line 35 of file DemandParserHelper.hpp.

Referenced by TRADEMGEN::DemandParserHelper::storePrefDepDateRangeStart::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepDateRangeEnd::operator()(), TRADEMGEN::DemandParserHelper::storeDow::operator()(), TRADEMGEN::DemandParserHelper::storeOrigin::operator()(), TRADEMGEN::DemandParserHelper::storeDestination::operator()(), TRADEMGEN::DemandParserHelper::storePrefCabin::operator()(), TRADEMGEN::DemandParserHelper::storeDemandMean::operator()(), TRADEMGEN::DemandParserHelper::storeDemandStdDev::operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeProb::operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeDisutility::operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableProb::operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableDisutility::operator()(), TRADEMGEN::DemandParserHelper::storePosCode::operator()(), TRADEMGEN::DemandParserHelper::storePosProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeChannelCode::operator()(), TRADEMGEN::DemandParserHelper::storeChannelProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeTripCode::operator()(), TRADEMGEN::DemandParserHelper::storeTripProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeStayCode::operator()(), TRADEMGEN::DemandParserHelper::storeStayProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeFFCode::operator()(), TRADEMGEN::DemandParserHelper::storeFFProbMass::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepTime::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepTimeProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeWTP::operator()(), TRADEMGEN::DemandParserHelper::storeTimeValue::operator()(), TRADEMGEN::DemandParserHelper::storeTimeValueProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeDTD::operator()(), operator()(), and TRADEMGEN::DemandParserHelper::doEndDemand::operator()().

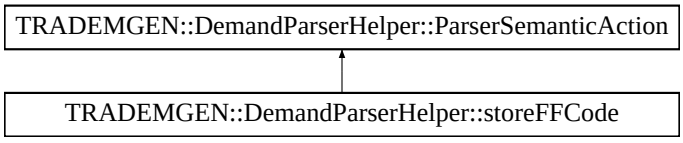
The documentation for this struct was generated from the following files:

- trademgen/command/DemandParserHelper.hpp
- trademgen/command/DemandParserHelper.cpp

22.50 TRADEMGEN::DemandParserHelper::storeFFCode Struct Reference

`#include <trademgen/command/DemandParserHelper.hpp>`

Inheritance diagram for TRADEMGEN::DemandParserHelper::storeFFCode:



Public Member Functions

- storeFFCode (DemandStruct &)
- void operator() (iterator_t iStr, iterator_t iStrEnd) const

Public Attributes

- DemandStruct & _demand

22.50.1 Detailed Description

Store the frequent flyer code.

Definition at line 199 of file DemandParserHelper.hpp.

22.50.2 Constructor & Destructor Documentation

22.50.2.1 TRADEMGEN::DemandParserHelper::storeFFCode::storeFFCode (DemandStruct & *ioDemand*)

Actor Constructor.

Definition at line 323 of file DemandParserHelper.cpp.

22.50.3 Member Function Documentation

22.50.3.1 void TRADEMGEN::DemandParserHelper::storeFFCode::operator() (iterator_t *iStr,* iterator_t *iStrEnd*) const

Actor Function (functor).

Definition at line 328 of file DemandParserHelper.cpp.

References TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand, and TRADEMGEN::DemandStruct::_itFFCode.

22.50.4 Member Data Documentation

22.50.4.1 DemandStruct& TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand [inherited]

Actor Context.

Definition at line 35 of file DemandParserHelper.hpp.

Referenced by TRADEMGEN::DemandParserHelper::storePrefDepDateRangeStart::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepDateRangeEnd::operator()(), TRADEMGEN::DemandParserHelper::storeDow::operator()(), TRADEMGEN::DemandParserHelper::storeOrigin::operator()(), TRADEMGEN::DemandParser-

Helper::storeDestination::operator()(), TRADEMGEN::DemandParserHelper::storePrefCabin::operator()(), TRADEMGEN::DemandParserHelper::storeDemandMean::operator()(), TRADEMGEN::DemandParserHelper::storeDemandStdDev::operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeProb::operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeDisutility::operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableProb::operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableDisutility::operator()(), TRADEMGEN::DemandParserHelper::storePosCode::operator()(), TRADEMGEN::DemandParserHelper::storePosProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeChannelCode::operator()(), TRADEMGEN::DemandParserHelper::storeChannelProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeTripCode::operator()(), TRADEMGEN::DemandParserHelper::storeTripProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeStayCode::operator()(), TRADEMGEN::DemandParserHelper::storeStayProbMass::operator()(), operator()(), TRADEMGEN::DemandParserHelper::storeFFProbMass::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepTime::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepTimeProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeWTP::operator()(), TRADEMGEN::DemandParserHelper::storeTimeValue::operator()(), TRADEMGEN::DemandParserHelper::storeTimeValueProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeDTD::operator()(), TRADEMGEN::DemandParserHelper::storeDTDProbMass::operator()(), and TRADEMGEN::DemandParserHelper::doEndDemand::operator()().

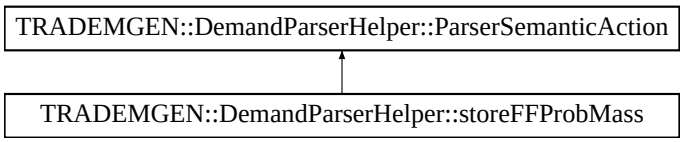
The documentation for this struct was generated from the following files:

- trademgen/command/DemandParserHelper.hpp
- trademgen/command/DemandParserHelper.cpp

22.51 TRADEMGEN::DemandParserHelper::storeFFProbMass Struct Reference

`#include <trademgen/command/DemandParserHelper.hpp>`

Inheritance diagram for TRADEMGEN::DemandParserHelper::storeFFProbMass:



Public Member Functions

- storeFFProbMass (DemandStruct &)
- void operator() (double iReal) const

Public Attributes

- DemandStruct & _demand

22.51.1 Detailed Description

Store the frequent flyer probability mass.

Definition at line 207 of file DemandParserHelper.hpp.

22.51.2 Constructor & Destructor Documentation

22.51.2.1 TRADEMGEN::DemandParserHelper::storeFFProbMass::storeFFProbMass (DemandStruct & *ioDemand*)

Actor Constructor.

Definition at line 334 of file DemandParserHelper.cpp.

22.51.3 Member Function Documentation

22.51.3.1 void TRADEMGEN::DemandParserHelper::storeFFProbMass::operator() (double *iReal*) const

Actor Function (functor).

Definition at line 339 of file DemandParserHelper.cpp.

References TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand, TRADEMGEN::DemandStruct::_ffProbDist, and TRADEMGEN::DemandStruct::_itFFCode.

22.51.4 Member Data Documentation

22.51.4.1 DemandStruct& TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand [inherited]

Actor Context.

Definition at line 35 of file DemandParserHelper.hpp.

Referenced by TRADEMGEN::DemandParserHelper::storePrefDepDateRangeStart::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepDateRangeEnd::operator()(), TRADEMGEN::DemandParserHelper::storeDow::operator()(), TRADEMGEN::DemandParserHelper::storeOrigin::operator()(), TRADEMGEN::DemandParserHelper::storeDestination::operator()(), TRADEMGEN::DemandParserHelper::storePrefCabin::operator()(), TRADEMGEN::DemandParserHelper::storeDemandMean::operator()(), TRADEMGEN::DemandParserHelper::storeDemandStdDev::operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeProb::operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeDisutility::operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableProb::operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableDisutility::operator()(), TRADEMGEN::DemandParserHelper::storePosCode::operator()(), TRADEMGEN::DemandParserHelper::storePosProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeChannelCode::operator()(), TRADEMGEN::DemandParserHelper::storeChannelProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeTripCode::operator()(), TRADEMGEN::DemandParserHelper::storeTripProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeStayCode::operator()(), TRADEMGEN::DemandParserHelper::storeStayProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeFFCode::operator()(), operator()(), TRADEMGEN::DemandParserHelper::storePrefDepTime::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepTimeProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeWTP::operator()(), TRADEMGEN::DemandParserHelper::storeTimeValue::operator()(), TRADEMGEN::DemandParserHelper::storeTimeValueProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeDTD::operator()(), TRADEMGEN::DemandParserHelper::storeDTDProbMass::operator()(), and TRADEMGEN::DemandParserHelper::doEndDemand::operator()().

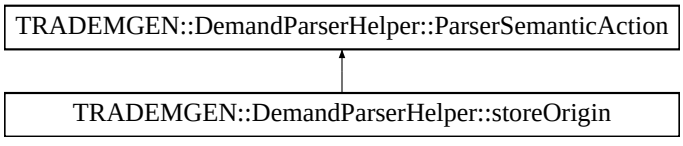
The documentation for this struct was generated from the following files:

- trademgen/command/DemandParserHelper.hpp
- trademgen/command/DemandParserHelper.cpp

22.52 TRADEMGEN::DemandParserHelper::storeOrigin Struct Reference

`#include <trademgen/command/DemandParserHelper.hpp>`

Inheritance diagram for TRADEMGEN::DemandParserHelper::storeOrigin:



Public Member Functions

- storeOrigin (DemandStruct &)
- void operator() (iterator_t iStr, iterator_t iStrEnd) const

Public Attributes

- DemandStruct & _demand

22.52.1 Detailed Description

Store the origin.

Definition at line 63 of file DemandParserHelper.hpp.

22.52.2 Constructor & Destructor Documentation

22.52.2.1 TRADEMGEN::DemandParserHelper::storeOrigin::storeOrigin (DemandStruct & *ioDemand*)

Actor Constructor.

Definition at line 81 of file DemandParserHelper.cpp.

22.52.3 Member Function Documentation

22.52.3.1 void TRADEMGEN::DemandParserHelper::storeOrigin::operator() (iterator_t *iStr,* iterator_t *iStrEnd*) const

Actor Function (functor).

Definition at line 86 of file DemandParserHelper.cpp.

References TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand, and TRADEMGEN::DemandStruct::_origin.

22.52.4 Member Data Documentation

22.52.4.1 DemandStruct& TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand [inherited]

Actor Context.

Definition at line 35 of file DemandParserHelper.hpp.

Referenced by TRADEMGEN::DemandParserHelper::storePrefDepDateRangeStart::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepDateRangeEnd::operator()(), TRADEMGEN::DemandParserHelper::storeDow::operator()(), operator()(), TRADEMGEN::DemandParserHelper::storeDestination::operator()(), TRADEMGEN::DemandParserHelper::storePrefCabin::operator()(), TRADEMGEN::DemandParserHelper::storeDemandMean::operator()(), TRADEMGEN::DemandParserHelper::storeDemandStdDev::operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeProb::operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeDisutility::operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableProb::operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableDisutility::operator()(), TRADEMGEN::DemandParserHelper::storePosCode::operator()(), TRADEMGEN::DemandParserHelper::storePosProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeChannelCode::operator()(), TRADEMGEN::DemandParserHelper::storeChannelProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeTripCode::operator()(), TRADEMGEN::DemandParserHelper::storeTripProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeStayCode::operator()(), TRADEMGEN::DemandParserHelper::storeStayProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeFFCode::operator()(), TRADEMGEN::DemandParserHelper::storeFFProbMass::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepTime::operator()(),

TRADEMGEN::DemandParserHelper::storePrefDepTimeProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeWTP::operator()(), TRADEMGEN::DemandParserHelper::storeTimeValue::operator()(), TRADEMGEN::DemandParserHelper::storeTimeValueProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeDTD::operator()(), TRADEMGEN::DemandParserHelper::storeDTDProbMass::operator()(), and TRADEMGEN::DemandParserHelper::doEndDemand::operator()().

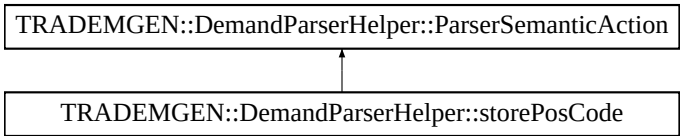
The documentation for this struct was generated from the following files:

- trademgen/command/DemandParserHelper.hpp
- trademgen/command/DemandParserHelper.cpp

22.53 TRADEMGEN::DemandParserHelper::storePosCode Struct Reference

`#include <trademgen/command/DemandParserHelper.hpp>`

Inheritance diagram for TRADEMGEN::DemandParserHelper::storePosCode:



Public Member Functions

- storePosCode (DemandStruct &)
- void operator() (iterator_t iStr, iterator_t iStrEnd) const

Public Attributes

- DemandStruct & _demand

22.53.1 Detailed Description

Store the pos type code.

Definition at line 135 of file DemandParserHelper.hpp.

22.53.2 Constructor & Destructor Documentation

22.53.2.1 TRADEMGEN::DemandParserHelper::storePosCode::storePosCode (DemandStruct & *ioDemand*)

Actor Constructor.

Definition at line 185 of file DemandParserHelper.cpp.

22.53.3 Member Function Documentation

22.53.3.1 void TRADEMGEN::DemandParserHelper::storePosCode::operator() (iterator_t *iStr,* iterator_t *iStrEnd*) const

Actor Function (functor).

Definition at line 190 of file DemandParserHelper.cpp.

References TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand, and TRADEMGEN::DemandStruct::_itPosCode.

22.53.4 Member Data Documentation

22.53.4.1 DemandStruct& TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand [inherited]

Actor Context.

Definition at line 35 of file DemandParserHelper.hpp.

Referenced by TRADEMGEN::DemandParserHelper::storePrefDepDateRangeStart::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepDateRangeEnd::operator()(), TRADEMGEN::DemandParserHelper::storeDow::operator()(), TRADEMGEN::DemandParserHelper::storeOrigin::operator()(), TRADEMGEN::DemandParserHelper::storeDestination::operator()(), TRADEMGEN::DemandParserHelper::storePrefCabin::operator()(), TRADEMGEN::DemandParserHelper::storeDemandMean::operator()(), TRADEMGEN::DemandParserHelper::storeDemandStdDev::operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeProb::operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeDisutility::operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableProb::operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableDisutility::operator()(), operator()(), TRADEMGEN::DemandParserHelper::storePosProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeChannelCode::operator()(), TRADEMGEN::DemandParserHelper::storeChannelProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeTripCode::operator()(), TRADEMGEN::DemandParserHelper::storeTripProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeStayCode::operator()(), TRADEMGEN::DemandParserHelper::storeStayProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeFFCode::operator()(), TRADEMGEN::DemandParserHelper::storeFFProbMass::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepTime::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepTimeProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeWTP::operator()(), TRADEMGEN::DemandParserHelper::storeTimeValue::operator()(), TRADEMGEN::DemandParserHelper::storeTimeValueProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeDTD::operator()(), TRADEMGEN::DemandParserHelper::storeDTDProbMass::operator()(), and TRADEMGEN::DemandParserHelper::doEndDemand::operator()().

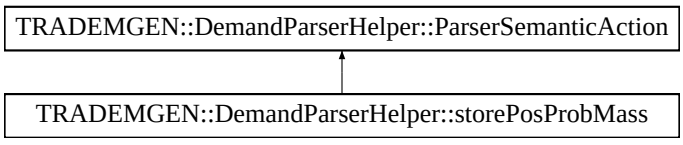
The documentation for this struct was generated from the following files:

- trademgen/command/DemandParserHelper.hpp
- trademgen/command/DemandParserHelper.cpp

22.54 TRADEMGEN::DemandParserHelper::storePosProbMass Struct Reference

`#include <trademgen/command/DemandParserHelper.hpp>`

Inheritance diagram for TRADEMGEN::DemandParserHelper::storePosProbMass:



Public Member Functions

- storePosProbMass (DemandStruct &)
- void operator() (double iReal) const

Public Attributes

- DemandStruct & _demand

22.54.1 Detailed Description

Store the pos type probability mass.

Definition at line 143 of file DemandParserHelper.hpp.

22.54.2 Constructor & Destructor Documentation

22.54.2.1 TRADEMGEN::DemandParserHelper::storePosProbMass::storePosProbMass (DemandStruct & *ioDemand*)

Actor Constructor.

Definition at line 197 of file DemandParserHelper.cpp.

22.54.3 Member Function Documentation

22.54.3.1 void TRADEMGEN::DemandParserHelper::storePosProbMass::operator() (double *iReal*) const

Actor Function (functor).

Definition at line 202 of file DemandParserHelper.cpp.

References TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand, TRADEMGEN::DemandStruct::_itPosCode, and TRADEMGEN::DemandStruct::_posProbDist.

22.54.4 Member Data Documentation

22.54.4.1 DemandStruct& TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand [inherited]

Actor Context.

Definition at line 35 of file DemandParserHelper.hpp.

Referenced by TRADEMGEN::DemandParserHelper::storePrefDepDateRangeStart::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepDateRangeEnd::operator()(), TRADEMGEN::DemandParserHelper::storeDow::operator()(), TRADEMGEN::DemandParserHelper::storeOrigin::operator()(), TRADEMGEN::DemandParserHelper::storeDestination::operator()(), TRADEMGEN::DemandParserHelper::storePrefCabin::operator()(), TRADEMGEN::DemandParserHelper::storeDemandMean::operator()(), TRADEMGEN::DemandParserHelper::storeDemandStdDev::operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeProb::operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeDisutility::operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableProb::operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableDisutility::operator()(), TRADEMGEN::DemandParserHelper::storePosCode::operator()(), operator()(), TRADEMGEN::DemandParserHelper::storeChannelCode::operator()(), TRADEMGEN::DemandParserHelper::storeChannelProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeTripCode::operator()(), TRADEMGEN::DemandParserHelper::storeTripProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeStayCode::operator()(), TRADEMGEN::DemandParserHelper::storeStayProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeFFCode::operator()(), TRADEMGEN::DemandParserHelper::storeFFProbMass::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepTime::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepTimeProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeWTP::operator()(), TRADEMGEN::DemandParserHelper::storeTimeValue::operator()(), TRADEMGEN::DemandParserHelper::storeTimeValueProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeDTD::operator()(), TRADEMGEN::DemandParserHelper::storeDTDProbMass::operator()(), and TRADEMGEN::DemandParserHelper::doEndDemand::operator()().

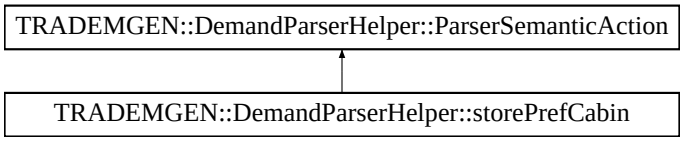
The documentation for this struct was generated from the following files:

- trademgen/command/DemandParserHelper.hpp
- trademgen/command/DemandParserHelper.cpp

22.55 TRADEMGEN::DemandParserHelper::storePrefCabin Struct Reference

`#include <trademgen/command/DemandParserHelper.hpp>`

Inheritance diagram for TRADEMGEN::DemandParserHelper::storePrefCabin:



Public Member Functions

- storePrefCabin (DemandStruct &)
- void operator() (iterator_t iStr, iterator_t iStrEnd) const

Public Attributes

- DemandStruct & _demand

22.55.1 Detailed Description

Store the preferred cabin.

Definition at line 79 of file DemandParserHelper.hpp.

22.55.2 Constructor & Destructor Documentation

22.55.2.1 TRADEMGEN::DemandParserHelper::storePrefCabin::storePrefCabin (DemandStruct & *ioDemand*)

Actor Constructor.

Definition at line 104 of file DemandParserHelper.cpp.

22.55.3 Member Function Documentation

22.55.3.1 void TRADEMGEN::DemandParserHelper::storePrefCabin::operator() (iterator_t *iStr,* iterator_t *iStrEnd*) const

Actor Function (functor).

Definition at line 109 of file DemandParserHelper.cpp.

References TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand, and TRADEMGEN::DemandStruct::_prefCabin.

22.55.4 Member Data Documentation

22.55.4.1 DemandStruct& TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand [inherited]

Actor Context.

Definition at line 35 of file DemandParserHelper.hpp.

Referenced by TRADEMGEN::DemandParserHelper::storePrefDepDateRangeStart::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepDateRangeEnd::operator()(), TRADEMGEN::DemandParserHelper::storeDow::operator()(), TRADEMGEN::DemandParserHelper::storeOrigin::operator()(), TRADEMGEN::Demand-

ParserHelper::storeDestination::operator()(), operator()(), TRADEMGEN::DemandParserHelper::storeDemandMean::operator()(), TRADEMGEN::DemandParserHelper::storeDemandStdDev::operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeProb::operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeDisutility::operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableProb::operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableDisutility::operator()(), TRADEMGEN::DemandParserHelper::storePosCode::operator()(), TRADEMGEN::DemandParserHelper::storePosProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeChannelCode::operator()(), TRADEMGEN::DemandParserHelper::storeChannelProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeTripCode::operator()(), TRADEMGEN::DemandParserHelper::storeTripProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeStayCode::operator()(), TRADEMGEN::DemandParserHelper::storeStayProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeFFCode::operator()(), TRADEMGEN::DemandParserHelper::storeFFProbMass::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepTime::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepTimeProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeWTP::operator()(), TRADEMGEN::DemandParserHelper::storeTimeValue::operator()(), TRADEMGEN::DemandParserHelper::storeTimeValueProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeDTD::operator()(), TRADEMGEN::DemandParserHelper::storeDTDProbMass::operator()(), and TRADEMGEN::DemandParserHelper::doEndDemand::operator()().

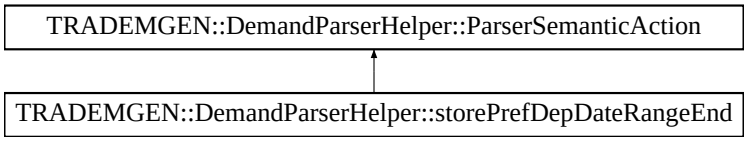
The documentation for this struct was generated from the following files:

- trademgen/command/DemandParserHelper.hpp
- trademgen/command/DemandParserHelper.cpp

22.56 TRADEMGEN::DemandParserHelper::storePrefDepDateRangeEnd Struct Reference

`#include <trademgen/command/DemandParserHelper.hpp>`

Inheritance diagram for TRADEMGEN::DemandParserHelper::storePrefDepDateRangeEnd:



Public Member Functions

- storePrefDepDateRangeEnd (DemandStruct &)
- void operator() (iterator_t iStr, iterator_t iStrEnd) const

Public Attributes

- DemandStruct & _demand

22.56.1 Detailed Description

Store the end of the date range.

Definition at line 47 of file DemandParserHelper.hpp.

22.56.2 Constructor & Destructor Documentation

22.56.2.1 TRADEMGEN::DemandParserHelper::storePrefDepDateRangeEnd::storePrefDepDateRangeEnd (DemandStruct & *ioDemand*)

Actor Constructor.

Definition at line 47 of file DemandParserHelper.cpp.

22.56.3 Member Function Documentation

22.56.3.1 void TRADEMGEN::DemandParserHelper::storePrefDepDateRangeEnd::operator() (iterator_t *iStr,* iterator_t *iStrEnd*) const

Actor Function (functor).

Definition at line 52 of file DemandParserHelper.cpp.

References TRADEMGEN::DemandStruct::_dateRange, TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand, TRADEMGEN::DemandStruct::_itSeconds, TRADEMGEN::DemandStruct::_prefDepDateEnd, TRADEMGEN::DemandStruct::_prefDepDateStart, and TRADEMGEN::DemandStruct::getDate().

22.56.4 Member Data Documentation

22.56.4.1 DemandStruct& TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand [inherited]

Actor Context.

Definition at line 35 of file DemandParserHelper.hpp.

Referenced by TRADEMGEN::DemandParserHelper::storePrefDepDateRangeStart::operator()(), operator()(), TRADEMGEN::DemandParserHelper::storeDow::operator()(), TRADEMGEN::DemandParserHelper::storeOrigin::operator()(), TRADEMGEN::DemandParserHelper::storeDestination::operator()(), TRADEMGEN::DemandParserHelper::storePrefCabin::operator()(), TRADEMGEN::DemandParserHelper::storeDemandMean::operator()(), TRADEMGEN::DemandParserHelper::storeDemandStdDev::operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeProb::operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeDisutility::operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableProb::operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableDisutility::operator()(), TRADEMGEN::DemandParserHelper::storePosCode::operator()(), TRADEMGEN::DemandParserHelper::storePosProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeChannelCode::operator()(), TRADEMGEN::DemandParserHelper::storeChannelProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeTripCode::operator()(), TRADEMGEN::DemandParserHelper::storeTripProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeStayCode::operator()(), TRADEMGEN::DemandParserHelper::storeStayProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeFFCode::operator()(), TRADEMGEN::DemandParserHelper::storeFFProbMass::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepTime::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepTimeProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeWTP::operator()(), TRADEMGEN::DemandParserHelper::storeTimeValue::operator()(), TRADEMGEN::DemandParserHelper::storeTimeValueProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeDTD::operator()(), TRADEMGEN::DemandParserHelper::storeDTDProbMass::operator()(), and TRADEMGEN::DemandParserHelper::doEndDemand::operator()().

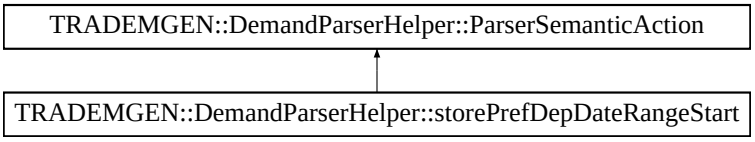
The documentation for this struct was generated from the following files:

- trademgen/command/DemandParserHelper.hpp
- trademgen/command/DemandParserHelper.cpp

22.57 TRADEMGEN::DemandParserHelper::storePrefDepDateRangeStart Struct Reference

`#include <trademgen/command/DemandParserHelper.hpp>`

Inheritance diagram for TRADEMGEN::DemandParserHelper::storePrefDepDateRangeStart:



Public Member Functions

- storePrefDepDateRangeStart (DemandStruct &)
- void operator() (iterator_t iStr, iterator_t iStrEnd) const

Public Attributes

- DemandStruct & _demand

22.57.1 Detailed Description

Store the start of the date range.

Definition at line 39 of file DemandParserHelper.hpp.

22.57.2 Constructor & Destructor Documentation

22.57.2.1 TRADEMGEN::DemandParserHelper::storePrefDepDateRangeStart::storePrefDepDateRangeStart (DemandStruct & *ioDemand*)

Actor Constructor.

Definition at line 32 of file DemandParserHelper.cpp.

22.57.3 Member Function Documentation

22.57.3.1 void TRADEMGEN::DemandParserHelper::storePrefDepDateRangeStart::operator() (iterator_t *iStr*, iterator_t *iStrEnd*) const

Actor Function (functor).

Definition at line 37 of file DemandParserHelper.cpp.

References TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand, TRADEMGEN::DemandStruct::_itSeconds, TRADEMGEN::DemandStruct::_prefDepDateStart, and TRADEMGEN::DemandStruct::getDate().

22.57.4 Member Data Documentation

22.57.4.1 DemandStruct& TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand [inherited]

Actor Context.

Definition at line 35 of file DemandParserHelper.hpp.

Referenced by operator()(), TRADEMGEN::DemandParserHelper::storePrefDepDateRangeEnd::operator()(), TRADEMGEN::DemandParserHelper::storeDow::operator()(), TRADEMGEN::DemandParserHelper::storeOrigin::operator()(), TRADEMGEN::DemandParserHelper::storeDestination::operator()(), TRADEMGEN::DemandParserHelper::storePrefCabin::operator()(), TRADEMGEN::DemandParserHelper::storeDemandMean::operator()(), TRADEMGEN::DemandParserHelper::storeDemandStdDev::operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeProb::operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeDisutility-

::operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableProb::operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableDisutility::operator()(), TRADEMGEN::DemandParserHelper::storePosCode::operator()(), TRADEMGEN::DemandParserHelper::storePosProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeChannelCode::operator()(), TRADEMGEN::DemandParserHelper::storeChannelProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeTripCode::operator()(), TRADEMGEN::DemandParserHelper::storeTripProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeStayCode::operator()(), TRADEMGEN::DemandParserHelper::storeStayProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeFFCode::operator()(), TRADEMGEN::DemandParserHelper::storeFFProbMass::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepTime::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepTimeProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeWTP::operator()(), TRADEMGEN::DemandParserHelper::storeTimeValue::operator()(), TRADEMGEN::DemandParserHelper::storeTimeValueProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeDTD::operator()(), TRADEMGEN::DemandParserHelper::storeDTDProbMass::operator()(), and TRADEMGEN::DemandParserHelper::doEndDemand::operator()().

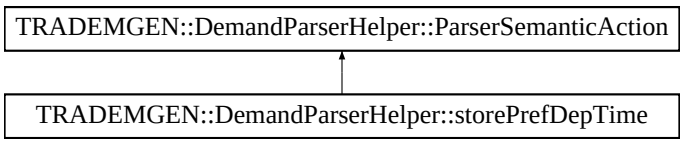
The documentation for this struct was generated from the following files:

- trademgen/command/DemandParserHelper.hpp
- trademgen/command/DemandParserHelper.cpp

22.58 TRADEMGEN::DemandParserHelper::storePrefDepTime Struct Reference

`#include <trademgen/command/DemandParserHelper.hpp>`

Inheritance diagram for TRADEMGEN::DemandParserHelper::storePrefDepTime:



Public Member Functions

- storePrefDepTime (DemandStruct &)
- void operator() (iterator_t iStr, iterator_t iStrEnd) const

Public Attributes

- DemandStruct & _demand

22.58.1 Detailed Description

Store the parameters for the preferred departure time continuous probability distribution.

Definition at line 216 of file DemandParserHelper.hpp.

22.58.2 Constructor & Destructor Documentation

22.58.2.1 TRADEMGEN::DemandParserHelper::storePrefDepTime::storePrefDepTime (DemandStruct & *ioDemand*)

Actor Constructor.

Definition at line 357 of file DemandParserHelper.cpp.

22.58.3 Member Function Documentation

22.58.3.1 void TRADEMGEN::DemandParserHelper::storePrefDepTime::operator() (iterator_t *iStr,* iterator_t *iStrEnd*) const

Actor Function (functor).

Definition at line 362 of file DemandParserHelper.cpp.

References TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand, TRADEMGEN::DemandStruct::_itMinutes, TRADEMGEN::DemandStruct::_itPrefDepTime, TRADEMGEN::DemandStruct::_itSeconds, and TRADEMGEN::DemandStruct::getTime().

22.58.4 Member Data Documentation

22.58.4.1 DemandStruct& TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand [inherited]

Actor Context.

Definition at line 35 of file DemandParserHelper.hpp.

Referenced by TRADEMGEN::DemandParserHelper::storePrefDepDateRangeStart::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepDateRangeEnd::operator()(), TRADEMGEN::DemandParserHelper::storeDow::operator()(), TRADEMGEN::DemandParserHelper::storeOrigin::operator()(), TRADEMGEN::DemandParserHelper::storeDestination::operator()(), TRADEMGEN::DemandParserHelper::storePrefCabin::operator()(), TRADEMGEN::DemandParserHelper::storeDemandMean::operator()(), TRADEMGEN::DemandParserHelper::storeDemandStdDev::operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeProb::operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeDisutility::operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableProb::operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableDisutility::operator()(), TRADEMGEN::DemandParserHelper::storePosCode::operator()(), TRADEMGEN::DemandParserHelper::storePosProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeChannelCode::operator()(), TRADEMGEN::DemandParserHelper::storeChannelProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeTripCode::operator()(), TRADEMGEN::DemandParserHelper::storeTripProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeStayCode::operator()(), TRADEMGEN::DemandParserHelper::storeStayProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeFFCode::operator()(), TRADEMGEN::DemandParserHelper::storeFFProbMass::operator()(), operator()(), TRADEMGEN::DemandParserHelper::storePrefDepTimeProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeWTP::operator()(), TRADEMGEN::DemandParserHelper::storeTimeValue::operator()(), TRADEMGEN::DemandParserHelper::storeTimeValueProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeDTD::operator()(), TRADEMGEN::DemandParserHelper::storeDTDProbMass::operator()(), and TRADEMGEN::DemandParserHelper::doEndDemand::operator()().

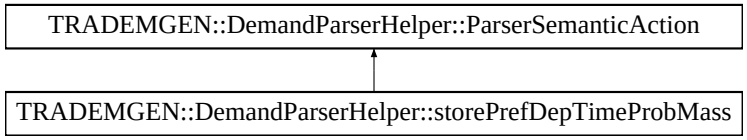
The documentation for this struct was generated from the following files:

- trademgen/command/DemandParserHelper.hpp
- trademgen/command/DemandParserHelper.cpp

22.59 TRADEMGEN::DemandParserHelper::storePrefDepTimeProbMass Struct Reference

`#include <trademgen/command/DemandParserHelper.hpp>`

Inheritance diagram for TRADEMGEN::DemandParserHelper::storePrefDepTimeProbMass:



Public Member Functions

- storePrefDepTimeProbMass (DemandStruct &)
- void operator() (double iReal) const

Public Attributes

- DemandStruct & _demand

22.59.1 Detailed Description

Store the parameters for the preferred departure time continuous probability distribution.

Definition at line 225 of file DemandParserHelper.hpp.

22.59.2 Constructor & Destructor Documentation

22.59.2.1 TRADEMGEN::DemandParserHelper::storePrefDepTimeProbMass::storePrefDepTimeProbMass (DemandStruct & *ioDemand*)

Actor Constructor.

Definition at line 377 of file DemandParserHelper.cpp.

22.59.3 Member Function Documentation

22.59.3.1 void TRADEMGEN::DemandParserHelper::storePrefDepTimeProbMass::operator() (double *iReal*) const

Actor Function (functor).

Definition at line 382 of file DemandParserHelper.cpp.

References TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand, TRADEMGEN::DemandStruct::_itPrefDepTime, and TRADEMGEN::DemandStruct::_prefDepTimeProbDist.

22.59.4 Member Data Documentation

22.59.4.1 DemandStruct& TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand [inherited]

Actor Context.

Definition at line 35 of file DemandParserHelper.hpp.

Referenced by TRADEMGEN::DemandParserHelper::storePrefDepDateRangeStart::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepDateRangeEnd::operator()(), TRADEMGEN::DemandParserHelper::storeDow::operator()(), TRADEMGEN::DemandParserHelper::storeOrigin::operator()(), TRADEMGEN::DemandParserHelper::storeDestination::operator()(), TRADEMGEN::DemandParserHelper::storePrefCabin::operator()(), TRADEMGEN::DemandParserHelper::storeDemandMean::operator()(), TRADEMGEN::DemandParserHelper::storeDemandStdDev::operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeProb::operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeDisutility::operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableProb::operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableDisutility::operator()(), TRADEMGEN::DemandParserHelper::storePosCode::operator()(), TRADEMGEN::DemandParserHelper::storePosProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeChannelCode::operator()(), TRADEMGEN::DemandParserHelper::storeChannelProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeTripCode::operator()(), TRADEMGEN::DemandParserHelper::storeTripProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeStayCode::operator()(), TRADEMGEN::DemandParserHelper::storeStayProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeFFCode::operator()(), TRADEMGEN::DemandParserHelper::storeFFProbMass::operator()(), TRADEMGEN::Demand-

ParserHelper::storePrefDepTime::operator()(), operator()(), TRADEMGEN::DemandParserHelper::storeWTP-::operator()(), TRADEMGEN::DemandParserHelper::storeTimeValue::operator()(), TRADEMGEN::DemandParser-Helper::storeTimeValueProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeDTD::operator()(), T-RADEMGEN::DemandParserHelper::storeDTDProbMass::operator()(), and TRADEMGEN::DemandParserHelper-::doEndDemand::operator()().

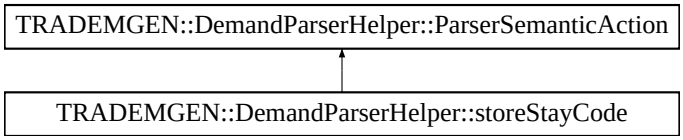
The documentation for this struct was generated from the following files:

- trademgen/command/DemandParserHelper.hpp
- trademgen/command/DemandParserHelper.cpp

22.60 TRADEMGEN::DemandParserHelper::storeStayCode Struct Reference

`#include <trademgen/command/DemandParserHelper.hpp>`

Inheritance diagram for TRADEMGEN::DemandParserHelper::storeStayCode:



Public Member Functions

- storeStayCode (DemandStruct &)
- void operator() (unsigned int iInteger) const

Public Attributes

- DemandStruct & _demand

22.60.1 Detailed Description

Store the stay type code.

Definition at line 183 of file DemandParserHelper.hpp.

22.60.2 Constructor & Destructor Documentation

22.60.2.1 TRADEMGEN::DemandParserHelper::storeStayCode::storeStayCode (DemandStruct & *ioDemand*)

Actor Constructor.

Definition at line 289 of file DemandParserHelper.cpp.

22.60.3 Member Function Documentation

22.60.3.1 void TRADEMGEN::DemandParserHelper::storeStayCode::operator() (unsigned int *iInteger*) const

Actor Function (functor).

Definition at line 294 of file DemandParserHelper.cpp.

References TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand, and TRADEMGEN::Demand-Struct::_itStayDuration.

22.60.4 Member Data Documentation

22.60.4.1 DemandStruct& TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand [inherited]

Actor Context.

Definition at line 35 of file DemandParserHelper.hpp.

Referenced by TRADEMGEN::DemandParserHelper::storePrefDepDateRangeStart::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepDateRangeEnd::operator()(), TRADEMGEN::DemandParserHelper::storeDow::operator()(), TRADEMGEN::DemandParserHelper::storeOrigin::operator()(), TRADEMGEN::DemandParserHelper::storeDestination::operator()(), TRADEMGEN::DemandParserHelper::storePrefCabin::operator()(), TRADEMGEN::DemandParserHelper::storeDemandMean::operator()(), TRADEMGEN::DemandParserHelper::storeDemandStdDev::operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeProb::operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeDisutility::operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableProb::operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableDisutility::operator()(), TRADEMGEN::DemandParserHelper::storePosCode::operator()(), TRADEMGEN::DemandParserHelper::storePosProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeChannelCode::operator()(), TRADEMGEN::DemandParserHelper::storeChannelProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeTripCode::operator()(), TRADEMGEN::DemandParserHelper::storeTripProbMass::operator()(), operator()(), TRADEMGEN::DemandParserHelper::storeStayProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeFFCode::operator()(), TRADEMGEN::DemandParserHelper::storeFFProbMass::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepTime::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepTimeProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeWTP::operator()(), TRADEMGEN::DemandParserHelper::storeTimeValue::operator()(), TRADEMGEN::DemandParserHelper::storeTimeValueProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeDTD::operator()(), TRADEMGEN::DemandParserHelper::storeDTDProbMass::operator()(), and TRADEMGEN::DemandParserHelper::doEndDemand::operator()().

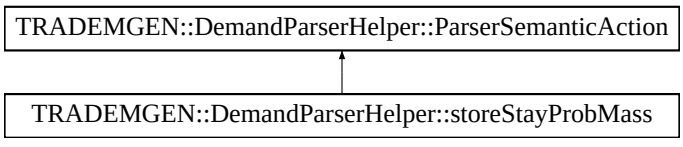
The documentation for this struct was generated from the following files:

- trademgen/command/DemandParserHelper.hpp
- trademgen/command/DemandParserHelper.cpp

22.61 TRADEMGEN::DemandParserHelper::storeStayProbMass Struct Reference

`#include <trademgen/command/DemandParserHelper.hpp>`

Inheritance diagram for TRADEMGEN::DemandParserHelper::storeStayProbMass:



Public Member Functions

- storeStayProbMass (DemandStruct &)
- void operator() (double iReal) const

Public Attributes

- DemandStruct & _demand

22.61.1 Detailed Description

Store the stay type probability mass.

Definition at line 191 of file DemandParserHelper.hpp.

22.61.2 Constructor & Destructor Documentation

22.61.2.1 TRADEMGEN::DemandParserHelper::storeStayProbMass::storeStayProbMass (DemandStruct & *ioDemand*)

Actor Constructor.

Definition at line 301 of file DemandParserHelper.cpp.

22.61.3 Member Function Documentation

22.61.3.1 void TRADEMGEN::DemandParserHelper::storeStayProbMass::operator() (double *iReal*) const

Actor Function (functor).

Definition at line 306 of file DemandParserHelper.cpp.

References TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand, TRADEMGEN::DemandStruct::_itStayDuration, and TRADEMGEN::DemandStruct::_stayProbDist.

22.61.4 Member Data Documentation

22.61.4.1 DemandStruct& TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand [inherited]

Actor Context.

Definition at line 35 of file DemandParserHelper.hpp.

Referenced by TRADEMGEN::DemandParserHelper::storePrefDepDateRangeStart::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepDateRangeEnd::operator()(), TRADEMGEN::DemandParserHelper::storeDow::operator()(), TRADEMGEN::DemandParserHelper::storeOrigin::operator()(), TRADEMGEN::DemandParserHelper::storeDestination::operator()(), TRADEMGEN::DemandParserHelper::storePrefCabin::operator()(), TRADEMGEN::DemandParserHelper::storeDemandMean::operator()(), TRADEMGEN::DemandParserHelper::storeDemandStdDev::operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeProb::operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeDisutility::operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableProb::operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableDisutility::operator()(), TRADEMGEN::DemandParserHelper::storePosCode::operator()(), TRADEMGEN::DemandParserHelper::storePosProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeChannelCode::operator()(), TRADEMGEN::DemandParserHelper::storeChannelProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeTripCode::operator()(), TRADEMGEN::DemandParserHelper::storeTripProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeStayCode::operator()(), operator()(), TRADEMGEN::DemandParserHelper::storeFFCode::operator()(), TRADEMGEN::DemandParserHelper::storeFFProbMass::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepTime::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepTimeProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeWTP::operator()(), TRADEMGEN::DemandParserHelper::storeTimeValue::operator()(), TRADEMGEN::DemandParserHelper::storeTimeValueProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeDTD::operator()(), TRADEMGEN::DemandParserHelper::storeDTDProbMass::operator()(), and TRADEMGEN::DemandParserHelper::doEndDemand::operator()().

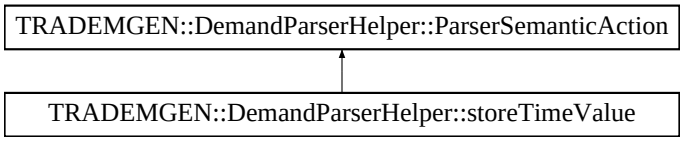
The documentation for this struct was generated from the following files:

- trademgen/command/DemandParserHelper.hpp
- trademgen/command/DemandParserHelper.cpp

22.62 TRADEMGEN::DemandParserHelper::storeTimeValue Struct Reference

`#include <trademgen/command/DemandParserHelper.hpp>`

Inheritance diagram for TRADEMGEN::DemandParserHelper::storeTimeValue:



Public Member Functions

- storeTimeValue (DemandStruct &)
- void operator() (double iReal) const

Public Attributes

- DemandStruct & _demand

22.62.1 Detailed Description

Store the time value.

Definition at line 241 of file DemandParserHelper.hpp.

22.62.2 Constructor & Destructor Documentation

22.62.2.1 TRADEMGEN::DemandParserHelper::storeTimeValue::storeTimeValue (DemandStruct & *ioDemand*)

Actor Constructor.

Definition at line 404 of file DemandParserHelper.cpp.

22.62.3 Member Function Documentation

22.62.3.1 void TRADEMGEN::DemandParserHelper::storeTimeValue::operator() (double *iReal*) const

Actor Function (functor).

Definition at line 409 of file DemandParserHelper.cpp.

References TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand, and TRADEMGEN::DemandStruct::_itTimeValue.

22.62.4 Member Data Documentation

22.62.4.1 DemandStruct& TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand [inherited]

Actor Context.

Definition at line 35 of file DemandParserHelper.hpp.

Referenced by TRADEMGEN::DemandParserHelper::storePrefDepDateRangeStart::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepDateRangeEnd::operator()(), TRADEMGEN::DemandParserHelper::storeDow::operator()(), TRADEMGEN::DemandParserHelper::storeOrigin::operator()(), TRADEMGEN::DemandParser-

Helper::storeDestination::operator()(), TRADEMGEN::DemandParserHelper::storePrefCabin::operator()(), TRADEMGEN::DemandParserHelper::storeDemandMean::operator()(), TRADEMGEN::DemandParserHelper::storeDemandStdDev::operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeProb::operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeDisutility::operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableProb::operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableDisutility::operator()(), TRADEMGEN::DemandParserHelper::storePosCode::operator()(), TRADEMGEN::DemandParserHelper::storePosProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeChannelCode::operator()(), TRADEMGEN::DemandParserHelper::storeChannelProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeTripCode::operator()(), TRADEMGEN::DemandParserHelper::storeTripProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeStayCode::operator()(), TRADEMGEN::DemandParserHelper::storeStayProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeFFCode::operator()(), TRADEMGEN::DemandParserHelper::storeFFProbMass::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepTime::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepTimeProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeWTP::operator()(), operator()(), TRADEMGEN::DemandParserHelper::storeTimeValueProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeDTD::operator()(), TRADEMGEN::DemandParserHelper::storeDTDProbMass::operator()(), and TRADEMGEN::DemandParserHelper::doEndDemand::operator()().

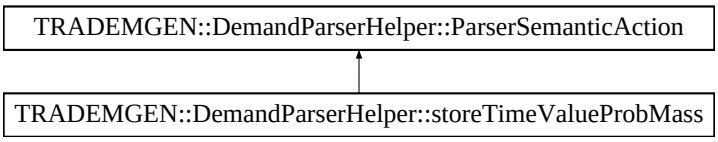
The documentation for this struct was generated from the following files:

- trademgen/command/DemandParserHelper.hpp
- trademgen/command/DemandParserHelper.cpp

22.63 TRADEMGEN::DemandParserHelper::storeTimeValueProbMass Struct Reference

`#include <trademgen/command/DemandParserHelper.hpp>`

Inheritance diagram for TRADEMGEN::DemandParserHelper::storeTimeValueProbMass:



Public Member Functions

- storeTimeValueProbMass (DemandStruct &)
- void operator() (double iReal) const

Public Attributes

- DemandStruct & _demand

22.63.1 Detailed Description

Store the time value probability mass.

Definition at line 249 of file DemandParserHelper.hpp.

22.63.2 Constructor & Destructor Documentation

22.63.2.1 TRADEMGEN::DemandParserHelper::storeTimeValueProbMass::storeTimeValueProbMass (DemandStruct & *ioDemand*)

Actor Constructor.

Definition at line 415 of file DemandParserHelper.cpp.

22.63.3 Member Function Documentation

22.63.3.1 void TRADEMGEN::DemandParserHelper::storeTimeValueProbMass::operator() (double *iReal*) const

Actor Function (functor).

Definition at line 420 of file DemandParserHelper.cpp.

References TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand, TRADEMGEN::DemandStruct::_itTimeValue, and TRADEMGEN::DemandStruct::_timeValueProbDist.

22.63.4 Member Data Documentation

22.63.4.1 DemandStruct& TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand [inherited]

Actor Context.

Definition at line 35 of file DemandParserHelper.hpp.

Referenced by TRADEMGEN::DemandParserHelper::storePrefDepDateRangeStart::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepDateRangeEnd::operator()(), TRADEMGEN::DemandParserHelper::storeDow::operator()(), TRADEMGEN::DemandParserHelper::storeOrigin::operator()(), TRADEMGEN::DemandParserHelper::storeDestination::operator()(), TRADEMGEN::DemandParserHelper::storePrefCabin::operator()(), TRADEMGEN::DemandParserHelper::storeDemandMean::operator()(), TRADEMGEN::DemandParserHelper::storeDemandStdDev::operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeProb::operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeDisutility::operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableProb::operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableDisutility::operator()(), TRADEMGEN::DemandParserHelper::storePosCode::operator()(), TRADEMGEN::DemandParserHelper::storePosProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeChannelCode::operator()(), TRADEMGEN::DemandParserHelper::storeChannelProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeTripCode::operator()(), TRADEMGEN::DemandParserHelper::storeTripProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeStayCode::operator()(), TRADEMGEN::DemandParserHelper::storeStayProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeFFCode::operator()(), TRADEMGEN::DemandParserHelper::storeFFProbMass::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepTime::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepTimeProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeWTP::operator()(), TRADEMGEN::DemandParserHelper::storeTimeValue::operator()(), operator()(), TRADEMGEN::DemandParserHelper::storeDTD::operator()(), TRADEMGEN::DemandParserHelper::storeDTDProbMass::operator()(), and TRADEMGEN::DemandParserHelper::doEndDemand::operator()().

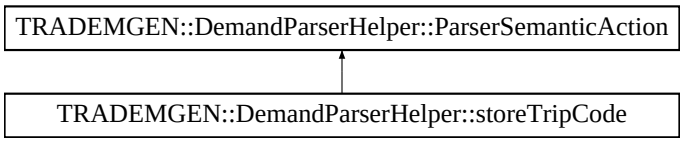
The documentation for this struct was generated from the following files:

- trademgen/command/DemandParserHelper.hpp
- trademgen/command/DemandParserHelper.cpp

22.64 TRADEMGEN::DemandParserHelper::storeTripCode Struct Reference

`#include <trademgen/command/DemandParserHelper.hpp>`

Inheritance diagram for TRADEMGEN::DemandParserHelper::storeTripCode:



Public Member Functions

- storeTripCode (DemandStruct &)
- void operator() (iterator_t iStr, iterator_t iStrEnd) const

Public Attributes

- DemandStruct & _demand

22.64.1 Detailed Description

Store the trip type code.

Definition at line 167 of file DemandParserHelper.hpp.

22.64.2 Constructor & Destructor Documentation

22.64.2.1 TRADEMGEN::DemandParserHelper::storeTripCode::storeTripCode (DemandStruct & *ioDemand*)

Actor Constructor.

Definition at line 254 of file DemandParserHelper.cpp.

22.64.3 Member Function Documentation

22.64.3.1 void TRADEMGEN::DemandParserHelper::storeTripCode::operator() (iterator_t *iStr,* iterator_t *iStrEnd*) const

Actor Function (functor).

Definition at line 259 of file DemandParserHelper.cpp.

References TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand, and TRADEMGEN::DemandStruct::_itTripCode.

22.64.4 Member Data Documentation

22.64.4.1 DemandStruct& TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand [inherited]

Actor Context.

Definition at line 35 of file DemandParserHelper.hpp.

Referenced by TRADEMGEN::DemandParserHelper::storePrefDepDateRangeStart::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepDateRangeEnd::operator()(), TRADEMGEN::DemandParserHelper::storeDow::operator()(), TRADEMGEN::DemandParserHelper::storeOrigin::operator()(), TRADEMGEN::DemandParserHelper::storeDestination::operator()(), TRADEMGEN::DemandParserHelper::storePrefCabin::operator()(), TRADEMGEN::DemandParserHelper::storeDemandMean::operator()(), TRADEMGEN::DemandParserHelper::storeDemandStdDev::operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeProb::operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeDisutility::operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableProb::operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableDisutility::operator()(), TRADEMGEN::DemandParserHelper::storePosCode::operator()(), TRADEMGEN::DemandParserHelper::storePosProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeChannelCode::operator()(), TRADEMGEN::DemandParserHelper::storeChannelProbMass::operator()(), operator()(), TRADEMGEN::DemandParserHelper::storeTripProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeStayCode::operator()(), TRADEMGEN::DemandParserHelper::storeStayProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeFFCode::operator()(), TRADEMGEN::DemandParserHelper::storeFFProbMass::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepTime::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepTimeProbMass::operator()(), TRADEMGEN::DemandParserHelper-

::storeWTP::operator()(), TRADEMGEN::DemandParserHelper::storeTimeValue::operator()(), TRADEMGEN::-DemandParserHelper::storeTimeValueProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeDT-D::operator()(), TRADEMGEN::DemandParserHelper::storeDTDProbMass::operator()(), and TRADEMGEN::-DemandParserHelper::doEndDemand::operator()().

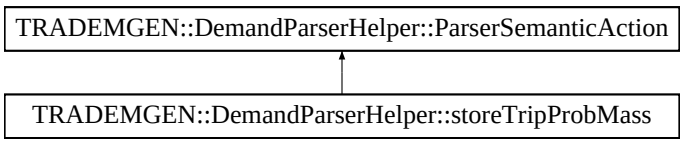
The documentation for this struct was generated from the following files:

- trademgen/command/DemandParserHelper.hpp
- trademgen/command/DemandParserHelper.cpp

22.65 TRADEMGEN::DemandParserHelper::storeTripProbMass Struct Reference

`#include <trademgen/command/DemandParserHelper.hpp>`

Inheritance diagram for TRADEMGEN::DemandParserHelper::storeTripProbMass:



Public Member Functions

- storeTripProbMass (DemandStruct &)
- void operator() (double iReal) const

Public Attributes

- DemandStruct & _demand

22.65.1 Detailed Description

Store the trip type probability mass.

Definition at line 175 of file DemandParserHelper.hpp.

22.65.2 Constructor & Destructor Documentation

22.65.2.1 TRADEMGEN::DemandParserHelper::storeTripProbMass::storeTripProbMass (DemandStruct & *ioDemand*)

Actor Constructor.

Definition at line 266 of file DemandParserHelper.cpp.

22.65.3 Member Function Documentation

22.65.3.1 void TRADEMGEN::DemandParserHelper::storeTripProbMass::operator() (double *iReal*) const

Actor Function (functor).

Definition at line 271 of file DemandParserHelper.cpp.

References TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand, TRADEMGEN::Demand-Struct::_itTripCode, and TRADEMGEN::DemandStruct::_tripProbDist.

22.65.4 Member Data Documentation

22.65.4.1 DemandStruct& TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand [inherited]

Actor Context.

Definition at line 35 of file DemandParserHelper.hpp.

Referenced by TRADEMGEN::DemandParserHelper::storePrefDepDateRangeStart::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepDateRangeEnd::operator()(), TRADEMGEN::DemandParserHelper::storeDow::operator()(), TRADEMGEN::DemandParserHelper::storeOrigin::operator()(), TRADEMGEN::DemandParserHelper::storeDestination::operator()(), TRADEMGEN::DemandParserHelper::storePrefCabin::operator()(), TRADEMGEN::DemandParserHelper::storeDemandMean::operator()(), TRADEMGEN::DemandParserHelper::storeDemandStdDev::operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeProb::operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeDisutility::operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableProb::operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableDisutility::operator()(), TRADEMGEN::DemandParserHelper::storePosCode::operator()(), TRADEMGEN::DemandParserHelper::storePosProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeChannelCode::operator()(), TRADEMGEN::DemandParserHelper::storeChannelProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeTripCode::operator()(), operator()(), TRADEMGEN::DemandParserHelper::storeStayCode::operator()(), TRADEMGEN::DemandParserHelper::storeStayProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeFFCode::operator()(), TRADEMGEN::DemandParserHelper::storeFFProbMass::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepTime::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepTimeProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeWTP::operator()(), TRADEMGEN::DemandParserHelper::storeTimeValue::operator()(), TRADEMGEN::DemandParserHelper::storeTimeValueProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeDTD::operator()(), TRADEMGEN::DemandParserHelper::storeDTDProbMass::operator()(), and TRADEMGEN::DemandParserHelper::doEndDemand::operator()().

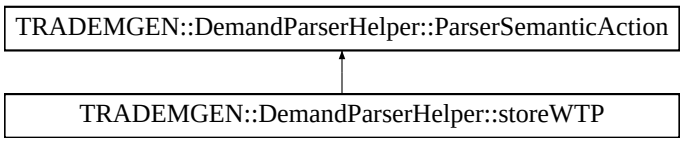
The documentation for this struct was generated from the following files:

- trademgen/command/DemandParserHelper.hpp
- trademgen/command/DemandParserHelper.cpp

22.66 TRADEMGEN::DemandParserHelper::storeWTP Struct Reference

`#include <trademgen/command/DemandParserHelper.hpp>`

Inheritance diagram for TRADEMGEN::DemandParserHelper::storeWTP:



Public Member Functions

- storeWTP (DemandStruct &)
- void operator() (double iReal) const

Public Attributes

- DemandStruct & _demand

22.66.1 Detailed Description

Store the parameters for the min Willingness-To-Pay (WTP).

Definition at line 233 of file DemandParserHelper.hpp.

22.66.2 Constructor & Destructor Documentation

22.66.2.1 TRADEMGEN::DemandParserHelper::storeWTP::storeWTP (DemandStruct & *ioDemand*)

Actor Constructor.

Definition at line 393 of file DemandParserHelper.cpp.

22.66.3 Member Function Documentation

22.66.3.1 void TRADEMGEN::DemandParserHelper::storeWTP::operator() (double *iReal*) const

Actor Function (functor).

Definition at line 398 of file DemandParserHelper.cpp.

References TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand, and TRADEMGEN::DemandStruct::_minWTP.

22.66.4 Member Data Documentation

22.66.4.1 DemandStruct& TRADEMGEN::DemandParserHelper::ParserSemanticAction::_demand [inherited]

Actor Context.

Definition at line 35 of file DemandParserHelper.hpp.

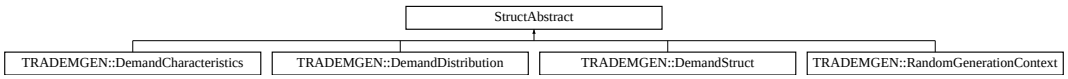
Referenced by TRADEMGEN::DemandParserHelper::storePrefDepDateRangeStart::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepDateRangeEnd::operator()(), TRADEMGEN::DemandParserHelper::storeDow::operator()(), TRADEMGEN::DemandParserHelper::storeOrigin::operator()(), TRADEMGEN::DemandParserHelper::storeDestination::operator()(), TRADEMGEN::DemandParserHelper::storePrefCabin::operator()(), TRADEMGEN::DemandParserHelper::storeDemandMean::operator()(), TRADEMGEN::DemandParserHelper::storeDemandStdDev::operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeProb::operator()(), TRADEMGEN::DemandParserHelper::storeDemandChangeFeeDisutility::operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableProb::operator()(), TRADEMGEN::DemandParserHelper::storeDemandNonRefundableDisutility::operator()(), TRADEMGEN::DemandParserHelper::storePosCode::operator()(), TRADEMGEN::DemandParserHelper::storePosProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeChannelCode::operator()(), TRADEMGEN::DemandParserHelper::storeChannelProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeTripCode::operator()(), TRADEMGEN::DemandParserHelper::storeTripProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeStayCode::operator()(), TRADEMGEN::DemandParserHelper::storeStayProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeFFCode::operator()(), TRADEMGEN::DemandParserHelper::storeFFProbMass::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepTime::operator()(), TRADEMGEN::DemandParserHelper::storePrefDepTimeProbMass::operator()(), operator()(), TRADEMGEN::DemandParserHelper::storeTimeValue::operator()(), TRADEMGEN::DemandParserHelper::storeTimeValueProbMass::operator()(), TRADEMGEN::DemandParserHelper::storeDTD::operator()(), TRADEMGEN::DemandParserHelper::storeDTDProbMass::operator()(), and TRADEMGEN::DemandParserHelper::doEndDemand::operator()().

The documentation for this struct was generated from the following files:

- trademgen/command/DemandParserHelper.hpp
- trademgen/command/DemandParserHelper.cpp

22.67 StructAbstract Class Reference

Inheritance diagram for StructAbstract:

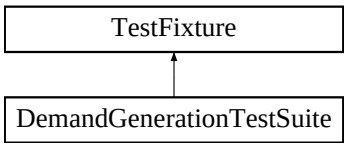


The documentation for this class was generated from the following file:

- trademgen/basic/RandomGenerationContext.hpp

22.68 TestFixture Class Reference

Inheritance diagram for TestFixture:



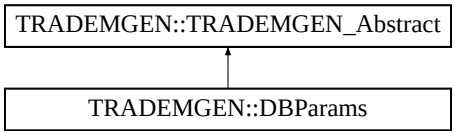
The documentation for this class was generated from the following file:

- test/trademgen/DemandGenerationTestSuite.hpp

22.69 TRADEMGEN::TRADEMGEN_Abstract Struct Reference

`#include <trademgen/TRADEMGEN_Abstract.hpp>`

Inheritance diagram for TRADEMGEN::TRADEMGEN_Abstract:



Public Member Functions

- virtual void toStream (std::ostream &ioOut) const =0
- virtual void fromStream (std::istream &ioIn)=0
- virtual std::string toString () const =0

Protected Member Functions

- TRADEMGEN_Abstract ()
- TRADEMGEN_Abstract (const TRADEMGEN_Abstract &)
- virtual ~TRADEMGEN_Abstract ()

22.69.1 Detailed Description

Base class for the TRADEMGEN interface structures.

Definition at line 16 of file TRADEMGEN_Abstract.hpp.

22.69.2 Constructor & Destructor Documentation

22.69.2.1 TRADEMGEN::TRADEMGEN_Abstract::TRADEMGEN_Abstract ( ) [inline], [protected]

Protected Default Constructor to ensure this class is abtract.

Definition at line 33 of file TRADEMGEN_Abstract.hpp.

22.69.2.2 TRADEMGEN::TRADEMGEN_Abstract::TRADEMGEN_Abstract (const TRADEMGEN_Abstract &) [inline], [protected]

Definition at line 34 of file TRADEMGEN_Abstract.hpp.

22.69.2.3 virtual TRADEMGEN::TRADEMGEN_Abstract::~TRADEMGEN_Abstract ( ) [inline], [protected], [virtual]

Destructor.

Definition at line 37 of file TRADEMGEN_Abstract.hpp.

22.69.3 Member Function Documentation

22.69.3.1 virtual void TRADEMGEN::TRADEMGEN_Abstract::toStream (std::ostream & *ioOut*) const [pure virtual]

Dump a structure into an output stream.

Parameters

ostream&	the output stream.

Implemented in TRADEMGEN::DBParams.

22.69.3.2 virtual void TRADEMGEN::TRADEMGEN_Abstract::fromStream (std::istream & *ioIn*) [pure virtual]

Read a structure from an input stream.

Parameters

istream&	the input stream.

Implemented in TRADEMGEN::DBParams.

Referenced by operator>>().

22.69.3.3 virtual std::string TRADEMGEN::TRADEMGEN_Abstract::toString ( ) const [pure virtual]

Get the serialised version of the structure.

Implemented in TRADEMGEN::DBParams.

The documentation for this struct was generated from the following file:

- trademgen/TRADEMGEN_Abstract.hpp

22.70 TRADEMGEN::TRADEMGEN_Service Class Reference

class holding the services related to Travel Demand Generation.

`#include <trademgen/TRADEMGEN_Service.hpp>`

Public Member Functions

- TRADEMGEN_Service (const stdair::BasLogParams &, const stdair::BasDBParams &, const stdair::RandomSeed_T &)
  Constructor.
- TRADEMGEN_Service (const stdair::BasLogParams &, const stdair::RandomSeed_T &)
- TRADEMGEN_Service (stdair::STDAIR_ServicePtr_T, SEVMGR::SEVMGR_ServicePtr_T, const stdair::RandomSeed_T &)
- void parseAndLoad (const DemandFilePath &)
- ~TRADEMGEN_Service ()
- void buildSampleBom ()
- void clonePersistentBom ()
- void buildComplementaryLinks (stdair::BomRoot &)
- stdair::BookingRequestStruct buildSampleBookingRequest (const bool isForCRS=false)
- void displayAirlineListFromDB () const
- const stdair::Count_T & getExpectedTotalNumberOfRequestsToBeGenerated () const
- const stdair::Count_T & getActualTotalNumberOfRequestsToBeGenerated () const
- const bool stillHavingRequestsToBeGenerated (const stdair::DemandStreamKeyStr_T &, stdair::ProgressStatusSet &, const stdair::DemandGenerationMethod &) const
- stdair::Count_T generateFirstRequests (const stdair::DemandGenerationMethod &) const
- stdair::BookingRequestPtr_T generateNextRequest (const stdair::DemandStreamKeyStr_T &, const stdair::DemandGenerationMethod &) const
- bool hasDemandStream (const stdair::DemandStreamKeyStr_T &) const
- stdair::ProgressStatusSet popEvent (stdair::EventStruct &) const
- bool isQueueDone () const
- bool generateCancellation (const stdair::TravelSolutionStruct &, const stdair::PartySize_T &, const stdair::DateTime_T &, const stdair::Date_T &) const
- void reset () const
- const stdair::ProgressStatus & getProgressStatus () const
- const stdair::ProgressStatus & getProgressStatus (const stdair::EventType::EN_EventType &) const
- std::string jsonHandler (const stdair::JSONString &) const
- std::string csvDisplay () const
- std::string list () const
- std::string list (const stdair::EventType::EN_EventType &) const
- std::string displayDemandStream () const

22.70.1 Detailed Description

class holding the services related to Travel Demand Generation.

Definition at line 44 of file TRADEMGEN_Service.hpp.

22.70.2 Constructor & Destructor Documentation

22.70.2.1 TRADEMGEN::TRADEMGEN_Service::TRADEMGEN_Service (const stdair::BasLogParams & *iLogParams,* const stdair::BasDBParams & *iDBParams,* const stdair::RandomSeed_T & *iRandomSeed*)

Constructor.

The initTrademgenService() method is called; see the corresponding documentation for more details.

A reference on an output stream is given, so that log outputs can be directed onto that stream.

Moreover, database connection parameters are given, so that a session can be created on the corresponding database.

Parameters

const	stdair::BasLogParams& Parameters for the output log stream.
const	stdair::BasDBParams& Parameters for the database access.
const	stdair::RandomSeed_T& Seed for the random generation.

Definition at line 78 of file TRADEMGEN_Service.cpp.

22.70.2.2 TRADEMGEN::TRADEMGEN_Service::TRADEMGEN_Service (const stdair::BasLogParams & *iLogParams,* const stdair::RandomSeed_T & *iRandomSeed*)

Constructor.

The initTrademgenService() method is called; see the corresponding documentation for more details.

A reference on an output stream is given, so that log outputs can be directed onto that stream.

Parameters

const	stdair::BasLogParams& Parameters for the output log stream.
const	stdair::RandomSeed_T& Seed for the random generation.

Definition at line 54 of file TRADEMGEN_Service.cpp.

22.70.2.3 TRADEMGEN::TRADEMGEN_Service::TRADEMGEN_Service (stdair::STDAIR_ServicePtr_T *ioSTDAIR_Service_ptr,* SEVMGR::SEVMGR_ServicePtr_T *ioSEVMGR_Service_ptr,* const stdair::RandomSeed_T & *iRandomSeed*)

Constructor.

The initTrademgenService() method is called; see the corresponding documentation for more details.

Moreover, as no reference on any output stream is given, neither any database access parameter is given, it is assumed that the StdAir log service has already been initialised with the proper log output stream by some other methods in the calling chain (for instance, when the TRADEMGEN_Service is itself being initialised by another library service such as TVLSIM_Service).

Parameters

stdair::STDAIR_ServicePtr_T	Handler on the STDAIR_Service.
SEVMGR::SEVMGR_ServicePtr_T	Handler on the SEVMGR_Service.
const	stdair::RandomSeed_T& Seed for the random generation.

Definition at line 104 of file TRADEMGEN_Service.cpp.

22.70.2.4 TRADEMGEN::TRADEMGEN_Service::~TRADEMGEN_Service ( )

Destructor.

Definition at line 125 of file TRADEMGEN_Service.cpp.

22.70.3 Member Function Documentation

22.70.3.1 void TRADEMGEN::TRADEMGEN_Service::parseAndLoad (const DemandFilePath & *iDemandFilePath*)

Parse the demand input file.

The CSV file, describing the parameters of the demand to be generated for the simulator, is parsed and instantiated in memory accordingly.

Parameters

const	DemandFilePath& Filename of the input demand file.

Definition at line 241 of file TRADEMGEN_Service.cpp.

References buildComplementaryLinks(), clonePersistentBom(), and generateDemand().

Referenced by TRADEMGEN::Trademgener::init(), and main().

22.70.3.2 void TRADEMGEN::TRADEMGEN_Service::buildSampleBom ( )

Build a sample BOM tree, made of a single DemandStream object.

As of now (March 2011), it corresponds to:

- Origin: SIN
- Destination: BKK
- Preferred departure date: 2011-02-14
- Preferred cabin: Y (Economy)
- POS distribution:
  - BKK: 30%
  - SIN: 70%
- Channel distribution:
  - Direct Offline: 10%
  - Direct Online: 30%
  - Indirect Offline: 40%
  - Indirect Online: 20%
- Trip type distribution:
  - Outbound: 60%
  - Inbound: 20%
  - One-way: 20%
- Arrival pattern distribution:
  - 330 DTD: 0%
  - 40 DTD: 20%
  - 20 DTD: 60%
  - 1 DTD: 100%

  15:0, 60:1
- Stay duration distribution:
  - 0 day: 10%
  - 1 day: 10%
  - 2 days: 15%

  - 3 days: 15%
  - 4 days: 15%
  - 5 days: 35%
- Frequent flyer distribution:
  - Platinum: 1%
  - Gold: 5%
  - Silver: 15%
  - Member: 30%
  - No card: 49%
- Preferred departure time (cumulative distribution):
  - 6am: 0%
  - 7am: 10%
  - 9am: 30%
  - 5pm: 40%
  - 7pm: 80%
  - 8pm: 95%
  - 10pm: 100%
- Value of time distribution:
  - 15 min: 0%
  - 60 min: 100%
- WTP: 200
- Number of requests: Normal (mu = 10.0, std_dev = 1.0)
- Change fee: 20; Non refundable; Saturday night stay

Definition at line 310 of file TRADEMGEN_Service.cpp.

References buildComplementaryLinks(), and clonePersistentBom().

Referenced by TRADEMGEN::Trademgener::init(), and main().

22.70.3.3 void TRADEMGEN::TRADEMGEN_Service::clonePersistentBom ( )

Clone the persistent BOM object.

Definition at line 382 of file TRADEMGEN_Service.cpp.

References buildComplementaryLinks().

Referenced by buildSampleBom(), and parseAndLoad().

22.70.3.4 void TRADEMGEN::TRADEMGEN_Service::buildComplementaryLinks (stdair::BomRoot & *ioBomRoot*)

Build all the complementary links in the given bom root object.

Note

Do nothing for now.

Definition at line 419 of file TRADEMGEN_Service.cpp.

Referenced by buildSampleBom(), clonePersistentBom(), and parseAndLoad().

22.70.3.5 stdair::BookingRequestStruct TRADEMGEN::TRADEMGEN_Service::buildSampleBookingRequest (const bool *isForCRS* = `false`)

Build a sample booking request structure.

As of now (March 2011), the sample booking request is made of the following parameters:

- Return trip (inbound): LHR-SYD (POS: LHR, Channel: DN),
- Departing 10-JUN-2011 around 8:00, staying 7 days
- Requested on 15-MAY-2011 at 10:00
- Economy cabin, 3 persons, FF member
- WTP: 1000.0 EUR
- Dis-utility: 100.0 EUR/hour

As of now (March 2011), the CRS-related booking request is made of the following parameters:

- Return trip (inbound): SIN-BKK (POS: SIN, Channel: IN),
- Departing 30-JAN-2010 around 10:00, staying 7 days
- Requested on 22-JAN-2010 at 10:00
- Economy cabin, 3 persons, FF member
- WTP: 1000.0 EUR
- Dis-utility: 100.0 EUR/hour

See also

stdair::CmdBomManager for more details.

Parameters

const	bool isForCRS Whether the sample booking request is for CRS.

Returns

BookingRequestStruct& Sample booking request structure.

Definition at line 425 of file TRADEMGEN_Service.cpp.

22.70.3.6 void TRADEMGEN::TRADEMGEN_Service::displayAirlineListFromDB ( ) const

Display the list of airlines, as held within the sample database.

Definition at line 535 of file TRADEMGEN_Service.cpp.

Referenced by main().

22.70.3.7 const stdair::Count_T & TRADEMGEN::TRADEMGEN_Service::getExpectedTotalNumberOfRequestsToBeGenerated ( ) const

Get the expected number of events/requests to be generated for all the demand streams.

Calls the SEvMgr service with the same name "getExpectedTotalNumberOfRequestsToBeGenerated", which computes that number.

Note

That number usually corresponds to an expectation (i.e., the mean value of a random distribution). The actual number will be drawn when calling the generateFirstRequests() method.

Returns

const stdair::Count_T& Expected number of events to be generated.

Definition at line 596 of file TRADEMGEN_Service.cpp.

Referenced by generateDemand(), and TRADEMGEN::Trademgener::trademgen().

22.70.3.8 const stdair::Count_T & TRADEMGEN::TRADEMGEN_Service::getActualTotalNumberOfRequestsToBeGenerated ( ) const

Get the actual number of events/requests to be generated for all the demand streams.

Calls the SEvMgr service with the same name "getActualTotalNumberOfRequestsToBeGenerated", which computes that number.

Note

That number has been drawn when calling the generateFirstRequests() method.

Returns

const stdair::Count_T& Expected number of events to be generated.

Definition at line 617 of file TRADEMGEN_Service.cpp.

22.70.3.9 const bool TRADEMGEN::TRADEMGEN_Service::stillHavingRequestsToBeGenerated (const stdair::DemandStreamKeyStr_T & *iKey,* stdair::ProgressStatusSet & *ioPSS,* const stdair::DemandGenerationMethod & *iDemandGenerationMethod*) const

Check whether enough requests have already been generated for the demand stream which corresponds to the given key.

Parameters

const	DemandStreamKey& A string identifying uniquely the demand stream (e.g., "SIN-HND 2010--Feb-08 Y").
const	stdair::DemandGenerationMethod& States whether the demand generation must be performed following the method based on statistic orders. The alternative method, while more "intuitive", is also a sequential algorithm.

Returns

bool Whether or not there are still events to be generated for that demand stream.

Definition at line 638 of file TRADEMGEN_Service.cpp.

22.70.3.10 stdair::Count_T TRADEMGEN::TRADEMGEN_Service::generateFirstRequests (const stdair::DemandGenerationMethod & *iDemandGenerationMethod*) const

Browse the list of demand streams and generate the first request of each stream.

Parameters

const	stdair::DemandGenerationMethod& States whether the demand generation must be performed following the method based on statistic orders. The alternative method, while more "intuitive", is also a sequential algorithm.

Returns

stdair::Count_T The expected total number of events to be generated

Definition at line 663 of file TRADEMGEN_Service.cpp.

Referenced by generateDemand(), and TRADEMGEN::Trademgener::trademgen().

22.70.3.11 stdair::BookingRequestPtr_T TRADEMGEN::TRADEMGEN_Service::generateNextRequest (const stdair::DemandStreamKeyStr_T & *iKey,* const stdair::DemandGenerationMethod & *iDemandGenerationMethod*) const

Generate a request with the demand stream which corresponds to the given key.

Parameters

const	DemandStreamKey& A string identifying uniquely the demand stream (e.g., "SIN-HND 2010--Feb-08 Y").
const	stdair::DemandGenerationMethod& States whether the demand generation must be performed following the method based on statistic orders. The alternative method, while more "intuitive", is also a sequential algorithm.

Returns

stdair::BookingRequestPtr_T (Boost) shared pointer on the booking request structure, which has just been created.

Definition at line 689 of file TRADEMGEN_Service.cpp.

Referenced by generateDemand(), and TRADEMGEN::Trademgener::trademgen().

22.70.3.12 bool TRADEMGEN::TRADEMGEN_Service::hasDemandStream (const stdair::DemandStreamKeyStr_T & *iDemandStreamKey*) const

States whether a demand stream with the given key is used to generate demand.

Parameters

const	DemandStreamKey& A string identifying uniquely the demand stream (e.g., "SIN-HND 2010--Feb-08 Y").

Definition at line 868 of file TRADEMGEN_Service.cpp.

22.70.3.13 stdair::ProgressStatusSet TRADEMGEN::TRADEMGEN_Service::popEvent (stdair::EventStruct & *ioEventStruct*) const

Pop the next coming (in time) event, and remove it from the event queue thanks to the SEvMgr service.

- The next coming (in time) event corresponds to the event having the earliest date-time stamp. In other words, it is the first/front element of the event queue.
- That (first) event/element is then removed from the event queue
- The progress status is updated for the corresponding demand stream.

Returns

stdair::EventStruct A copy of the event structure, which comes first in time from within the event queue.

Definition at line 713 of file TRADEMGEN_Service.cpp.

Referenced by generateDemand(), and TRADEMGEN::Trademgener::trademgen().

22.70.3.14 bool TRADEMGEN::TRADEMGEN_Service::isQueueDone ( ) const

States whether the event queue has reached the end.

Calls the SEvMgr service with the same name "isQueueDone", which states whether the event queue has reached the end.

For now, that method states whether the event queue is empty.

Definition at line 729 of file TRADEMGEN_Service.cpp.

Referenced by generateDemand(), and TRADEMGEN::Trademgener::trademgen().

22.70.3.15 bool TRADEMGEN::TRADEMGEN_Service::generateCancellation (const stdair::TravelSolutionStruct & *iTravelSolution,* const stdair::PartySize_T & *iPartySize,* const stdair::DateTime_T & *iRequestTime,* const stdair::Date_T & *iDepartureDate*) const

Generate the potential cancellation event.

Definition at line 749 of file TRADEMGEN_Service.cpp.

22.70.3.16 void TRADEMGEN::TRADEMGEN_Service::reset ( ) const

Reset the context of the demand streams for another demand generation without having to reparse the demand input file.

Definition at line 811 of file TRADEMGEN_Service.cpp.

Referenced by generateDemand(), and TRADEMGEN::Trademgener::trademgen().

22.70.3.17 const stdair::ProgressStatus & TRADEMGEN::TRADEMGEN_Service::getProgressStatus ( ) const

Get the overall progress status (for the whole event queue).

Definition at line 832 of file TRADEMGEN_Service.cpp.

22.70.3.18 const stdair::ProgressStatus & TRADEMGEN::TRADEMGEN_Service::getProgressStatus (const stdair::EventType::EN_EventType & *iEventType*) const

Get the progress status for the given event type (e.g., booking request, optimisation notification, schedule change, break point).

Definition at line 850 of file TRADEMGEN_Service.cpp.

22.70.3.19 std::string TRADEMGEN::TRADEMGEN_Service::jsonHandler (const stdair::JSONString & *iJSONString*) const

Dispatch the JSon command string to the SEvMgr service. (Only SEvMgr has json export commands for now).

Parameters

const	stdair::JSONString& Input string which contained the JSon command string.

Returns

std::string Output string in which the asking objects are logged/dumped with a JSon format.

Definition at line 447 of file TRADEMGEN_Service.cpp.

22.70.3.20 std::string TRADEMGEN::TRADEMGEN_Service::csvDisplay ( ) const

Recursively display (dump in the returned string) the objects of the BOM tree.

Returns

std::string Output string in which the BOM tree is logged/dumped.

Definition at line 468 of file TRADEMGEN_Service.cpp.

Referenced by generateDemand(), and TRADEMGEN::Trademgener::trademgen().

22.70.3.21 std::string TRADEMGEN::TRADEMGEN_Service::list ( ) const

Display (dump in the returned string) the event list of the event queue.

Returns

std::string Output string in which the events are logged/dumped.

Definition at line 490 of file TRADEMGEN_Service.cpp.

22.70.3.22 std::string TRADEMGEN::TRADEMGEN_Service::list (const stdair::EventType::EN_EventType & *iEventType*) const

Display (dump in the returned string) the events with the given type

Returns

std::string Output string in which the events are logged/dumped.

Definition at line 513 of file TRADEMGEN_Service.cpp.

22.70.3.23 std::string TRADEMGEN::TRADEMGEN_Service::displayDemandStream ( ) const

Display (dump in the returned string) the demand streams

Returns

std::string Output string in which the demand streams are logged/dumped.

Definition at line 885 of file TRADEMGEN_Service.cpp.

References TRADEMGEN::DemandStream::describeKey().

The documentation for this class was generated from the following files:

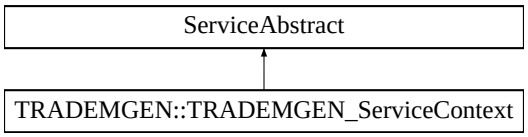
- trademgen/TRADEMGEN_Service.hpp
- trademgen/service/TRADEMGEN_Service.cpp

22.71 TRADEMGEN::TRADEMGEN_ServiceContext Class Reference

Class holding the context of the Trademgen services.

`#include <trademgen/service/TRADEMGEN_ServiceContext.hpp>`

Inheritance diagram for TRADEMGEN::TRADEMGEN_ServiceContext:



Friends

- class TRADEMGEN_Service
- class FacTRADEMGENServiceContext

22.71.1 Detailed Description

Class holding the context of the Trademgen services.

Definition at line 34 of file TRADEMGEN_ServiceContext.hpp.

22.71.2 Friends And Related Function Documentation

22.71.2.1 friend class TRADEMGEN_Service [friend]

The TRADEMGEN_Service class should be the sole class to get access to ServiceContext content: general users do not want to bother with a context interface.

Definition at line 40 of file TRADEMGEN_ServiceContext.hpp.

22.71.2.2 friend class FacTRADEMGENServiceContext [friend]

Definition at line 41 of file TRADEMGEN_ServiceContext.hpp.

The documentation for this class was generated from the following files:

- trademgen/service/TRADEMGEN_ServiceContext.hpp
- trademgen/service/TRADEMGEN_ServiceContext.cpp

22.72 TRADEMGEN::Trademgener Struct Reference

Wrapper structure around the C++ API, so as to expose a Python API.

Public Member Functions

- std::string trademgen (const NbOfRuns_T &iNbOfRuns, const std::string &iDemandGenerationMethodString)
- Trademgener ()
- Trademgener (const Trademgener &iTrademgener)
- ~Trademgener ()
- bool init (const std::string &iLogFilepath, const stdair::RandomSeed_T &iRandomSeed, const bool isBuiltin, const stdair::Filename_T &iDemandInputFilename)

22.72.1 Detailed Description

Wrapper structure around the C++ API, so as to expose a Python API.

Definition at line 70 of file pytrademgen.cpp.

22.72.2 Constructor & Destructor Documentation

22.72.2.1 TRADEMGEN::Trademgener::Trademgener ( ) [inline]

Default constructor.

Definition at line 266 of file pytrademgen.cpp.

22.72.2.2 TRADEMGEN::Trademgener::Trademgener (const Trademgener & *iTrademgener*) [inline]

Default copy constructor.

Definition at line 270 of file pytrademgen.cpp.

22.72.2.3 TRADEMGEN::Trademgener::~Trademgener ( ) [inline]

Default constructor.

Definition at line 276 of file pytrademgen.cpp.

22.72.3 Member Function Documentation

22.72.3.1 std::string TRADEMGEN::Trademgener::trademgen (const NbOfRuns_T & *iNbOfRuns,* const std::string & *iDemandGenerationMethodString*) [inline]

Wrapper around the travel demand generation use case.

Definition at line 76 of file pytrademgen.cpp.

References TRADEMGEN::TRADEMGEN_Service::csvDisplay(), TRADEMGEN::TRADEMGEN_Service::generateFirstRequests(), TRADEMGEN::TRADEMGEN_Service::generateNextRequest(), TRADEMGEN::TRADEMGEN_Service::getExpectedTotalNumberOfRequestsToBeGenerated(), TRADEMGEN::TRADEMGEN_Service::isQueueDone(), TRADEMGEN::TRADEMGEN_Service::popEvent(), TRADEMGEN::TRADEMGEN_Service::reset(), and TRADEMGEN::stat_display().

Referenced by BOOST_PYTHON_MODULE().

22.72.3.2 bool TRADEMGEN::Trademgener::init (const std::string & *iLogFilepath,* const stdair::RandomSeed_T & *iRandomSeed,* const bool *isBuiltin,* const stdair::Filename_T & *iDemandInputFilename*) [inline]

Wrapper around the search use case.

Definition at line 284 of file pytrademgen.cpp.

References TRADEMGEN::TRADEMGEN_Service::buildSampleBom(), and TRADEMGEN::TRADEMGEN_Service::parseAndLoad().

Referenced by BOOST_PYTHON_MODULE().

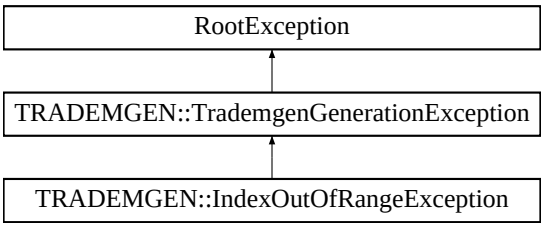
The documentation for this struct was generated from the following file:

- trademgen/python/pytrademgen.cpp

22.73 TRADEMGEN::TrademgenGenerationException Class Reference

`#include <trademgen/TRADEMGEN_Exceptions.hpp>`

Inheritance diagram for TRADEMGEN::TrademgenGenerationException:



Public Member Functions

- TrademgenGenerationException (const std::string &iWhat)

22.73.1 Detailed Description

Root exception for the TraDemGen component

Definition at line 18 of file TRADEMGEN_Exceptions.hpp.

22.73.2 Constructor & Destructor Documentation

22.73.2.1 TRADEMGEN::TrademgenGenerationException::TrademgenGenerationException (const std::string & *iWhat*) [inline]

Constructor.

Definition at line 23 of file TRADEMGEN_Exceptions.hpp.

The documentation for this class was generated from the following file:

- trademgen/TRADEMGEN_Exceptions.hpp

23 File Documentation

23.1 doc/local/authors.doc File Reference

23.2 doc/local/codingrules.doc File Reference

23.3 doc/local/copyright.doc File Reference

23.4 doc/local/documentation.doc File Reference

23.5 doc/local/features.doc File Reference

23.6 doc/local/help_wanted.doc File Reference

23.7 doc/local/howto_release.doc File Reference

23.8 doc/local/index.doc File Reference

23.9 doc/local/installation.doc File Reference

23.10 doc/local/linking.doc File Reference

23.11 doc/local/test.doc File Reference

23.12 doc/local/users_guide.doc File Reference

23.13 doc/local/verification.doc File Reference

23.14 doc/tutorial/tutorial.doc File Reference

23.15 test/trademgen/DemandGenerationTestSuite.cpp File Reference

23.16 DemandGenerationTestSuite.cpp

```
00001
00005 // ////////////////////////////////////////////////////////////////////
00006 // Import section
00007 // ////////////////////////////////////////////////////////////////////
00008 // STL
00009 #include <sstream>
00010 #include <fstream>
```

```
00011 #include <map>
00012 #include <cmath>
00013 // Boost Unit Test Framework (UTF)
00014 #define BOOST_TEST_DYN_LINK
00015 #define BOOST_TEST_MAIN
00016 #define BOOST_TEST_MODULE DemandGenerationTest
00017 #include <boost/test/unit_test.hpp>
00018 // StdAir
00019 #include <stdair/stdair_basic_types.hpp>
00020 #include <stdair/basic/BasConst_General.hpp>
00021 #include <stdair/basic/BasLogParams.hpp>
00022 #include <stdair/basic/BasDBParams.hpp>
00023 #include <stdair/basic/BasFileMgr.hpp>
00024 #include <stdair/basic/ProgressStatusSet.hpp>
00025 #include <stdair/bom/EventStruct.hpp>
00026 #include <stdair/bom/BookingRequestStruct.hpp>
00027 #include <stdair/service/Logger.hpp>
00028 // TraDemGen
00029 #include <trademgen/TRADEMGEN_Exceptions.hpp>
00030 #include <trademgen/TRADEMGEN_Service.hpp>
00031 #include <trademgen/bom/DemandStreamKey.hpp>
00032 #include <trademgen/config/trademgen-paths.hpp
      >
00033
00034 namespace boost_utf = boost::unit_test;
00035
00036 // (Boost) Unit Test XML Report
00037 std::ofstream utfReportStream ("DemandGenerationTestSuite_utfresults.xml");
00038
00042 struct UnitTestConfig {
00044   UnitTestConfig() {
00045     boost_utf::unit_test_log.set_stream (utfReportStream);
00046     boost_utf::unit_test_log.set_format (boost_utf::XML);
00047     boost_utf::unit_test_log.set_threshold_level (boost_utf::log_test_units);
00048     //boost_utf::unit_test_log.set_threshold_level
       (boost_utf::log_successful_tests);
00049   }
00050
00052   ~UnitTestConfig() {
00053   }
00054 };
00055
00056 // Specific type definitions
00057 typedef std::pair<stdair::Count_T, stdair::Count_T> NbOfEventsPair_T;
00058 typedef std::map<const stdair::DemandStreamKeyStr_T,
00059                  NbOfEventsPair_T> NbOfEventsByDemandStreamMap_T;
00060
00061 // ////////////////////////////////////////////////////////////////////
00065 void testDemandGenerationHelper (const unsigned short iTestFlag,
00066                                  const stdair::Filename_T& iDemandInputFilename
       ,
00067                                  const stdair::DemandGenerationMethod&
      iDemandGenerationMethod,
00068                                  const bool isBuiltin) {
00069
00070   // Seed for the random generation
00071   const stdair::RandomSeed_T lRandomSeed = stdair::DEFAULT_RANDOM_SEED;
00072
00073   // Output log File
00074   std::ostringstream oStr;
00075   oStr << "DemandGenerationTestSuite_" << iTestFlag << ".log";
00076   const stdair::Filename_T lLogFilename (oStr.str());
00077
00078   // Set the log parameters
00079   std::ofstream logOutputFile;
00080   // Open and clean the log outputfile
00081   logOutputFile.open (lLogFilename.c_str());
00082   logOutputFile.clear();
00083
00084   // Initialise the TraDemGen service object
00085   const stdair::BasLogParams lLogParams (stdair::LOG::DEBUG, logOutputFile);
00086   TRADEMGEN::TRADEMGEN_Service trademgenService (
      lLogParams, lRandomSeed);
00087
00097   NbOfEventsByDemandStreamMap_T lNbOfEventsMap;
00098
00099   // Total number of events
00100   stdair::Count_T lRefExpectedNbOfEvents (0);
00101   stdair::Count_T lRefActualNbOfEvents (0);
00102
00103   // Check whether or not a (CSV) input file should be read
00104   if (isBuiltin == true) {
00105
00106     // Build the default sample BOM tree (filled with demand streams) for
       TraDemGen
00107     trademgenService.buildSampleBom();
00108
```

```
00109     lNbOfEventsMap.insert (NbOfEventsByDemandStreamMap_T::
00110                            value_type ("SIN-BKK 2010-Feb-08 Y",
00111                                        NbOfEventsPair_T (4, 60)));
00112     lNbOfEventsMap.insert (NbOfEventsByDemandStreamMap_T::
00113                            value_type ("BKK-HKG 2010-Feb-08 Y",
00114                                        NbOfEventsPair_T (4, 60)));
00115     lNbOfEventsMap.insert (NbOfEventsByDemandStreamMap_T::
00116                            value_type ("SIN-HKG 2010-Feb-08 Y",
00117                                        NbOfEventsPair_T (4, 60)));
00118
00119     // Total number of events, for the 3 demand streams: 180
00120     lRefExpectedNbOfEvents = 180;
00121     lRefActualNbOfEvents = 186;
00122
00123   } else {
00124
00125     // Create the DemandStream objects, and insert them within the BOM tree
00126     const TRADEMGEN::DemandFilePath lDemandFilePath (
      iDemandInputFilename);
00127     trademgenService.parseAndLoad (lDemandFilePath);
00128
00129     lNbOfEventsMap.insert (NbOfEventsByDemandStreamMap_T::
00130                            value_type ("SIN-HND 2010-Feb-08 Y",
00131                                        NbOfEventsPair_T (1, 10)));
00132     lNbOfEventsMap.insert (NbOfEventsByDemandStreamMap_T::
00133                            value_type ("SIN-HND 2010-Feb-09 Y",
00134                                        NbOfEventsPair_T (1, 10)));
00135     lNbOfEventsMap.insert (NbOfEventsByDemandStreamMap_T::
00136                            value_type ("SIN-BKK 2010-Feb-08 Y",
00137                                        NbOfEventsPair_T (1, 10)));
00138     lNbOfEventsMap.insert (NbOfEventsByDemandStreamMap_T::
00139                            value_type ("SIN-BKK 2010-Feb-09 Y",
00140                                        NbOfEventsPair_T (1, 10)));
00141
00142     // Total number of events, for the 4 demand streams: 40
00143     lRefExpectedNbOfEvents = 40;
00144     lRefActualNbOfEvents = 40;
00145   }
00146
00147   // Retrieve the expected (mean value of the) number of events to be
00148   // generated
00149   const stdair::Count_T& lExpectedNbOfEventsToBeGenerated =
00150     trademgenService.getExpectedTotalNumberOfRequestsToBeGenerated();
00151
00152   BOOST_CHECK_EQUAL (lRefExpectedNbOfEvents,
00153                      std::floor (lExpectedNbOfEventsToBeGenerated));
00154
00155   BOOST_CHECK_MESSAGE (lRefExpectedNbOfEvents ==
00156                        std::floor (lExpectedNbOfEventsToBeGenerated),
00157                        "Expected total number of requests to be generated: "
00158                        << lExpectedNbOfEventsToBeGenerated
00159                        << " (=> "
00160                        << std::floor (lExpectedNbOfEventsToBeGenerated)
00161                        << "). Reference value: " << lRefExpectedNbOfEvents);
00162
00168   const stdair::Count_T& lActualNbOfEventsToBeGenerated =
00169     trademgenService.generateFirstRequests(iDemandGenerationMethod);
00170
00171   // DEBUG
00172   STDAIR_LOG_DEBUG ("Expected number of events: "
00173                     << lExpectedNbOfEventsToBeGenerated << ", actual: "
00174                     << lActualNbOfEventsToBeGenerated);
00175
00176   // Total number of events, for all the demand streams:
00177   BOOST_CHECK_EQUAL (lRefActualNbOfEvents, lActualNbOfEventsToBeGenerated);
00178
00179   BOOST_CHECK_MESSAGE (lRefActualNbOfEvents == lActualNbOfEventsToBeGenerated,
00180                        "Actual total number of requests to be generated: "
00181                        << lExpectedNbOfEventsToBeGenerated
00182                        << " (=> "
00183                        << std::floor (lExpectedNbOfEventsToBeGenerated)
00184                        << "). Reference value: " << lRefActualNbOfEvents);
00185
00187   const bool isQueueDone = trademgenService.isQueueDone();
00188   BOOST_REQUIRE_MESSAGE (isQueueDone == false,
00189                          "The event queue should not be empty.");
00190
00198   stdair::Count_T idx = 1;
00199   while (trademgenService.isQueueDone() == false) {
00200
00201     // Get the next event from the event queue
00202     stdair::EventStruct lEventStruct;
00203     stdair::ProgressStatusSet lPPS = trademgenService.popEvent (lEventStruct);
00204
00205     // DEBUG
00206     STDAIR_LOG_DEBUG ("Poped event: '" << lEventStruct.describe() << "'.");
00207
```

```
00208     // Extract the corresponding demand/booking request
00209     const stdair::BookingRequestStruct& lPoppedRequest =
00210       lEventStruct.getBookingRequest();
00211
00212     // DEBUG
00213     STDAIR_LOG_DEBUG ("Poped booking request: '"
00214                       << lPoppedRequest.describe() << "'.");
00215
00216     // Retrieve the corresponding demand stream
00217     const stdair::DemandGeneratorKey_T& lDemandStreamKey =
00218       lPoppedRequest.getDemandGeneratorKey();
00219
00220     // Check that the number of booking requests to be generated are correct
00221     const NbOfEventsByDemandStreamMap_T::iterator itNbOfEventsMap =
00222       lNbOfEventsMap.find (lDemandStreamKey);
00223     BOOST_REQUIRE_MESSAGE (itNbOfEventsMap != lNbOfEventsMap.end(),
00224                            "The demand stream key '" << lDemandStreamKey
00225                            << "' is not expected in that test");
00226
00236     const NbOfEventsPair_T& lNbOfEventsPair = itNbOfEventsMap->second;
00237     stdair::Count_T lCurrentNbOfEvents = lNbOfEventsPair.first;
00238     const stdair::Count_T& lExpectedTotalNbOfEvents = lNbOfEventsPair.second;
00239
00240     // Assess whether more events should be generated for that demand stream
00241     const bool stillHavingRequestsToBeGenerated = trademgenService.
00242       stillHavingRequestsToBeGenerated (lDemandStreamKey, lPPS,
00243                                         iDemandGenerationMethod);
00244
00251     if (lCurrentNbOfEvents == 1) {
00257       const stdair::ProgressStatus& lDemandStreamProgressStatus =
00258         lPPS.getSpecificGeneratorStatus();
00259       const stdair::Count_T& lNbOfRequests =
00260         lDemandStreamProgressStatus.getExpectedNb();
00261
00262       BOOST_CHECK_EQUAL (lNbOfRequests, lExpectedTotalNbOfEvents);
00263       BOOST_CHECK_MESSAGE (lNbOfRequests == lExpectedTotalNbOfEvents,
00264                            "[" << lDemandStreamKey
00265                            << "] Total number of requests to be generated: "
00266                            << lNbOfRequests << "). Expected value: "
00267                            << lExpectedTotalNbOfEvents);
00268     }
00269
00270     // DEBUG
00271     STDAIR_LOG_DEBUG ("=> [" << lDemandStreamKey << "][" << lCurrentNbOfEvents
00272                       << "/" << lExpectedTotalNbOfEvents
00273                       << "] is now processed. "
00274                       << "Still generate events for that demand stream? "
00275                       << stillHavingRequestsToBeGenerated);
00276
00277     // If there are still events to be generated for that demand stream,
00278     // generate and add them to the event queue
00279     if (stillHavingRequestsToBeGenerated == true) {
00280       const stdair::BookingRequestPtr_T lNextRequest_ptr =
00281         trademgenService.generateNextRequest (lDemandStreamKey,
00282                                               iDemandGenerationMethod);
00283       assert (lNextRequest_ptr != NULL);
00284
00290       const stdair::Duration_T lDuration =
00291         lNextRequest_ptr->getRequestDateTime()
00292         - lPoppedRequest.getRequestDateTime();
00293       BOOST_REQUIRE_GT (lDuration.total_milliseconds(), 0);
00294       BOOST_REQUIRE_MESSAGE (lDuration.total_milliseconds() > 0,
00295                              "[" << lDemandStreamKey
00296                              << "] The date-time of the generated event ("
00297                              << lNextRequest_ptr->getRequestDateTime()
00298                              << ") is lower than the date-time "
00299                              << "of the current event ("
00300                              << lPoppedRequest.getRequestDateTime() << ")");
00301
00302       // DEBUG
00303       STDAIR_LOG_DEBUG ("[" << lDemandStreamKey << "][" << lCurrentNbOfEvents
00304                         << "/" << lExpectedTotalNbOfEvents
00305                         << "] Added request: '" << lNextRequest_ptr->describe()
00306                         << "'. Is queue done? "
00307                         << trademgenService.isQueueDone());
00308
00309       // Keep, within the dedicated map, the current counters of events
    updated.
00310       ++lCurrentNbOfEvents;
00311       itNbOfEventsMap->second = NbOfEventsPair_T (lCurrentNbOfEvents,
00312                                                   lExpectedTotalNbOfEvents);
00313     }
00314
00315     // Iterate
00316     ++idx;
00317   }
00318   // Compensate for the last iteration
```

```
00319   --idx;
00320
00321   if (iDemandGenerationMethod == stdair::DemandGenerationMethod::STA_ORD) {
00322     //
00323     BOOST_CHECK_EQUAL (idx, lRefActualNbOfEvents);
00324     BOOST_CHECK_MESSAGE (idx == lRefActualNbOfEvents,
00325                          "The total actual number of events is "
00326                          << lRefActualNbOfEvents << ", but " << idx
00327                          << " events have been generated");
00328   }
00329
00332   trademgenService.reset();
00333
00334   // DEBUG
00335   STDAIR_LOG_DEBUG ("End of the simulation");
00336
00337   // Close the log file
00338   logOutputFile.close();
00339
00340 }
00341
00342
00343 // /////////////// Main: Unit Test Suite //////////////
00344
00345 // Set the UTF configuration (re-direct the output to a specific file)
00346 BOOST_GLOBAL_FIXTURE (UnitTestConfig);
00347
00348 // Start the test suite
00349 BOOST_AUTO_TEST_SUITE (master_test_suite)
00350
00351
00354 BOOST_AUTO_TEST_CASE (trademgen_simple_simulation_test) {
00355
00356   // Input file name
00357   const stdair::Filename_T lInputFilename (STDAIR_SAMPLE_DIR "
      /demand01.csv");
00358
00359   // Generate the date time of the requests with the statistic order method.
00360   const stdair::DemandGenerationMethod lDemandGenerationMethod (
      stdair::DemandGenerationMethod::STA_ORD);
00361
00362   // State whether the BOM tree should be built-in or parsed from an input file
00363   const bool isBuiltin = false;
00364   BOOST_CHECK_NO_THROW (testDemandGenerationHelper(0,
00365                                                    lInputFilename,
00366                                                    lDemandGenerationMethod,
00367                                                    isBuiltin));
00368
00369 }
00370
00374 BOOST_AUTO_TEST_CASE (trademgen_missing_input_file_test) {
00375
00376   // Input file name
00377   const stdair::Filename_T lInputFilename (STDAIR_SAMPLE_DIR "
      /missingFile.csv");
00378
00379   // Generate the date time of the requests with the statistic order method.
00380   const stdair::DemandGenerationMethod lDemandGenerationMethod (
      stdair::DemandGenerationMethod::STA_ORD);
00381
00382   // State whether the BOM tree should be built-in or parsed from an input file
00383   const bool isBuiltin = false;
00384   BOOST_CHECK_THROW (testDemandGenerationHelper(1,
00385                                                 lInputFilename,
00386                                                 lDemandGenerationMethod,
00387                                                 isBuiltin),
00388                      TRADEMGEN::DemandInputFileNotFoundException
      );
00389
00390 }
00391
00395 BOOST_AUTO_TEST_CASE (trademgen_default_bom_simulation_test) {
00396
00397   // Generate the date time of the requests with the statistic order method.
00398   const stdair::DemandGenerationMethod lDemandGenerationMethod (
      stdair::DemandGenerationMethod::STA_ORD);
00399
00400   // State whether the BOM tree should be built-in or parsed from an input file
00401   const bool isBuiltin = true;
00402   BOOST_CHECK_NO_THROW (testDemandGenerationHelper(2,
00403                                                    " ",
00404                                                    lDemandGenerationMethod,
00405                                                    isBuiltin));
00406
00407 }
00408
00412 BOOST_AUTO_TEST_CASE (trademgen_poisson_process_test) {
```

```
00413
00414   // Generate the date time of the requests with the poisson process.
00415   const stdair::DemandGenerationMethod lDemandGenerationMethod (
      stdair::DemandGenerationMethod::POI_PRO);
00416
00417   // State whether the BOM tree should be built-in or parsed from an input file
00418   const bool isBuiltin = true;
00419   BOOST_CHECK_NO_THROW (testDemandGenerationHelper(3,
00420                                                    " " ,
00421                                                    lDemandGenerationMethod,
00422                                                    isBuiltin));
00423
00424 }
00425
00426 // End the test suite
00427 BOOST_AUTO_TEST_SUITE_END()
00428
00429
```

23.17 test/trademgen/DemandGenerationTestSuite.hpp File Reference

```
#include <iosfwd>
#include <cppunit/extensions/HelperMacros.h>
```

Classes

- class DemandGenerationTestSuite

Functions

- CPPUNIT_TEST_SUITE_REGISTRATION (DemandGenerationTestSuite)

23.17.1 Function Documentation

23.17.1.1 CPPUNIT_TEST_SUITE_REGISTRATION (DemandGenerationTestSuite)

23.18 DemandGenerationTestSuite.hpp

```
00001 // STL
00002 #include <iosfwd>
00003 // CPPUNIT
00004 #include <cppunit/extensions/HelperMacros.h>
00005
00006 class DemandGenerationTestSuite : public
      CppUnit::TestFixture {
00007   CPPUNIT_TEST_SUITE (DemandGenerationTestSuite);
00008   CPPUNIT_TEST (simpleEventGeneration);
00009   //  CPPUNIT_TEST (errorCase);
00010   CPPUNIT_TEST_SUITE_END ();
00011 public:
00012
00014   void simpleEventGeneration();
00015
00017   //  void errorCase ();
00018
00020   DemandGenerationTestSuite ();
00021
00022 private:
00024   void simpleEventGenerationHelper();
00025
00026 protected:
00027   std::stringstream _describeKey;
00028 };
00029
00030 CPPUNIT_TEST_SUITE_REGISTRATION (
      DemandGenerationTestSuite);
```

23.19 test/trademgen/generateEvents.cpp File Reference

```
#include <cassert>
#include <string>
#include <map>
#include <iostream>
#include <sstream>
#include <test/trademgen/EventStream.hpp>
#include <test/trademgen/CategoricalAttribute.hpp>
```

Functions

- int main (int argc, char ∗const argv[])

23.19.1 Function Documentation

23.19.1.1 int main (int *argc*, char ∗const *argv[]*)

Definition at line 12 of file generateEvents.cpp.

23.20 generateEvents.cpp

```
00001 // STL
00002 #include <cassert>
00003 #include <string>
00004 #include <map>
00005 #include <iostream>
00006 #include <sstream>
00007 // TraDemGen
00008 #include <test/trademgen/EventStream.hpp>
00009 #include <test/trademgen/CategoricalAttribute.hpp>
00010
00011 // ////////////// M A I N //////////////////
00012 int main (int argc, char* const argv[]) {
00013   // input: seed, rate
00014   unsigned long int seed = 2;
00015
00016   if (argc >= 2) {
00017     std::istringstream iStream (argv[1]);
00018     iStream >> seed;
00019   }
00020
00021   // create event stream
00022   TRADEMGEN::EventStream e (seed);
00023   e.setKey("hello");
00024   e.setRate(2.0);
00025
00026   // get rate
00027   // const double r = e.getRate();
00028   std::cout << "Seed: " << seed << std::endl << std::endl;
00029
00030   // create instances
00031   for (int i=0; i<10; i++) {
00032     e.generateNext();
00033   }
00034
00035   // display events
00036   e.displayAllEvents(std::cout);
00037
00038
00039   // ////////////////////////////////////////////////////
00040   // attributes
00041   std::map<int, float> M;
00042   M[1] = 0.1;
00043   M[17] = 0.7;
00044   M[77] = 0.2;
00045   TRADEMGEN::CategoricalAttribute C (M);
00046
00047   return 0;
00048 }
```

23.21 trademgen/basic/BasConst.cpp File Reference

```
#include <stdair/basic/BasConst_General.hpp>
#include <trademgen/basic/BasConst_TRADEMGEN_Service.hpp>
#include <trademgen/basic/BasConst_DemandGeneration.hpp>
```

Namespaces

- namespace TRADEMGEN

Functions

- stdair::BaseGenerator_T TRADEMGEN::DEFAULT_BASE_GENERATOR (stdair::DEFAULT_RANDOM_SEED)
- stdair::UniformGenerator_T TRADEMGEN::DEFAULT_UNIFORM_GENERATOR (DEFAULT_BASE_GENERATOR, DEFAULT_UNIFORM_REAL_DISTRIBUTION)

Variables

- const POSProbabilityMassFunction_T TRADEMGEN::DEFAULT_POS_PROBALILITY_MASS
- const stdair::FloatDuration_T TRADEMGEN::DEFAULT_LAST_LOWER_BOUND_ARRIVAL_PATTERN = -1
- const FRAT5Pattern_T TRADEMGEN::DEFAULT_FRAT5_PATTERN = DefaultMap::createFRAT5Pattern()
- const double TRADEMGEN::DEFAULT_MAX_ADVANCE_PURCHASE = 330.0
- const stdair::UniformDistribution_T TRADEMGEN::DEFAULT_UNIFORM_REAL_DISTRIBUTION

23.22 BasConst.cpp

```
00001 // ////////////////////////////////////////////////////////////////////
00002 // Import section
00003 // ////////////////////////////////////////////////////////////////////
00004 // StdAir
00005 #include <stdair/basic/BasConst_General.hpp>
00006 // TraDemGen
00007 #include <trademgen/basic/BasConst_TRADEMGEN_Service.hpp
      >
00008 #include <trademgen/basic/BasConst_DemandGeneration.hpp
      >
00009
00010 namespace TRADEMGEN {
00011
00013   // const std::string DEFAULT_TRADEMGEN_SERVICE_NAME = "trademgen";
00014
00016   const POSProbabilityMassFunction_T
      DEFAULT_POS_PROBALILITY_MASS =
00017     DefaultMap::createPOSProbMass();
00018
00020   POSProbabilityMassFunction_T
      DefaultMap::createPOSProbMass() {
00021     POSProbabilityMassFunction_T oMap;
00022     // oMap["SIN"] = 0.44; oMap["HKG"] = 0.04; oMap["CGK"] = 0.04;
00023     // oMap["SYD"] = 0.04; oMap["BKK"] = 0.04; oMap["LHR"] = 0.03;
00024     // oMap["MEL"] = 0.03; oMap["KUL"] = 0.03; oMap["MNL"] = 0.03;
00025     // oMap["PVG"] = 0.03; oMap["PER"] = 0.02; oMap["BNE"] = 0.02;
00026     // oMap["NRT"] = 0.02; oMap["DPS"] = 0.02; oMap["SGN"] = 0.02;
00027     // oMap["PEN"] = 0.02; oMap["FRA"] = 0.02; oMap["PEK"] = 0.02;
00028     // oMap["HKT"] = 0.02; oMap["AKT"] = 0.02; oMap["SFO"] = 0.01;
00029     // oMap["ICN"] = 0.01; oMap["TPE"] = 0.01; oMap["row"] = 0.02;
00030     oMap["row"] = 1.0;
00031     return oMap;
00032   }
00033
00035   const stdair::FloatDuration_T DEFAULT_LAST_LOWER_BOUND_ARRIVAL_PATTERN
      = -1;
00036
00038   const FRAT5Pattern_T DEFAULT_FRAT5_PATTERN
      = DefaultMap::createFRAT5Pattern();
```

```
00039
00041   FRAT5Pattern_T DefaultMap::createFRAT5Pattern
      () {
00042     FRAT5Pattern_T oMap;
00043     // oMap[1.10] = 0.0;      oMap[1.40] = 0.80909; oMap[1.45] = 0.8303;
00044     // oMap[1.50] = 0.85152; oMap[1.55] = 0.87273; oMap[1.60] = 0.89394;
00045     // oMap[1.70] = 0.90606; oMap[1.80] = 0.91818; oMap[2.00] = 0.9303;
00046     // oMap[2.30] = 0.94242; oMap[2.60] = 0.95152; oMap[3.00] = 0.96061;
00047     // oMap[3.30] = 0.96970; oMap[3.40] = 0.97879; oMap[3.44] = 0.98485;
00048     // oMap[3.47] = 0.99091; oMap[3.50] = 0.99697; oMap[3.500000001] = 1.0;
00049     // oMap[1.10] = -365;oMap[1.40] = -63; oMap[1.45] = -56;
00050     // oMap[1.50] = -49; oMap[1.55] = -42; oMap[1.60] = -35;
00051     // oMap[1.70] = -31; oMap[1.80] = -27; oMap[2.00] = -23;
00052     // oMap[2.30] = -19; oMap[2.60] = -16; oMap[3.00] = -13;
00053     // oMap[3.30] = -10; oMap[3.40] = -7;  oMap[3.44] = -5;
00054     // oMap[3.47] = -3;  oMap[3.50] = -1;  oMap[3.500000001] = 0;
00055     // oMap[1.0] = -365; oMap[1.10] = -63; oMap[1.13] = -56;
00056     // oMap[1.17] = -49; oMap[1.22] = -42; oMap[1.28] = -35;
00057     // oMap[1.32] = -31; oMap[1.37] = -27; oMap[1.43] = -23;
00058     // oMap[1.51] = -19; oMap[1.60] = -16; oMap[1.70] = -13;
00059     // oMap[1.80] = -10; oMap[1.90] = -7;  oMap[1.93] = -5;
00060     // oMap[1.96] = -3;  oMap[2.00] = -1;  oMap[2.00000001] = 0;
00061     // oMap[1.0] = -365; oMap[1.05] = -63; oMap[1.07] = -56;
00062     // oMap[1.09] = -49; oMap[1.11] = -42; oMap[1.14] = -35;
00063     // oMap[1.16] = -31; oMap[1.18] = -27; oMap[1.21] = -23;
00064     // oMap[1.24] = -19; oMap[1.27] = -16; oMap[1.30] = -13;
00065     // oMap[1.33] = -10; oMap[1.37] = -7;  oMap[1.40] = -5;
00066     // oMap[1.45] = -3;  oMap[1.50] = -1;  oMap[1.500000001] = 0;
00067     oMap[1.10] = -365;oMap[1.20] = -63;
00068     oMap[1.30] = -49; oMap[1.40] = -35; oMap[1.70] = -23;
00069     oMap[2.00] = -16; oMap[2.30] = -10; oMap[2.44] = -5;
00070     oMap[2.50] = -1;  oMap[2.500000001] = 0;
00071     return oMap;
00072   }
00073
00075   const double DEFAULT_MAX_ADVANCE_PURCHASE = 330.0
      ;
00076
00078   stdair::BaseGenerator_T DEFAULT_BASE_GENERATOR (
      stdair::DEFAULT_RANDOM_SEED);
00079
00081   const stdair::UniformDistribution_T DEFAULT_UNIFORM_REAL_DISTRIBUTION
      ;
00082
00084   stdair::UniformGenerator_T
00085   DEFAULT_UNIFORM_GENERATOR (DEFAULT_BASE_GENERATOR
      ,
00086                              DEFAULT_UNIFORM_REAL_DISTRIBUTION
      );
00087
00088 }
```

23.23 trademgen/basic/BasConst_DemandGeneration.hpp File Reference

```
#include <string>
#include <stdair/stdair_maths_types.hpp>
#include <stdair/stdair_date_time_types.hpp>
#include <trademgen/basic/DemandCharacteristicsTypes.hpp>
```

Classes

- struct TRADEMGEN::DefaultMap

Namespaces

- namespace TRADEMGEN

Variables

- stdair::BaseGenerator_T TRADEMGEN::DEFAULT_BASE_GENERATOR
- stdair::UniformGenerator_T TRADEMGEN::DEFAULT_UNIFORM_GENERATOR

23.24 BasConst_DemandGeneration.hpp

```
00001 #ifndef __TRADEMGEN_BAS_BASCONST_DEMANDGENERATION_HPP
00002 #define __TRADEMGEN_BAS_BASCONST_DEMANDGENERATION_HPP
00003
00004 // //////////////////////////////////////////////////////////////////
00005 // Import section
00006 // //////////////////////////////////////////////////////////////////
00007 // STL
00008 #include <string>
00009 // StdAir
00010 #include <stdair/stdair_maths_types.hpp>
00011 #include <stdair/stdair_date_time_types.hpp>
00012 // TraDemGen
00013 #include <trademgen/basic/DemandCharacteristicsTypes.hpp
      >
00014
00015 namespace TRADEMGEN {
00016
00018   extern const POSProbabilityMassFunction_T
      DEFAULT_POS_PROBALILITY_MASS;
00019
00021   extern const FRAT5Pattern_T DEFAULT_FRAT5_PATTERN
      ;
00022
00024   struct DefaultMap {
00025     static POSProbabilityMassFunction_T
      createPOSProbMass();
00026     static FRAT5Pattern_T createFRAT5Pattern();
00027   };
00028
00030   extern const stdair::FloatDuration_T DEFAULT_LAST_LOWER_BOUND_ARRIVAL_PATTERN
      ;
00031
00033   extern const double DEFAULT_MAX_ADVANCE_PURCHASE;
00034
00039   extern stdair::BaseGenerator_T DEFAULT_BASE_GENERATOR;
00040
00045   extern stdair::UniformGenerator_T DEFAULT_UNIFORM_GENERATOR
      ;
00046
00048   extern const stdair::UniformDistribution_T DEFAULT_UNIFORM_REAL_DISTRIBUTION
      ;
00049
00050 }
00051 #endif // __TRADEMGEN_BAS_BASCONST_DEMANDGENERATION_HPP
```

23.25 trademgen/basic/BasConst_TRADEMGEN_Service.hpp File Reference

```
#include <string>
```

Namespaces

- namespace TRADEMGEN

23.26 BasConst_TRADEMGEN_Service.hpp

```
00001 #ifndef __TRADEMGEN_BAS_BASCONST_TRADEMGEN_SERVICE_HPP
00002 #define __TRADEMGEN_BAS_BASCONST_TRADEMGEN_SERVICE_HPP
00003
00004 // //////////////////////////////////////////////////////////////////
00005 // Import section
00006 // //////////////////////////////////////////////////////////////////
00007 #include <string>
00008
00009 namespace TRADEMGEN {
00010
00012   // extern const std::string DEFAULT_TRADEMGEN_SERVICE_NAME;
00013
00014 }
00015 #endif // __TRADEMGEN_BAS_BASCONST_TRADEMGEN_SERVICE_HPP
```

23.27 trademgen/basic/BasParserTypes.hpp File Reference

```
#include <string>
#include <boost/spirit/home/classic/core.hpp>
#include <boost/spirit/home/classic/utility/loops.hpp>
#include <boost/spirit/home/classic/utility/chset.hpp>
#include <boost/spirit/home/classic/utility/confix.hpp>
#include <boost/spirit/home/classic/iterator/file_iterator.hpp>
```

Namespaces

- namespace TRADEMGEN

Typedefs

- typedef char TRADEMGEN::char_t
- typedef boost::spirit::classic::file_iterator < char_t > TRADEMGEN::iterator_t
- typedef boost::spirit::classic::scanner < iterator_t > TRADEMGEN::scanner_t
- typedef boost::spirit::classic::rule < scanner_t > TRADEMGEN::rule_t
- typedef boost::spirit::classic::int_parser < unsigned int, 10, 1, 1 > TRADEMGEN::int1_p_t
- typedef boost::spirit::classic::uint_parser < unsigned int, 10, 2, 2 > TRADEMGEN::uint2_p_t
- typedef boost::spirit::classic::uint_parser < unsigned int, 10, 1, 2 > TRADEMGEN::uint1_2_p_t
- typedef boost::spirit::classic::uint_parser < unsigned int, 10, 1, 3 > TRADEMGEN::uint1_3_p_t
- typedef boost::spirit::classic::uint_parser < unsigned int, 10, 4, 4 > TRADEMGEN::uint4_p_t
- typedef boost::spirit::classic::uint_parser < unsigned int, 10, 1, 4 > TRADEMGEN::uint1_4_p_t
- typedef boost::spirit::classic::chset < char_t > TRADEMGEN::chset_t
- typedef boost::spirit::classic::impl::loop_traits < chset_t, unsigned int, unsigned int >::type TRADEMGEN::repeat_p_t
- typedef boost::spirit::classic::bounded < uint2_p_t, unsigned int > TRADEMGEN::bounded2_p_t
- typedef boost::spirit::classic::bounded < uint1_2_p_t, unsigned int > TRADEMGEN::bounded1_2_p_t

- typedef boost::spirit::classic::bounded < uint1_3_p_t, unsigned int > TRADEMGEN::bounded1_3_p_t
- typedef boost::spirit::classic::bounded < uint4_p_t, unsigned int > TRADEMGEN::bounded4_p_t
- typedef boost::spirit::classic::bounded < uint1_4_p_t, unsigned int > TRADEMGEN::bounded1_4_p_t

23.28 BasParserTypes.hpp

```
00001 #ifndef __TRADEMGEN_BAS_BASCOMPARSERTYPES_HPP
00002 #define __TRADEMGEN_BAS_BASCOMPARSERTYPES_HPP
00003
00004 // ////////////////////////////////////////////////////////////////////
00005 // Import section
00006 // ////////////////////////////////////////////////////////////////////
00007 // STL
00008 #include <string>
00009 // Boost
00010 //#define BOOST_SPIRIT_DEBUG
00011 #include <boost/spirit/home/classic/core.hpp>
00012 //#include <boost/spirit/home/classic/attribute.hpp>
00013 //#include <boost/spirit/home/classic/utility/functor_parser.hpp>
00014 #include <boost/spirit/home/classic/utility/loops.hpp>
00015 #include <boost/spirit/home/classic/utility/chset.hpp>
00016 #include <boost/spirit/home/classic/utility/confix.hpp>
00017 #include <boost/spirit/home/classic/iterator/file_iterator.hpp>
00018 //#include <boost/spirit/home/classic/actor/push_back_actor.hpp>
00019 //#include <boost/spirit/home/classic/actor/assign_actor.hpp>
00020
00021 namespace TRADEMGEN {
00022
00023   // ////////////////////////////////////////////////////////////////////
00024   //
00025   //  Definition of Basic Types
00026   //
00027   // ////////////////////////////////////////////////////////////////////
00028   // For a file, the parsing unit is the character (char). For a string,
00029   // it is a "char const *".
00030   // typedef char const* iterator_t;
00031   typedef char char_t;
00032
00033   // The types of iterator, scanner and rule are then derived from
00034   // the parsing unit.
00035   typedef boost::spirit::classic::file_iterator<char_t> iterator_t;
00036   typedef boost::spirit::classic::scanner<iterator_t> scanner_t;
00037   typedef boost::spirit::classic::rule<scanner_t> rule_t;
00038
00039   // ////////////////////////////////////////////////////////////////////
00040   //
00041   //  Parser related types
00042   //
00043   // ////////////////////////////////////////////////////////////////////
00045   typedef boost::spirit::classic::int_parser<unsigned int, 10, 1, 1> int1_p_t
      ;
00046
00048   typedef boost::spirit::classic::uint_parser<unsigned int, 10, 2, 2> uint2_p_t
      ;
00049
00051   typedef boost::spirit::classic::uint_parser<unsigned int, 10, 1, 2>
      uint1_2_p_t;
00052
00054   typedef boost::spirit::classic::uint_parser<unsigned int, 10, 1, 3>
      uint1_3_p_t;
00055
00057   typedef boost::spirit::classic::uint_parser<unsigned int, 10, 4, 4> uint4_p_t
      ;
00058
00060   typedef boost::spirit::classic::uint_parser<unsigned int, 10, 1, 4>
      uint1_4_p_t;
00061
00063   typedef boost::spirit::classic::chset<char_t> chset_t;
00064
00067   typedef boost::spirit::classic::impl::loop_traits<chset_t,
00068                                                     unsigned int,
00069                                                     unsigned int>::type repeat_p_t
      ;
00070
```

```
00072   typedef boost::spirit::classic::bounded<uint2_p_t, unsigned int> bounded2_p_t
      ;
00073   typedef boost::spirit::classic::bounded<uint1_2_p_t, unsigned int>
      bounded1_2_p_t;
00074   typedef boost::spirit::classic::bounded<uint1_3_p_t, unsigned int>
      bounded1_3_p_t;
00075   typedef boost::spirit::classic::bounded<uint4_p_t, unsigned int> bounded4_p_t
      ;
00076   typedef boost::spirit::classic::bounded<uint1_4_p_t, unsigned int>
      bounded1_4_p_t;
00077 }
00078 #endif // __TRADEMGEN_BAS_BASCOMPARSERTYPES_HPP
```

23.29 trademgen/basic/CategoricalAttribute.hpp File Reference

```
#include <map>
#include <iosfwd>
#include <stdair/STDAIR_Types.hpp>
#include <stdair/basic/DictionaryManager.hpp>
```

Classes

- struct stdair::CategoricalAttribute< T >

  Class modeling the distribution of values that can be taken by a categorical attribute.

Namespaces

- namespace stdair

  Forward declarations.

23.30 CategoricalAttribute.hpp

```
00001 #ifndef __STDAIR_BAS_CATEGORICALATTRIBUTE_HPP
00002 #define __STDAIR_BAS_CATEGORICALATTRIBUTE_HPP
00003
00004 // //////////////////////////////////////////////////////////////////
00005 // Import section
00006 // //////////////////////////////////////////////////////////////////
00007 // STL
00008 #include <map>
00009 #include <iosfwd>
00010 // STDAIR
00011 #include <stdair/STDAIR_Types.hpp>
00012 #include <stdair/basic/DictionaryManager.hpp>
00013
00014 namespace stdair {
00015
00020   template <typename T>
00021   struct CategoricalAttribute {
00022
00023   public:
00024     // ////////////////////// Type definitions //////////////////////
00028     typedef std::map<T, DictionaryKey_T> ProbabilityMassFunction_T
      ;
00029
00033     typedef std::map<DictionaryKey_T, T> InverseCumulativeDistribution_T
      ;
00034
00035
00036   private:
00037     // ////////////// Getters ////////////
00041     const ProbabilityMassFunction_T&
      getProbabilityMassFunction() const {
00042       return _probabilityMassFunction;
00043     }
00044
00048     const InverseCumulativeDistribution_T&
      getInverseCumulativeDistribution() const {
00049       return _inverseCumulativeDistribution;
00050     }
```

```
00051
00052     // ************* Setters ***********
00056     void setProbabilityMassFunction (const ProbabilityMassFunction_T
      & iProbabilityMassFunction) {
00057       _probabilityMassFunction = iProbabilityMassFunction;
00058       determineInverseCumulativeDistributionFromProbabilityMassFunction
      ();
00059     }
00060
00061
00062   public:
00063     // *************** Business Methods **********
00067     const T& getValue (const Probability_T& iCumulativeProbability)
       const {
00068
00069       const DictionaryKey_T& lKey =
00070         DictionaryManager::valueToKey (iCumulativeProbability);
00071
00072       InverseCumulativeDistribution_T::const_iterator itT =
00073         _inverseCumulativeDistribution.find (lKey);
00074
00075       if (itT == _inverseCumulativeDistribution.end()) {
00076         std::ostringstream oStr;
00077         oStr << "The following cumulative probability is out of range: "
00078              << iCumulativeProbability << displayInverseCumulativeDistribution
      ();
00079         throw IndexOutOfRangeException (oStr.str());
00080       }
00081
00082       return itT->second;
00083     }
00084
00085
00086   public:
00087     // ************** Display Support Methods **********
00091     const std::string displayProbabilityMassFunction
      () const {
00092       std::ostringstream oStr;
00093       unsigned int idx = 0;
00094
00095       for (typename ProbabilityMassFunction_T::const_iterator it =
00096              _probabilityMassFunction.begin();
00097            it != _probabilityMassFunction.end(); ++it, ++idx) {
00098         if (idx != 0) {
00099           oStr << ", ";
00100         }
00101         oStr << it->first << ":"
00102              << DictionaryManager::keyToValue (it->second);
00103       }
00104
00105       return oStr.str();
00106     }
00107
00111     const std::string displayInverseCumulativeDistribution
      () const {
00112       std::ostringstream oStr;
00113
00114       for (typename InverseCumulativeDistribution_T::const_iterator it =
00115              _inverseCumulativeDistribution.begin();
00116            it != _inverseCumulativeDistribution.end(); ++it) {
00117         oStr << "cumulative prob: " << DictionaryManager::keyToValue (it->first
      )
00118                  << "  value: " << it->second << std::endl;
00119       }
00120
00121       return oStr.str();
00122     }
00123
00124   public:
00125     // ********** Constructors and destructors *********
00129     CategoricalAttribute (const ProbabilityMassFunction_T
      & iProbabilityMassFunction)
00130       : _probabilityMassFunction (iProbabilityMassFunction) {
00131       determineInverseCumulativeDistributionFromProbabilityMassFunction
      ();
00132     }
00133
00137     CategoricalAttribute() { }
00138
00142     CategoricalAttribute (const CategoricalAttribute
      & iCategoricalAttribute)
00143       : _probabilityMassFunction (iCategoricalAttribute.
      _probabilityMassFunction) {
00144       determineInverseCumulativeDistributionFromProbabilityMassFunction
      ();
00145     }
00146
```

```
00150     virtual ~CategoricalAttribute() { }
00151
00152
00157     void determineInverseCumulativeDistributionFromProbabilityMassFunction
      () {
00158
00159       Probability_T cumulative_probability_so_far = 0.0;
00160       for (typename ProbabilityMassFunction_T::const_iterator
00161              itProbabilityMassFunction = _probabilityMassFunction.begin();
00162            itProbabilityMassFunction != _probabilityMassFunction.end();
00163            ++itProbabilityMassFunction) {
00164
00165         Probability_T attribute_probability_mass =
00166           DictionaryManager::keyToValue (itProbabilityMassFunction->second);
00167
00168         if (attribute_probability_mass > 0) {
00169           T attribute_value = itProbabilityMassFunction->first;
00170           cumulative_probability_so_far += attribute_probability_mass;
00171
00172           const DictionaryKey_T& lKey =
00173             DictionaryManager::valueToKey (cumulative_probability_so_far);
00174
00175           //_inverseCumulativeDistribution[lKey] = attribute_value;
00176           _inverseCumulativeDistribution.
00177             insert (typename InverseCumulativeDistribution_T
      ::
00178                     value_type (lKey, attribute_value));
00179         }
00180       }
00181     }
00182
00183   private:
00184     // ////////// Attributes //////////
00188     ProbabilityMassFunction_T _probabilityMassFunction
      ;
00189
00193     InverseCumulativeDistribution_T
      _inverseCumulativeDistribution;
00194   };
00195 }
00196 #endif // __STDAIR_BAS_CATEGORICALATTRIBUTE_HPP
```

23.31 trademgen/basic/CategoricalAttributeLite.hpp File Reference

```
#include <cassert>
#include <sstream>
#include <string>
#include <vector>
#include <map>
#include <stdair/stdair_basic_types.hpp>
#include <stdair/service/Logger.hpp>
#include <trademgen/TRADEMGEN_Exceptions.hpp>
#include <trademgen/basic/DictionaryManager.hpp>
```

Classes

- struct TRADEMGEN::CategoricalAttributeLite< T >

  Class modeling the distribution of values that can be taken by a categorical attribute.

Namespaces

- namespace TRADEMGEN

23.32 CategoricalAttributeLite.hpp

```
00001 #ifndef __TRADEMGEN_BAS_CATEGORICALATTRIBUTELITE_HPP
00002 #define __TRADEMGEN_BAS_CATEGORICALATTRIBUTELITE_HPP
00003
```

```
00004 // ////////////////////////////////////////////////////////////////////
00005 // Import section
00006 // ////////////////////////////////////////////////////////////////////
00007 // STL
00008 #include <cassert>
00009 #include <sstream>
00010 #include <string>
00011 #include <vector>
00012 #include <map>
00013 // StdAir
00014 #include <stdair/stdair_basic_types.hpp>
00015 #include <stdair/service/Logger.hpp>
00016 // TraDemGen
00017 #include <trademgen/TRADEMGEN_Exceptions.hpp>
00018 #include <trademgen/basic/DictionaryManager.hpp
      >
00019
00020 namespace TRADEMGEN {
00021
00026   template <typename T>
00027   struct CategoricalAttributeLite {
00028     public:
00029     // ////////////// Type definitions //////////////
00033     typedef std::map<T, stdair::Probability_T> ProbabilityMassFunction_T
      ;
00034
00035
00036   public:
00037     // ///////////////// Business Methods ///////////
00041     const T& getValue (const stdair::Probability_T&
      iCumulativeProbability) const {
00042       const DictionaryKey_T& lKey =
00043         DictionaryManager::valueToKey (
      iCumulativeProbability);
00044
00045       for (unsigned int idx = 0; idx < _size; ++idx) {
00046         if (_cumulativeDistribution.at(idx) >= lKey) {
00047           const T& oValue = _valueArray.at(idx);
00048           return oValue;
00049         }
00050       }
00051
00052       std::ostringstream oStr;
00053       oStr << "The following cumulative probability is out of range: "
00054            << iCumulativeProbability << displayProbabilityMass
      ();
00055       throw IndexOutOfRangeException (oStr.str());
00056     }
00057
00061     bool checkValue (const T& iValue) const {
00062       for (unsigned int idx = 0; idx < _size; ++idx) {
00063         if (_valueArray.at(idx) == iValue) {
00064           return true;
00065         }
00066       }
00067       return false;
00068     }
00069
00070
00071   public:
00072     // /////////////// Display Support Methods //////////
00076     const std::string displayProbabilityMass() const {
00077       std::ostringstream oStr;
00078
00079       for (unsigned int idx = 0; idx < _size; ++idx) {
00080         if (idx != 0) {
00081           oStr << ", ";
00082         }
00083         oStr << _valueArray.at(idx) << ":"
00084              << DictionaryManager::keyToValue (
      _cumulativeDistribution[idx]);
00085       }
00086       return oStr.str();
00087     }
00088
00089
00090   public:
00091     // ////////// Constructors and destructors /////////
00095     CategoricalAttributeLite (const
      ProbabilityMassFunction_T& iValueMap)
00096       : _size (iValueMap.size()) {
00097       init (iValueMap);
00098     }
00099
00103     CategoricalAttributeLite() : _size(1) {
00104     }
00105
```

```
00109     CategoricalAttributeLite (const
      CategoricalAttributeLite& iCAL)
00110       : _size (iCAL._size),
00111         _cumulativeDistribution (iCAL._cumulativeDistribution),
00112         _valueArray (iCAL._valueArray) {
00113     }
00114
00118     CategoricalAttributeLite& operator= (
      const CategoricalAttributeLite& iCAL) {
00119       _size = iCAL._size;
00120       _cumulativeDistribution = iCAL._cumulativeDistribution;
00121       _valueArray = iCAL._valueArray;
00122       return *this;
00123     }
00124
00128     virtual ~CategoricalAttributeLite() {
00129     }
00130
00131
00132   private:
00136     void init (const ProbabilityMassFunction_T&
      iValueMap) {
00137
00138       const unsigned int lSize = iValueMap.size();
00139       _cumulativeDistribution.reserve (lSize);
00140       _valueArray.reserve (lSize);
00141
00142       stdair::Probability_T cumulative_probability_so_far = 0.0;
00143
00144       // Browse the map to retrieve the values and to build the
00145       // cumulative probabilities.
00146       for (typename ProbabilityMassFunction_T::const_iterator
00147              itProbabilityMassFunction = iValueMap.begin();
00148            itProbabilityMassFunction != iValueMap.end();
00149            ++itProbabilityMassFunction) {
00150
00151         stdair::Probability_T attribute_probability_mass =
00152           itProbabilityMassFunction->second;
00153
00154         if (attribute_probability_mass > 0) {
00155           const T& attribute_value = itProbabilityMassFunction->first;
00156           cumulative_probability_so_far += attribute_probability_mass;
00157
00158           const DictionaryKey_T& lKey =
00159             DictionaryManager::valueToKey (
      cumulative_probability_so_far);
00160
00161           // Build the two arrays.
00162           _cumulativeDistribution.push_back (lKey);
00163           _valueArray.push_back (attribute_value);
00164         }
00165       }
00166       // Remember the actual array size.
00167       _size = _valueArray.size();
00168     }
00169
00170   private:
00171     // ////////// Attributes //////////
00175     unsigned int _size;
00176
00180     std::vector<DictionaryKey_T> _cumulativeDistribution;
00181
00185     std::vector<T> _valueArray;
00186   };
00187 }
00188 #endif // __TRADEMGEN_BAS_CATEGORICALATTRIBUTELITE_HPP
```

23.33 trademgen/basic/ContinuousAttribute.hpp File Reference

```
#include <string>
#include <map>
#include <stdair/stdair_date_time_types.hpp>
#include <stdair/service/Logger.hpp>
#include <trademgen/basic/DictionaryManager.hpp>
```

Classes

- struct TRADEMGEN::ContinuousAttribute< T >

Namespaces

- namespace TRADEMGEN

23.34 ContinuousAttribute.hpp

```
00001 #ifndef __TRADEMGEN_BAS_CONTINUOUSATTRIBUTE_HPP
00002 #define __TRADEMGEN_BAS_CONTINUOUSATTRIBUTE_HPP
00003
00004 // //////////////////////////////////////////////////////////////////
00005 // Import section
00006 // //////////////////////////////////////////////////////////////////
00007 // STL
00008 #include <string>
00009 #include <map>
00010 // StdAir
00011 #include <stdair/stdair_date_time_types.hpp>
00012 #include <stdair/service/Logger.hpp>
00013 // TraDemGen
00014 #include <trademgen/basic/DictionaryManager.hpp
      >
00015
00016 namespace TRADEMGEN {
00017
00020   template <class T>
00021   struct ContinuousAttribute {
00022   public:
00023
00024     // ////////////// Type definitions ///////////////
00026     typedef std::multimap<T, DictionaryKey_T> ContinuousDistribution_T
      ;
00027     typedef std::multimap<DictionaryKey_T, T> ContinuousInverseDistribution_T
      ;
00028
00029   private:
00030     // ////////////// Getters ////////////
00032     const ContinuousDistribution_T&
      getCumulativeDistribution() const {
00033       return _cumulativeDistribution;
00034     }
00035
00037     const ContinuousInverseDistribution_T&
      getInverseCumulativeDistribution () const {
00038       return _inverseCumulativeDistribution;
00039     }
00040
00041   private:
00042     // ////////////// Setters ////////////
00044     void setCumulativeDistribution (const ContinuousDistribution_T
      & iCumulativeDistribution) {
00045       _cumulativeDistribution = iCumulativeDistribution;
00046       determineInverseCumulativeDistributionFromCumulativeDistribution
      ();
00047     }
00048
00049   public:
00050     // ///////////////// Business Methods /////////
00052     const T getValue (const stdair::Probability_T&
      iCumulativeProbability) const{
00053       const DictionaryKey_T lKey =
00054         DictionaryManager::valueToKey (
      iCumulativeProbability);
00055       typename ContinuousInverseDistribution_T::const_iterator it =
00056         _inverseCumulativeDistribution.lower_bound (lKey);
00057
00058       stdair::Probability_T cumulativeProbabilityNextPoint =
00059         DictionaryManager::keyToValue (it->first);
00060       T valueNextPoint = it->second;
00061
00062       if (it == _inverseCumulativeDistribution.begin()) {
00063         STDAIR_LOG_DEBUG ("Last element");
00064         return valueNextPoint;
00065       }
00066       --it;
00067
00068       stdair::Probability_T cumulativeProbabilityPreviousPoint =
```

```
00069         DictionaryManager::keyToValue (it->first);
00070       T valuePreviousPoint = it->second;
00071       if (cumulativeProbabilityNextPoint == cumulativeProbabilityPreviousPoint)
      {
00072         return valuePreviousPoint;
00073       }
00074
00075       return valuePreviousPoint + (valueNextPoint - valuePreviousPoint)
00076         * (iCumulativeProbability - cumulativeProbabilityPreviousPoint)
00077         / (cumulativeProbabilityNextPoint - cumulativeProbabilityPreviousPoint)
      ;
00078     }
00079
00080   public:
00081     // /////////////// Display Support Methods //////////
00083     const std::string displayCumulativeDistribution
      () const {
00084       std::ostringstream oStr;
00085       unsigned int idx = 0;
00086       for (typename ContinuousDistribution_T::const_iterator it =
00087              _cumulativeDistribution.begin();
00088            it != _cumulativeDistribution.end(); ++it, ++idx) {
00089         if (idx != 0) {
00090           oStr << ", ";
00091         }
00092         oStr << it->first << ":"
00093              << DictionaryManager::keyToValue (it
      ->second);
00094       }
00095       return oStr.str();
00096     }
00097
00099     const std::string displayInverseCumulativeDistribution
      () const {
00100       std::ostringstream oStr;
00101       for (typename ContinuousInverseDistribution_T::const_iterator it =
00102              _inverseCumulativeDistribution.begin();
00103            it != _inverseCumulativeDistribution.end(); ++it) {
00104         oStr << "cumulative prob: " << DictionaryManager::keyToValue
       (it->first)
00105              << "  value: " << it->second << std::endl;
00106       }
00107       return oStr.str();
00108     }
00109
00110   public:
00111     // ////////// Constructors and destructors /////////
00113     ContinuousAttribute () { }
00114
00116     ContinuousAttribute (const ContinuousDistribution_T
      & iCumulativeDistribution)
00117       : _cumulativeDistribution (iCumulativeDistribution) {
00118       determineInverseCumulativeDistributionFromCumulativeDistribution
      ();
00119     }
00120
00122     ContinuousAttribute (const ContinuousAttribute
      & iContinuousAttribute)
00123       : _cumulativeDistribution (iContinuousAttribute._cumulativeDistribution),
00124         _inverseCumulativeDistribution (iContinuousAttribute.
      _inverseCumulativeDistribution) {
00125     }
00126
00128     virtual ~ContinuousAttribute () { }
00129
00132     void determineInverseCumulativeDistributionFromCumulativeDistribution
       () {
00133       for (typename ContinuousDistribution_T::iterator itCumulativeDistribution
       =
00134              _cumulativeDistribution.begin();
00135            itCumulativeDistribution != _cumulativeDistribution.end();
00136            ++itCumulativeDistribution) {
00137         _inverseCumulativeDistribution.
00138           insert (typename ContinuousInverseDistribution_T
      ::
00139                   value_type (itCumulativeDistribution->second,
00140                               itCumulativeDistribution->first));
00141       }
00142     }
00143
00144   private:
00145     // ////////// Attributes //////////
00146
00148     ContinuousDistribution_T _cumulativeDistribution;
00149
00151     ContinuousInverseDistribution_T
      _inverseCumulativeDistribution;
```

```
00152   };
00153
00154 }
00155 #endif // __STDAIR_BAS_CONTINUOUSATTRIBUTE_HPP
```

23.35 trademgen/basic/ContinuousAttributeLite.hpp File Reference

```
#include <cassert>
#include <iosfwd>
#include <string>
#include <vector>
#include <map>
#include <stdair/stdair_basic_types.hpp>
#include <trademgen/TRADEMGEN_Exceptions.hpp>
#include <trademgen/basic/DictionaryManager.hpp>
```

Classes

- struct TRADEMGEN::ContinuousAttributeLite< T >

  Class modeling the distribution of values that can be taken by a continuous attribute.

Namespaces

- namespace TRADEMGEN

23.36 ContinuousAttributeLite.hpp

```
00001 #ifndef __TRADEMGEN_BAS_CONTINUOUSATTRIBUTELITE_HPP
00002 #define __TRADEMGEN_BAS_CONTINUOUSATTRIBUTELITE_HPP
00003
00004 // //////////////////////////////////////////////////////////////////
00005 // Import section
00006 // //////////////////////////////////////////////////////////////////
00007 // STL
00008 #include <cassert>
00009 #include <iosfwd>
00010 #include <string>
00011 #include <vector>
00012 #include <map>
00013 // StdAir
00014 #include <stdair/stdair_basic_types.hpp>
00015 // TraDemGen
00016 #include <trademgen/TRADEMGEN_Exceptions.hpp>
00017 #include <trademgen/basic/DictionaryManager.hpp
      >
00018
00019 namespace TRADEMGEN {
00020
00025   template <typename T>
00026   struct ContinuousAttributeLite {
00027   public:
00028     // ////////////////////// Type definitions ///////////////////////
00032     typedef std::map<T, stdair::Probability_T> ContinuousDistribution_T
      ;
00033
00034   public:
00035     // ////////////////////// Business Methods ////////////////////
00039     const T getValue(const stdair::Probability_T&
      iCumulativeProbability) const{
00040       const DictionaryKey_T& lKey =
00041         DictionaryManager::valueToKey (
      iCumulativeProbability);
00042
00043       // Find the first cumulative probablity value greater or equal to lKey.
00044       unsigned int idx = 0;
00045       for (; idx < _size; ++idx) {
00046         if (_cumulativeDistribution.at(idx) > lKey) {
00047           break;
00048         }
```

```
00049       }
00050
00051       if (idx == 0) {
00052         return _valueArray.at(idx);
00053       }
00054       if (idx == _size) {
00055         return _valueArray.at(idx-1);
00056       }
00057
00058       //
00059       const stdair::Probability_T& lCumulativeCurrentPoint =
00060         DictionaryManager::keyToValue (
      _cumulativeDistribution.at(idx));
00061       const T& lValueCurrentPoint = _valueArray.at(idx);
00062
00063       //
00064       const stdair::Probability_T& lCumulativePreviousPoint =
00065         DictionaryManager::keyToValue (
      _cumulativeDistribution.at(idx-1));
00066       const T& lValuePreviousPoint = _valueArray.at(idx-1);
00067
00068       if (lCumulativePreviousPoint == lCumulativeCurrentPoint) {
00069         return lValuePreviousPoint;
00070       }
00071
00072       T oValue= lValuePreviousPoint + (lValueCurrentPoint - lValuePreviousPoint
      )
00073         * (iCumulativeProbability - lCumulativePreviousPoint)
00074         / (lCumulativeCurrentPoint - lCumulativePreviousPoint);
00075
00076       return oValue;
00077     }
00078
00082     const double getDerivativeValue(const T iKey) const{
00083
00084       // Find the first key value greater or equal to iKey.
00085       unsigned int idx = 0;
00086       for (; idx < _size; ++idx) {
00087         if (_valueArray.at(idx) > iKey) {
00088           break;
00089         }
00090       }
00091
00092       assert (idx != 0);
00093       assert (idx != _size);
00094
00095       //
00096       const stdair::Probability_T& lCumulativeCurrentPoint =
00097         DictionaryManager::keyToValue (
      _cumulativeDistribution.at(idx));
00098       const T& lValueCurrentPoint = _valueArray.at(idx);
00099
00100       //
00101       const stdair::Probability_T& lCumulativePreviousPoint =
00102         DictionaryManager::keyToValue (
      _cumulativeDistribution.at(idx-1));
00103       const T& lValuePreviousPoint = _valueArray.at(idx-1);
00104
00105       assert (lValueCurrentPoint != lValuePreviousPoint);
00106
00107       const double oValue= (lCumulativeCurrentPoint - lCumulativePreviousPoint)
00108         / (lValueCurrentPoint - lValuePreviousPoint);
00109
00110       return oValue;
00111     }
00112
00116     const T getUpperBound (const T iKey) const {
00117       // Find the first key value greater or equal to iKey.
00118       unsigned int idx = 0;
00119       for (; idx < _size; ++idx) {
00120         if (_valueArray.at(idx) > iKey) {
00121           break;
00122         }
00123       }
00124       assert (idx != 0);
00125       assert (idx != _size);
00126
00127       return _valueArray.at (idx);
00128     }
00129
00130   public:
00131     // /////////////// Display Support Methods ////////////////
00135     const std::string displayCumulativeDistribution
      () const {
00136       std::ostringstream oStr;
00137
00138       for (unsigned int idx = 0; idx < _size; ++idx) {
```

```
00139         if (idx != 0) {
00140           oStr << ", ";
00141         }
00142
00143         const stdair::Probability_T& lProbability =
00144           DictionaryManager::keyToValue (
      _cumulativeDistribution.at(idx));
00145
00146         oStr << _valueArray.at(idx) << ":" << lProbability;
00147       }
00148       return oStr.str();
00149     }
00150
00151
00152   public:
00153     // ////////// Constructors and destructors //////////////
00157     ContinuousAttributeLite (const
      ContinuousDistribution_T& iValueMap)
00158       : _size (iValueMap.size()) {
00159       init (iValueMap);
00160     }
00161
00165     ContinuousAttributeLite (const
      ContinuousAttributeLite& iCAL)
00166       : _size (iCAL._size),
00167         _cumulativeDistribution (iCAL._cumulativeDistribution),
00168         _valueArray (iCAL._valueArray) {
00169     }
00170
00174     ContinuousAttributeLite& operator= (const
      ContinuousAttributeLite& iCAL) {
00175       _size = iCAL._size;
00176       _cumulativeDistribution = iCAL._cumulativeDistribution;
00177       _valueArray = iCAL._valueArray;
00178       return *this;
00179     }
00180
00184     virtual ~ContinuousAttributeLite() {
00185     }
00186
00187   private:
00191     ContinuousAttributeLite() : _size(1) {
00192     }
00193
00198     void init (const ContinuousDistribution_T&
      iValueMap) {
00199       //
00200       const unsigned int lSize = iValueMap.size();
00201       _cumulativeDistribution.reserve (lSize);
00202       _valueArray.reserve (lSize);
00203
00204       // Browse the map to retrieve the values and cumulative probabilities.
00205       for (typename ContinuousDistribution_T::const_iterator it =
00206              iValueMap.begin(); it != iValueMap.end(); ++it) {
00207
00208         const T& attributeValue = it->first;
00209         const DictionaryKey_T& lKey =
      DictionaryManager::valueToKey (it->second);
00210
00211         // Build the two arrays.
00212         _cumulativeDistribution.push_back (lKey);
00213         _valueArray.push_back (attributeValue);
00214       }
00215     }
00216
00217
00218   private:
00219     // ////////// Attributes //////////
00223     unsigned int _size;
00224
00228     std::vector<DictionaryKey_T> _cumulativeDistribution;
00229
00233     std::vector<T> _valueArray;
00234   };
00235
00236 }
00237 #endif // __TRADEMGEN_BAS_CONTINUOUSATTRIBUTELITE_HPP
```

23.37 trademgen/basic/DemandCharacteristics.cpp File Reference

```
#include <cassert>
#include <sstream>
#include <stdair/stdair_basic_types.hpp>
#include <trademgen/basic/BasConst_DemandGeneration.hpp>
#include <trademgen/basic/DemandCharacteristics.hpp>
```

Namespaces

- namespace TRADEMGEN

23.38 DemandCharacteristics.cpp

```
00001 // ////////////////////////////////////////////////////////////////////
00002 // Import section
00003 // ////////////////////////////////////////////////////////////////////
00004 // STL
00005 #include <cassert>
00006 #include <sstream>
00007 // StdAir
00008 #include <stdair/stdair_basic_types.hpp>
00009 // TraDemGen
00010 #include <trademgen/basic/BasConst_DemandGeneration.hpp
      >
00011 #include <trademgen/basic/DemandCharacteristics.hpp
      >
00012
00013 namespace TRADEMGEN {
00014
00015   // ////////////////////////////////////////////////////
00016   DemandCharacteristics::DemandCharacteristics
      ()
00017     : _arrivalPattern (ArrivalPatternCumulativeDistribution_T
      ()),
00018       _posProbabilityMass (POSProbabilityMassFunction_T
      ()),
00019       _channelProbabilityMass (ChannelProbabilityMassFunction_T
      ()),
00020       _tripTypeProbabilityMass (TripTypeProbabilityMassFunction_T
      ()),
00021       _stayDurationProbabilityMass (StayDurationProbabilityMassFunction_T
      ()),
00022       _frequentFlyerProbabilityMass (FrequentFlyerProbabilityMassFunction_T
      ()),
00023       _changeFeeProb (0.5), _changeFeeDisutility (0.0),
00024       _nonRefundableProb (0.5), _nonRefundableDisutility (0.0),
00025       _preferredDepartureTimeCumulativeDistribution (
      PreferredDepartureTimeContinuousDistribution_T
      ()),
00026       _minWTP (stdair::WTP_T()), _frat5Pattern (DEFAULT_FRAT5_PATTERN
      ),
00027       _valueOfTimeCumulativeDistribution (ValueOfTimeContinuousDistribution_T
      ()) {
00028   }
00029
00030   // ////////////////////////////////////////////////////
00031   DemandCharacteristics::
00032   DemandCharacteristics (const DemandCharacteristics
      & iDC)
00033     : _arrivalPattern (iDC._arrivalPattern),
00034       _posProbabilityMass (iDC._posProbabilityMass),
00035       _channelProbabilityMass (iDC._channelProbabilityMass),
00036       _tripTypeProbabilityMass (iDC._tripTypeProbabilityMass),
00037       _stayDurationProbabilityMass (iDC._stayDurationProbabilityMass),
00038       _frequentFlyerProbabilityMass (iDC._frequentFlyerProbabilityMass),
00039       _changeFeeProb (iDC._changeFeeProb),
00040       _changeFeeDisutility (iDC._changeFeeDisutility),
00041       _nonRefundableProb (iDC._nonRefundableProb),
00042       _nonRefundableDisutility (iDC._nonRefundableDisutility),
00043       _preferredDepartureTimeCumulativeDistribution (iDC.
      _preferredDepartureTimeCumulativeDistribution),
00044       _minWTP (iDC._minWTP), _frat5Pattern (iDC._frat5Pattern),
00045       _valueOfTimeCumulativeDistribution (iDC.
      _valueOfTimeCumulativeDistribution) {
00046   }
00047
```

```
00048   // ////////////////////////////////////////////////////
00049   DemandCharacteristics::
00050   DemandCharacteristics (const
      ArrivalPatternCumulativeDistribution_T&
      iArrivalPattern,
00051                          const POSProbabilityMassFunction_T
      & iPOSProbMass,
00052                          const ChannelProbabilityMassFunction_T
      & iChannelProbMass,
00053                          const TripTypeProbabilityMassFunction_T
      & iTripTypeProbMass,
00054                          const StayDurationProbabilityMassFunction_T
      & iStayDurationProbMass,
00055                          const FrequentFlyerProbabilityMassFunction_T
      & iFrequentFlyerProbMass,
00056                          const stdair::ChangeFeesRatio_T& iChangeFeeProb,
00057                          const stdair::Disutility_T& iChangeFeeDisutility,
00058                          const stdair::NonRefundableRatio_T& iNonRefundableProb
      ,
00059                          const stdair::Disutility_T& iNonRefundableDisutility,
00060                          const PreferredDepartureTimeContinuousDistribution_T
      & iPreferredDepartureTimeContinuousDistribution,
00061                          const stdair::WTP_T& iMinWTP,
00062                          const ValueOfTimeContinuousDistribution_T
      & iValueOfTimeContinuousDistribution)
00063     : _arrivalPattern (iArrivalPattern),
00064       _posProbabilityMass (iPOSProbMass),
00065       _channelProbabilityMass (iChannelProbMass),
00066       _tripTypeProbabilityMass (iTripTypeProbMass),
00067       _stayDurationProbabilityMass (iStayDurationProbMass),
00068       _frequentFlyerProbabilityMass (iFrequentFlyerProbMass),
00069       _changeFeeProb (iChangeFeeProb),
00070       _changeFeeDisutility (iChangeFeeDisutility),
00071       _nonRefundableProb (iNonRefundableProb),
00072       _nonRefundableDisutility (iNonRefundableDisutility),
00073       _preferredDepartureTimeCumulativeDistribution (
      iPreferredDepartureTimeContinuousDistribution),
00074       _minWTP (iMinWTP), _frat5Pattern (DEFAULT_FRAT5_PATTERN
      ),
00075       _valueOfTimeCumulativeDistribution (iValueOfTimeContinuousDistribution) {
00076   }
00077
00078   // ////////////////////////////////////////////////////
00079   DemandCharacteristics::~DemandCharacteristics
      () {
00080   }
00081
00082   // ////////////////////////////////////////////////////
00083   const stdair::AirportCode_T& DemandCharacteristics::
00084   getPOSValue (const stdair::Probability_T& iCumulativeProbability
      ) const {
00085     return _posProbabilityMass.getValue (
      iCumulativeProbability);
00086   }
00087
00088   // ////////////////////////////////////////////////////
00089   bool DemandCharacteristics::
00090   checkPOSValue (const stdair::AirportCode_T& iPOS) const {
00091     return _posProbabilityMass.checkValue (iPOS);
00092   }
00093
00094   // ////////////////////////////////////////////////////
00095   const std::string DemandCharacteristics::describe
      () const {
00096     std::ostringstream oStr;
00097
00098     //
00099     oStr << "****************** Demand characteristics ******************"
00100          << std::endl;
00101     oStr << "Arrival pattern (days from departure, proportion): ";
00102     oStr << _arrivalPattern.displayCumulativeDistribution
      () << std::endl;
00103     oStr << "POS probability mass (POS, propotion): ";
00104     oStr << _posProbabilityMass.displayProbabilityMass
      ()
00105          << std::endl;
00106     oStr << "Channel probability mass (channel, propotion): ";
00107     oStr << _channelProbabilityMass.
      displayProbabilityMass()
00108          << std::endl;
00109     oStr << "Trip type probability mass (trip type, propotion): ";
00110     oStr << _tripTypeProbabilityMass.
      displayProbabilityMass()
00111          << std::endl;
00112     oStr << "Stay duration probability mass (number of days, propotion): ";
00113     oStr << _stayDurationProbabilityMass.
      displayProbabilityMass()
```

```
00114          << std::endl;
00115     oStr << "Frequent flyer probability mass (frequent flyer, propotion): ";
00116     oStr << _frequentFlyerProbabilityMass.
      displayProbabilityMass()
00117          << std::endl;
00118     oStr << "Change fee acceptation probability: "
00119          << _changeFeeProb
00120          << std::endl;
00121     oStr << "Change fee disutility: "
00122          << _changeFeeDisutility
00123          << std::endl;
00124     oStr << "Non refundable acceptation probability: "
00125          << _nonRefundableProb
00126          << std::endl;
00127     oStr << "Non refundable disutility: "
00128          << _nonRefundableDisutility
00129          << std::endl;
00130     oStr << "Preferred departure time cumulative distribution (time,
       proportion: ";
00131     oStr << _preferredDepartureTimeCumulativeDistribution
      .displayCumulativeDistribution() << std::endl;
00132     oStr << "min WTP: " << _minWTP << std::endl;
00133     oStr << "Value of time cumulative distribution (value of time, proportion:
      ";
00134     oStr << _valueOfTimeCumulativeDistribution
      .displayCumulativeDistribution()
00135          << std::endl;
00136
00137
00138     return oStr.str();
00139   }
00140
00141 }
00142
```

23.39 trademgen/basic/DemandCharacteristics.hpp File Reference

```
#include <string>
#include <stdair/stdair_basic_types.hpp>
#include <stdair/stdair_date_time_types.hpp>
#include <stdair/basic/StructAbstract.hpp>
#include <trademgen/basic/DemandCharacteristicsTypes.hpp>
```

Classes

- struct TRADEMGEN::DemandCharacteristics

  Class modeling the characteristics of a demand type.

Namespaces

- namespace TRADEMGEN

23.40 DemandCharacteristics.hpp

```
00001 #ifndef __TRADEMGEN_BAS_DEMAND_CHARACTERISTICS_HPP
00002 #define __TRADEMGEN_BAS_DEMAND_CHARACTERISTICS_HPP
00003
00004 // //////////////////////////////////////////////////////////////////
00005 // Import section
00006 // //////////////////////////////////////////////////////////////////
00007 // STL
00008 #include <string>
00009 // StdAir
00010 #include <stdair/stdair_basic_types.hpp>
00011 #include <stdair/stdair_date_time_types.hpp>
00012 #include <stdair/basic/StructAbstract.hpp>
00013 // TraDemGen
00014 #include <trademgen/basic/DemandCharacteristicsTypes.hpp
      >
00015
```

```
00016 namespace TRADEMGEN {
00017
00021   struct DemandCharacteristics : public
      stdair::StructAbstract {
00022
00023   public:
00024     // ////////////// Business support methods /////////
00028     const stdair::AirportCode_T&
00029     getPOSValue (const stdair::Probability_T& iCumulativeProbability
      ) const;
00030
00034     bool checkPOSValue (const stdair::AirportCode_T& iPOS) const;
00035
00036
00037   public:
00038     // ////////////// Display support methods /////////
00042     const std::string describe() const;
00043
00044
00045   public:
00046     // ////////// Constructors and destructors ////////
00050     DemandCharacteristics (const
      ArrivalPatternCumulativeDistribution_T&,
00051                            const POSProbabilityMassFunction_T
      &,
00052                            const ChannelProbabilityMassFunction_T
      &,
00053                            const TripTypeProbabilityMassFunction_T
      &,
00054                            const StayDurationProbabilityMassFunction_T
      &,
00055                            const FrequentFlyerProbabilityMassFunction_T
      &,
00056                            const stdair::ChangeFeesRatio_T&,
00057                            const stdair::Disutility_T&,
00058                            const stdair::NonRefundableRatio_T&,
00059                            const stdair::Disutility_T&,
00060                            const PreferredDepartureTimeContinuousDistribution_T
      &,
00061                            const stdair::WTP_T&,
00062                            const ValueOfTimeContinuousDistribution_T
      &);
00063
00067     DemandCharacteristics();
00068
00072     DemandCharacteristics (const DemandCharacteristics
      &);
00073
00077     ~DemandCharacteristics();
00078
00079
00080   public:
00081     // ////////////////////// Attributes ///////////////////////
00087     ContinuousFloatDuration_T _arrivalPattern
      ;
00088
00092     POSProbabilityMass_T _posProbabilityMass
      ;
00093
00097     ChannelProbabilityMass_T _channelProbabilityMass
      ;
00098
00102     TripTypeProbabilityMass_T _tripTypeProbabilityMass
      ;
00103
00107     StayDurationProbabilityMass_T
      _stayDurationProbabilityMass;
00108
00112     FrequentFlyerProbabilityMass_T
      _frequentFlyerProbabilityMass;
00113
00117     stdair::ChangeFeesRatio_T _changeFeeProb;
00118
00122     stdair::Disutility_T _changeFeeDisutility;
00123
00127     stdair::NonRefundableRatio_T _nonRefundableProb;
00128
00132     stdair::Disutility_T _nonRefundableDisutility;
00133
00137     PreferredDepartureTimeCumulativeDistribution_T
       _preferredDepartureTimeCumulativeDistribution
      ;
00138
00143     stdair::WTP_T _minWTP;
00144
00148     CumulativeDistribution_T _frat5Pattern
      ;
```

```
00149
00153     ValueOfTimeCumulativeDistribution_T
      _valueOfTimeCumulativeDistribution;
00154   };
00155
00156 }
00157 #endif // __TRADEMGEN_BAS_DEMAND_CHARACTERISTICS_HPP
```

23.41 trademgen/basic/DemandCharacteristicsTypes.hpp File Reference

```
#include <stdair/stdair_basic_types.hpp>
#include <stdair/stdair_date_time_types.hpp>
#include <stdair/stdair_demand_types.hpp>
#include <trademgen/basic/ContinuousAttributeLite.hpp>
#include <trademgen/basic/CategoricalAttributeLite.hpp>
```

Namespaces

- namespace TRADEMGEN

Typedefs

- typedef ContinuousAttributeLite < stdair::FloatDuration_T > TRADEMGEN::ContinuousFloatDuration_T
- typedef ContinuousFloatDuration_T::ContinuousDistribution_T TRADEMGEN::ArrivalPatternCumulativeDistribution_T
- typedef CategoricalAttributeLite < stdair::AirportCode_T > TRADEMGEN::POSProbabilityMass_T
- typedef POSProbabilityMass_T::ProbabilityMassFunction_T TRADEMGEN::POSProbabilityMassFunction_T
- typedef CategoricalAttributeLite < stdair::ChannelLabel_T > TRADEMGEN::ChannelProbabilityMass_T
- typedef ChannelProbabilityMass_T::ProbabilityMassFunction_T TRADEMGEN::ChannelProbabilityMassFunction_T
- typedef CategoricalAttributeLite < stdair::TripType_T > TRADEMGEN::TripTypeProbabilityMass_T
- typedef TripTypeProbabilityMass_T::ProbabilityMassFunction_T TRADEMGEN::TripTypeProbabilityMassFunction_T
- typedef CategoricalAttributeLite < stdair::DayDuration_T > TRADEMGEN::StayDurationProbabilityMass_T
- typedef StayDurationProbabilityMass_T::ProbabilityMassFunction_T TRADEMGEN::StayDurationProbabilityMassFunction_T
- typedef CategoricalAttributeLite < stdair::FrequentFlyer_T > TRADEMGEN::FrequentFlyerProbabilityMass_T
- typedef FrequentFlyerProbabilityMass_T::ProbabilityMassFunction_T TRADEMGEN::FrequentFlyerProbabilityMassFunction_T

- typedef ContinuousAttributeLite < stdair::IntDuration_T > TRADEMGEN::PreferredDepartureTimeCumulativeDistribution_T
- typedef PreferredDepartureTimeCumulativeDistribution_T::ContinuousDistribution_T TRADEMGEN::PreferredDepartureTimeContinuousDistribution_T
- typedef ContinuousAttributeLite < stdair::PriceValue_T > TRADEMGEN::ValueOfTimeCumulativeDistribution_T
- typedef ValueOfTimeCumulativeDistribution_T::ContinuousDistribution_T TRADEMGEN::ValueOfTimeContinuousDistribution_T
- typedef ContinuousAttributeLite < stdair::RealNumber_T > TRADEMGEN::CumulativeDistribution_T
- typedef CumulativeDistribution_T::ContinuousDistribution_T TRADEMGEN::FRAT5Pattern_T

23.42 DemandCharacteristicsTypes.hpp

```
00001 #ifndef __TRADEMGEN_BAS_DEMANDCHARACTERISTICSTYPES_HPP
00002 #define __TRADEMGEN_BAS_DEMANDCHARACTERISTICSTYPES_HPP
00003
00004 // //////////////////////////////////////////////////////////////////
00005 // Import section
00006 // //////////////////////////////////////////////////////////////////
00007 // StdAir
00008 #include <stdair/stdair_basic_types.hpp>
00009 #include <stdair/stdair_date_time_types.hpp>
00010 #include <stdair/stdair_demand_types.hpp>
00011 // TraDemGen
00012 #include <trademgen/basic/ContinuousAttributeLite.hpp
      >
00013 #include <trademgen/basic/CategoricalAttributeLite.hpp
      >
00014
00015 namespace TRADEMGEN {
00016
00019   typedef ContinuousAttributeLite<stdair::FloatDuration_T>
      ContinuousFloatDuration_T;
00020
00022   typedef ContinuousFloatDuration_T::ContinuousDistribution_T
      ArrivalPatternCumulativeDistribution_T;
00023
00025   typedef CategoricalAttributeLite<stdair::AirportCode_T>
      POSProbabilityMass_T;
00026
00028   typedef POSProbabilityMass_T::ProbabilityMassFunction_T
      POSProbabilityMassFunction_T;
00029
00031   typedef CategoricalAttributeLite<stdair::ChannelLabel_T>
      ChannelProbabilityMass_T;
00032
00034   typedef ChannelProbabilityMass_T::ProbabilityMassFunction_T
      ChannelProbabilityMassFunction_T;
00035
00037   typedef CategoricalAttributeLite<stdair::TripType_T>
      TripTypeProbabilityMass_T;
00038
00040   typedef TripTypeProbabilityMass_T::ProbabilityMassFunction_T
      TripTypeProbabilityMassFunction_T;
00041
00043   typedef CategoricalAttributeLite<stdair::DayDuration_T>
      StayDurationProbabilityMass_T;
00044
00046   typedef StayDurationProbabilityMass_T::ProbabilityMassFunction_T
      StayDurationProbabilityMassFunction_T;
00047
00049   typedef CategoricalAttributeLite<stdair::FrequentFlyer_T>
      FrequentFlyerProbabilityMass_T;
00050
00052   typedef FrequentFlyerProbabilityMass_T::ProbabilityMassFunction_T
      FrequentFlyerProbabilityMassFunction_T;
00053
00055   typedef ContinuousAttributeLite<stdair::IntDuration_T>
      PreferredDepartureTimeCumulativeDistribution_T
```

```
    ;
00056
00058   typedef
      PreferredDepartureTimeCumulativeDistribution_T::ContinuousDistribution_T
       PreferredDepartureTimeContinuousDistribution_T
    ;
00059
00061   typedef ContinuousAttributeLite<stdair::PriceValue_T>
       ValueOfTimeCumulativeDistribution_T;
00062
00064   typedef ValueOfTimeCumulativeDistribution_T::ContinuousDistribution_T
       ValueOfTimeContinuousDistribution_T;
00065
00067   typedef ContinuousAttributeLite<stdair::RealNumber_T>
       CumulativeDistribution_T;
00068   typedef CumulativeDistribution_T::ContinuousDistribution_T
       FRAT5Pattern_T;
00069 }
00070 #endif // __TRADEMGEN_BAS_DEMANDCHARACTERISTICSTYPES_HPP
```

23.43 trademgen/basic/DemandDistribution.cpp File Reference

```
#include <cassert>
#include <sstream>
#include <stdair/stdair_date_time_types.hpp>
#include <trademgen/basic/DemandDistribution.hpp>
```

Namespaces

- namespace TRADEMGEN

23.44 DemandDistribution.cpp

```
00001 // ////////////////////////////////////////////////////////////////////
00002 // Import section
00003 // ////////////////////////////////////////////////////////////////////
00004 // STL
00005 #include <cassert>
00006 #include <sstream>
00007 // StdAir
00008 #include <stdair/stdair_date_time_types.hpp>
00009 // TraDemGen
00010 #include <trademgen/basic/DemandDistribution.hpp
      >
00011
00012 namespace TRADEMGEN {
00013
00014   // ////////////////////////////////////////////////////
00015   DemandDistribution::DemandDistribution
      (const stdair::NbOfRequests_T& iMean,
00016                                         const stdair::StdDevValue_T& iStdDev)
00017     : _meanNumberOfRequests (iMean),
00018       _stdDevNumberOfRequests (iStdDev) {
00019   }
00020
00021   // ////////////////////////////////////////////////////
00022   DemandDistribution::DemandDistribution(
      ) {
00023   }
00024
00025   // ////////////////////////////////////////////////////
00026   DemandDistribution::~DemandDistribution
      () {
00027   }
00028
00029   // ////////////////////////////////////////////////////
00030   DemandDistribution::
00031   DemandDistribution (const DemandDistribution
      & iDemandDistribution)
00032     : _meanNumberOfRequests (iDemandDistribution._meanNumberOfRequests),
00033       _stdDevNumberOfRequests (iDemandDistribution._stdDevNumberOfRequests) {
00034   }
00035
00036   // ////////////////////////////////////////////////////
00037   void DemandDistribution::fromStream (
```

```
      std::istream& ioIn) {
00038   }
00039
00040   // ////////////////////////////////////////////////////
00041   const std::string DemandDistribution::describe()
       const {
00042     std::ostringstream oStr;
00043     oStr << "N (" << _meanNumberOfRequests << ", "
00044          << _stdDevNumberOfRequests << ")";
00045     return oStr.str();
00046   }
00047
00048   // ////////////////////////////////////////////////////
00049   std::string DemandDistribution::display() const {
00050     std::ostringstream oStr;
00051     oStr << describe() << std::endl;
00052     return oStr.str();
00053   }
00054
00055 }
00056
```

23.45 trademgen/basic/DemandDistribution.hpp File Reference

```
#include <string>
#include <stdair/stdair_basic_types.hpp>
#include <stdair/basic/StructAbstract.hpp>
#include <trademgen/basic/ContinuousAttribute.hpp>
```

Classes

- struct TRADEMGEN::DemandDistribution

  Class modeling the distribution of a demand type.

Namespaces

- namespace TRADEMGEN

23.46 DemandDistribution.hpp

```
00001 #ifndef __TRADEMGEN_BAS_DEMAND_DISTRIBUTION_HPP
00002 #define __TRADEMGEN_BAS_DEMAND_DISTRIBUTION_HPP
00003
00004 // //////////////////////////////////////////////////////////////////
00005 // Import section
00006 // //////////////////////////////////////////////////////////////////
00007 // STL
00008 #include <string>
00009 // StdAir
00010 #include <stdair/stdair_basic_types.hpp>
00011 #include <stdair/basic/StructAbstract.hpp>
00012 // TraDemGen
00013 #include <trademgen/basic/ContinuousAttribute.hpp
      >
00014
00015 namespace TRADEMGEN {
00016
00020   struct DemandDistribution : public stdair::StructAbstract {
00021   public:
00022     // ////////// Constructors and destructors /////////
00026     DemandDistribution (const stdair::NbOfRequests_T& iMean,
00027                         const stdair::StdDevValue_T& iStdDev);
00031     DemandDistribution();
00035     DemandDistribution (const DemandDistribution
      &);
00039      ~DemandDistribution();
00040
00041
00042   public:
00043     // ////////////// Display Support Methods /////////
00049     void fromStream (std::istream& ioIn);
```

```
00050
00054     const std::string describe() const;
00055
00059     std::string display() const;
00060
00061
00062   public:
00063     // ////////// Attributes //////////
00067     stdair::NbOfRequests_T _meanNumberOfRequests;
00068
00072     stdair::StdDevValue_T _stdDevNumberOfRequests;
00073   };
00074
00075 }
00076 #endif // __TRADEMGEN_BAS_DEMAND_DISTRIBUTION_HPP
```

23.47 trademgen/basic/DictionaryManager.cpp File Reference

```
#include <trademgen/basic/DictionaryManager.hpp>
```

Namespaces

- namespace TRADEMGEN

23.48 DictionaryManager.cpp

```
00001 // ////////////////////////////////////////////////////////////////////
00002 // Import section
00003 // ////////////////////////////////////////////////////////////////////
00004 // TRADEMGEN
00005 #include <trademgen/basic/DictionaryManager.hpp
      >
00006
00007 namespace TRADEMGEN {
00008   // ////////////////////////////////////////////////////////////////////
00009   const stdair::Probability_T DictionaryManager::
00010   keyToValue (const DictionaryKey_T iKey) {
00011     //    return static_cast<stdair::Probability_T>(iKey) / 1000;
00012     return iKey;
00013   }
00014
00015   // ////////////////////////////////////////////////////////////////////
00016   const DictionaryKey_T DictionaryManager::
00017   valueToKey (const stdair::Probability_T iValue) {
00018     //    return iValue * 1000;
00019     return iValue;
00020   }
00021 }
```

23.49 trademgen/basic/DictionaryManager.hpp File Reference

```
#include <stdair/stdair_maths_types.hpp>
```

Classes

- class TRADEMGEN::DictionaryManager

  Class wrapper of dictionary business methods.

Namespaces

- namespace TRADEMGEN

Typedefs

- typedef stdair::Probability_T TRADEMGEN::DictionaryKey_T

23.50 DictionaryManager.hpp

```
00001 // ////////////////////////////////////////////////////////////////////
00002 #ifndef __TRADEMGEN_BASIC_DICTIONARYMANAGER_HPP
00003 #define __TRADEMGEN_BASIC_DICTIONARYMANAGER_HPP
00004
00005 // ////////////////////////////////////////////////////////////////////
00006 // Import section
00007 // ////////////////////////////////////////////////////////////////////
00008 // StdAir
00009 #include <stdair/stdair_maths_types.hpp>
00010
00011 namespace TRADEMGEN {
00012
00013   // ////////////// Type definitions /////////////////
00015   //typedef unsigned short DictionaryKey_T;
00016   typedef stdair::Probability_T DictionaryKey_T;
00017
00021   class DictionaryManager {
00022   public:
00023     // ////////////// Business methods /////////////////
00027     static const stdair::Probability_T keyToValue (const
      DictionaryKey_T);
00028
00032     static const DictionaryKey_T valueToKey (const
      stdair::Probability_T);
00033   };
00034 }
00035 #endif // __TRADEMGEN_BASIC_DICTIONARYMANAGER_HPP
```

23.51 trademgen/basic/RandomGenerationContext.cpp File Reference

```
#include <cassert>
#include <sstream>
#include <trademgen/basic/RandomGenerationContext.hpp>
```

Namespaces

- namespace TRADEMGEN

23.52 RandomGenerationContext.cpp

```
00001 // ////////////////////////////////////////////////////////////////////
00002 // Import section
00003 // ////////////////////////////////////////////////////////////////////
00004 // STL
00005 #include <cassert>
00006 #include <sstream>
00007 // TraDemGen
00008 #include <trademgen/basic/RandomGenerationContext.hpp
      >
00009
00010 namespace TRADEMGEN {
00011
00012   // ////////////////////////////////////////////////////////////////////
00013   RandomGenerationContext::RandomGenerationContext
       ()
00014     : _numberOfRequestsGeneratedSoFar (0),
00015       _cumulativeProbabilitySoFar (0.0) {
00016   }
00017
00018   // ////////////////////////////////////////////////////////////////////
00019   RandomGenerationContext::
00020   RandomGenerationContext (const
      RandomGenerationContext& iRGC)
00021     : _numberOfRequestsGeneratedSoFar (iRGC._numberOfRequestsGeneratedSoFar),
00022       _cumulativeProbabilitySoFar (iRGC._cumulativeProbabilitySoFar) {
```

```
00023   }
00024
00025   // ////////////////////////////////////////////////////////////////////
00026   RandomGenerationContext::~RandomGenerationContext
      () {
00027   }
00028
00029   // ////////////////////////////////////////////////////////////////////
00030   const std::string RandomGenerationContext::describe
      () const {
00031     std::ostringstream oStr;
00032     oStr << _numberOfRequestsGeneratedSoFar
00033          << " => " << _cumulativeProbabilitySoFar;
00034     return oStr.str();
00035   }
00036
00037   // ////////////////////////////////////////////////////////////////////
00038   void RandomGenerationContext::incrementGeneratedRequestsCounter
      () {
00039     ++_numberOfRequestsGeneratedSoFar;
00040   }
00041
00042   // ////////////////////////////////////////////////////////////////////
00043   void RandomGenerationContext::reset() {
00044     _cumulativeProbabilitySoFar = 0.0;
00045     _numberOfRequestsGeneratedSoFar = 0;
00046   }
00047
00048 }
```

23.53 trademgen/basic/RandomGenerationContext.hpp File Reference

```
#include <iosfwd>
#include <string>
#include <stdair/stdair_basic_types.hpp>
#include <stdair/stdair_maths_types.hpp>
#include <stdair/basic/StructAbstract.hpp>
```

Classes

- struct TRADEMGEN::RandomGenerationContext

Namespaces

- namespace TRADEMGEN

23.54 RandomGenerationContext.hpp

```
00001 #ifndef __TRADEMGEN_BAS_RANDOM_GENERATION_CONTEXT_HPP
00002 #define __TRADEMGEN_BAS_RANDOM_GENERATION_CONTEXT_HPP
00003
00004 // ////////////////////////////////////////////////////////////////////
00005 // Import section
00006 // ////////////////////////////////////////////////////////////////////
00007 // STL
00008 #include <iosfwd>
00009 #include <string>
00010 // StdAir
00011 #include <stdair/stdair_basic_types.hpp>
00012 #include <stdair/stdair_maths_types.hpp>
00013 #include <stdair/basic/StructAbstract.hpp>
00014
00015 namespace TRADEMGEN {
00016
00020   struct RandomGenerationContext : public
      stdair::StructAbstract {
00021   public:
00022     // ////////// Getters /////////
00026     const stdair::Count_T& getNumberOfRequestsGeneratedSoFar
      () const {
00027       return _numberOfRequestsGeneratedSoFar;
```

```
00028     }
00029
00034     const stdair::Probability_T& getCumulativeProbabilitySoFar
      () const {
00035       return _cumulativeProbabilitySoFar;
00036     }
00037
00038   public:
00039     // ********** Setters *********
00043     void setNumberOfRequestsGeneratedSoFar (
      const stdair::Count_T& iCount) {
00044       _numberOfRequestsGeneratedSoFar = iCount;
00045     }
00046
00051     void setCumulativeProbabilitySoFar (const
      stdair::Probability_T& iProb) {
00052       _cumulativeProbabilitySoFar = iProb;
00053     }
00054
00055
00056   public:
00057     // ********** Constructors and destructors *********
00061     RandomGenerationContext();
00062
00066     RandomGenerationContext (const
      RandomGenerationContext&);
00067
00071     ~RandomGenerationContext();
00072
00073
00074   public:
00075     // *************** Business Methods **********
00079     void incrementGeneratedRequestsCounter();
00080
00084     void reset();
00085
00086
00087   public:
00088     // ************** Display Support Methods **********
00092     const std::string describe() const;
00093
00094
00095   private:
00096     // ********** Attributes **********
00100     stdair::Count_T _numberOfRequestsGeneratedSoFar;
00101
00106     stdair::Probability_T _cumulativeProbabilitySoFar;
00107   };
00108
00109 }
00110 #endif // __STDAIR_BAS_RANDOM_GENERATION_CONTEXT_HPP
```

23.55 trademgen/batches/trademgen_generateDemand.cpp File Reference

```
#include <cassert>
#include <sstream>
#include <fstream>
#include <vector>
#include <list>
#include <string>
#include <boost/tokenizer.hpp>
#include <boost/program_options.hpp>
#include <boost/accumulators/accumulators.hpp>
#include <boost/accumulators/statistics.hpp>
#include <stdair/stdair_basic_types.hpp>
#include <stdair/basic/BasConst_General.hpp>
#include <stdair/basic/ProgressStatusSet.hpp>
#include <stdair/basic/DemandGenerationMethod.hpp>
#include <stdair/bom/EventStruct.hpp>
#include <stdair/bom/BookingRequestStruct.hpp>
#include <stdair/bom/BomDisplay.hpp>
#include <stdair/service/Logger.hpp>
#include <trademgen/TRADEMGEN_Service.hpp>
#include <trademgen/config/trademgen-paths.hpp>
```

Typedefs

- typedef unsigned int NbOfRuns_T
- typedef ba::accumulator_set
  < double, ba::stats
  < ba::tag::min, ba::tag::max,
  ba::tag::mean(ba::immediate),
  ba::tag::sum,
  ba::tag::variance > > stat_acc_type

Functions

- const stdair::Filename_T K_TRADEMGEN_DEFAULT_LOG_FILENAME ("trademgen_generateDemand.log")
- const stdair::Filename_T K_TRADEMGEN_DEFAULT_INPUT_FILENAME (STDAIR_SAMPLE_DIR"/demand01.csv")
- const stdair::Filename_T K_TRADEMGEN_DEFAULT_OUTPUT_FILENAME ("request.csv")
- void stat_display (std::ostream &oStream, const stat_acc_type &iStatAcc)
- template<class T >
  std::ostream & operator<< (std::ostream &os, const std::vector< T > &v)
- int readConfiguration (int argc, char *argv[], bool &ioIsBuiltin, stdair::RandomSeed_T &ioRandomSeed, NbOfRuns_T &ioRandomRuns, stdair::Filename_T &ioInputFilename, stdair::Filename_T &ioOutputFilename, stdair::Filename_T &ioLogFilename, stdair::DemandGenerationMethod &ioDemandGenerationMethod)
- void generateDemand (TRADEMGEN::TRADEMGEN_Service &ioTrademgenService, const stdair::Filename_T &iOutputFilename, const NbOfRuns_T &iNbOfRuns, const stdair::DemandGenerationMethod &iDemandGenerationMethod)
- int main (int argc, char *argv[])

Variables

- const
  stdair::DemandGenerationMethod K_TRADEMGEN_DEFAULT_DEMAND_GENERATION_METHOD
- const char K_TRADEMGEN_DEFAULT_DEMAND_GENERATION_METHOD_CHAR
- const stdair::RandomSeed_T K_TRADEMGEN_DEFAULT_RANDOM_SEED
- const NbOfRuns_T K_TRADEMGEN_DEFAULT_RANDOM_DRAWS = 1
- const bool K_TRADEMGEN_DEFAULT_BUILT_IN_INPUT = false
- const int K_TRADEMGEN_EARLY_RETURN_STATUS = 99

23.55.1 Typedef Documentation

23.55.1.1 typedef unsigned int NbOfRuns_T

Definition at line 38 of file trademgen_generateDemand.cpp.

23.55.1.2 typedef ba::accumulator_set<double, ba::stats<ba::tag::min, ba::tag::max, ba::tag::mean (ba::immediate), ba::tag::sum, ba::tag::variance> > stat_acc_type

Type definition to gather statistics.

Definition at line 47 of file trademgen_generateDemand.cpp.

23.55.2 Function Documentation

23.55.2.1 const stdair::Filename_T K_TRADEMGEN_DEFAULT_LOG_FILENAME ("trademgen_generateDemand.log")

Default name and location for the log file.

Referenced by readConfiguration().

23.55.2.2 const stdair::Filename_T K_TRADEMGEN_DEFAULT_INPUT_FILENAME (STDAIR_SAMPLE_DIR"/demand01.csv")

Default name and location for the (CSV) input file.

Referenced by readConfiguration().

23.55.2.3 const stdair::Filename_T K_TRADEMGEN_DEFAULT_OUTPUT_FILENAME ("request.csv")

Default name and location for the (CSV) output file.

Referenced by readConfiguration().

23.55.2.4 void stat_display (std::ostream & *oStream,* const stat_acc_type & *iStatAcc*)

Display the statistics held by the dedicated accumulator.

Definition at line 105 of file trademgen_generateDemand.cpp.

Referenced by generateDemand().

23.55.2.5 template<class T > std::ostream& operator<< (std::ostream & *os,* const std::vector< T > & *v*)

Definition at line 127 of file trademgen_generateDemand.cpp.

23.55.2.6 int readConfiguration (int *argc,* char * *argv[],* bool & *ioIsBuiltin,* stdair::RandomSeed_T & *ioRandomSeed,* NbOfRuns_T & *ioRandomRuns,* stdair::Filename_T & *ioInputFilename,* stdair::Filename_T & *ioOutputFilename,* stdair::Filename_T & *ioLogFilename,* stdair::DemandGenerationMethod & *ioDemandGenerationMethod*)

Read and parse the command line options.

Definition at line 136 of file trademgen_generateDemand.cpp.

References K_TRADEMGEN_DEFAULT_BUILT_IN_INPUT, K_TRADEMGEN_DEFAULT_DEMAND_GENERATION_METHOD_CHAR, K_TRADEMGEN_DEFAULT_INPUT_FILENAME(), K_TRADEMGEN_DEFAULT_LOG_FILENAME(), K_TRADEMGEN_DEFAULT_OUTPUT_FILENAME(), K_TRADEMGEN_EARLY_RETURN_STATUS, PACKAGE_NAME, PACKAGE_VERSION, and PREFIXDIR.

Referenced by main().

23.55.2.7 void generateDemand (TRADEMGEN::TRADEMGEN_Service & *ioTrademgenService,* const stdair::Filename_T & *iOutputFilename,* const NbOfRuns_T & *iNbOfRuns,* const stdair::DemandGenerationMethod & *iDemandGenerationMethod*)

Definition at line 276 of file trademgen_generateDemand.cpp.

References TRADEMGEN::TRADEMGEN_Service::csvDisplay(), TRADEMGEN::TRADEMGEN_Service::generateFirstRequests(), TRADEMGEN::TRADEMGEN_Service::generateNextRequest(), TRADEMGEN::TRADEMGEN_Service::getExpectedTotalNumberOfRequestsToBeGenerated(), TRADEMGEN::TRADEMGEN_Service::isQueueDone(), TRADEMGEN::TRADEMGEN_Service::popEvent(), TRADEMGEN::TRADEMGEN_Service::reset(), and stat_display().

Referenced by main(), and TRADEMGEN::TRADEMGEN_Service::parseAndLoad().

23.55.2.8 int main (int *argc,* char * *argv[]*)

Definition at line 420 of file trademgen_generateDemand.cpp.

References TRADEMGEN::TRADEMGEN_Service::buildSampleBom(), generateDemand(), K_TRADEMGEN_-DEFAULT_DEMAND_GENERATION_METHOD, TRADEMGEN::TRADEMGEN_Service::parseAndLoad(), and readConfiguration().

23.55.3 Variable Documentation

23.55.3.1 const stdair::DemandGenerationMethod K_TRADEMGEN_DEFAULT_DEMAND_GENERATION_METHOD

Initial value:

```
stdair::DemandGenerationMethod::POI_PRO
```

Default demand generation method: Poisson Process.

Definition at line 70 of file trademgen_generateDemand.cpp.

Referenced by main().

23.55.3.2 const char K_TRADEMGEN_DEFAULT_DEMAND_GENERATION_METHOD_CHAR

Initial value:

```
K_TRADEMGEN_DEFAULT_DEMAND_GENERATION_METHOD
    .getMethodAsChar()
```

Default demand generation method name: 'P' for Poisson Process.

Definition at line 76 of file trademgen_generateDemand.cpp.

Referenced by readConfiguration().

23.55.3.3 const stdair::RandomSeed_T K_TRADEMGEN_DEFAULT_RANDOM_SEED

Initial value:

```
stdair::DEFAULT_RANDOM_SEED
```

Default random generation seed (e.g., 120765987).

Definition at line 82 of file trademgen_generateDemand.cpp.

Referenced by readConfiguration().

23.55.3.4 const NbOfRuns_T K_TRADEMGEN_DEFAULT_RANDOM_DRAWS = 1

Default number of random draws to be generated (best if over 100).

Definition at line 88 of file trademgen_generateDemand.cpp.

23.55.3.5 const bool K_TRADEMGEN_DEFAULT_BUILT_IN_INPUT = false

Default for the input type. It can be either built-in or provided by an input file. That latter must then be given with the -i option.

Definition at line 94 of file trademgen_generateDemand.cpp.

Referenced by readConfiguration().

23.55.3.6 const int K_TRADEMGEN_EARLY_RETURN_STATUS = 99

Early return status (so that it can be differentiated from an error).

Definition at line 99 of file trademgen_generateDemand.cpp.

Referenced by main(), and readConfiguration().

23.56 trademgen_generateDemand.cpp

```
00001 // ////////////////////////////////////////////////////////////////////
00002 // Import section
00003 // ////////////////////////////////////////////////////////////////////
00004 // STL
00005 #include <cassert>
00006 #include <sstream>
00007 #include <fstream>
00008 #include <vector>
00009 #include <list>
00010 #include <string>
00011 //  //// Boost (Extended STL) ////
00012 // Boost Tokeniser
00013 #include <boost/tokenizer.hpp>
00014 // Boost Program Options
00015 #include <boost/program_options.hpp>
00016 // Boost Accumulators
00017 #include <boost/accumulators/accumulators.hpp>
00018 #include <boost/accumulators/statistics.hpp>
00019 // Boost Progress
00020 //#include <boost/progress.hpp>
00021 // StdAir
00022 #include <stdair/stdair_basic_types.hpp>
00023 #include <stdair/basic/BasConst_General.hpp>
00024 #include <stdair/basic/ProgressStatusSet.hpp>
00025 #include <stdair/basic/DemandGenerationMethod.hpp>
00026 #include <stdair/bom/EventStruct.hpp>
00027 #include <stdair/bom/BookingRequestStruct.hpp>
00028 #include <stdair/bom/BomDisplay.hpp>
00029 #include <stdair/service/Logger.hpp>
00030 // TraDemGen
00031 #include <trademgen/TRADEMGEN_Service.hpp>
00032 #include <trademgen/config/trademgen-paths.hpp
      >
00033
00034 // Aliases for namespaces
00035 namespace ba = boost::accumulators;
00036
00037 // //////// Specific type definitions ///////
00038 typedef unsigned int NbOfRuns_T;
00039
00043 typedef ba::accumulator_set<double,
00044                             ba::stats<ba::tag::min, ba::tag::max,
00045                                       ba::tag::mean (ba::immediate),
00046                                       ba::tag::sum,
00047                                       ba::tag::variance> > stat_acc_type
      ;
00048
00049 // //////// Constants //////
00053 const stdair::Filename_T K_TRADEMGEN_DEFAULT_LOG_FILENAME
       ("trademgen_generateDemand.log");
00054
00058 const stdair::Filename_T K_TRADEMGEN_DEFAULT_INPUT_FILENAME
       (STDAIR_SAMPLE_DIR
00059                                                              "/demand01.csv");
00060
00064 const stdair::Filename_T K_TRADEMGEN_DEFAULT_OUTPUT_FILENAME
       ("request.csv");
00065
00069 const stdair::DemandGenerationMethod
00070 K_TRADEMGEN_DEFAULT_DEMAND_GENERATION_METHOD
       =
00071   stdair::DemandGenerationMethod::POI_PRO;
00072
00076 const char K_TRADEMGEN_DEFAULT_DEMAND_GENERATION_METHOD_CHAR
       =
00077   K_TRADEMGEN_DEFAULT_DEMAND_GENERATION_METHOD
      .getMethodAsChar();
00078
00082 const stdair::RandomSeed_T K_TRADEMGEN_DEFAULT_RANDOM_SEED
       =
00083   stdair::DEFAULT_RANDOM_SEED;
00084
00088 const NbOfRuns_T K_TRADEMGEN_DEFAULT_RANDOM_DRAWS
       = 1;
00089
00094 const bool K_TRADEMGEN_DEFAULT_BUILT_IN_INPUT
       = false;
00095
00099 const int K_TRADEMGEN_EARLY_RETURN_STATUS = 99;
00100
00101
00105 void stat_display (std::ostream& oStream, const stat_acc_type
      & iStatAcc) {
00106
00107   // Store current formatting flags of the output stream
```

```
00108   std::ios::fmtflags oldFlags = oStream.flags();
00109
00110   //
00111   oStream.setf (std::ios::fixed);
00112
00113   //
00114   oStream << "Statistics for the demand generation runs: " << std::endl;
00115   oStream << "  minimum   = " << ba::min (iStatAcc) << std::endl;
00116   oStream << "  mean      = " << ba::mean (iStatAcc) << std::endl;
00117   oStream << "  maximum   = " << ba::max (iStatAcc) << std::endl;
00118   oStream << "  count     = " << ba::count (iStatAcc) << std::endl;
00119   oStream << "  variance  = " << ba::variance (iStatAcc) << std::endl;
00120
00121   // Reset formatting flags of output stream
00122   oStream.flags (oldFlags);
00123 }
00124
00125 // ///////// Parsing of Options & Configuration /////////
00126 // A helper function to simplify the main part.
00127 template<class T> std::ostream& operator<< (std::ostream& os,
00128                                             const std::vector<T>& v) {
00129   std::copy (v.begin(), v.end(), std::ostream_iterator<T> (std::cout, " "));
00130   return os;
00131 }
00132
00136 int readConfiguration (int argc, char* argv[], bool&
      ioIsBuiltin,
00137                        stdair::RandomSeed_T& ioRandomSeed,
00138                        NbOfRuns_T& ioRandomRuns,
00139                        stdair::Filename_T& ioInputFilename,
00140                        stdair::Filename_T& ioOutputFilename,
00141                        stdair::Filename_T& ioLogFilename,
00142                        stdair::DemandGenerationMethod& ioDemandGenerationMethod
      ) {
00143
00144   // Demand generation method as a single char (e.g., 'P' or 'S').
00145   char lDemandGenerationMethodChar;
00146
00147   // Default for the built-in input
00148   ioIsBuiltin = K_TRADEMGEN_DEFAULT_BUILT_IN_INPUT
      ;
00149
00150   // Declare a group of options that will be allowed only on command line
00151   boost::program_options::options_description generic ("Generic options");
00152   generic.add_options()
00153     ("prefix", "print installation prefix")
00154     ("version,v", "print version string")
00155     ("help,h", "produce help message");
00156
00157   // Declare a group of options that will be allowed both on command
00158   // line and in config file
00159   boost::program_options::options_description config ("Configuration");
00160   config.add_options()
00161     ("builtin,b",
00162      "The sample BOM tree can be either built-in or parsed from an input file.
       That latter must then be given with the -i/--input option")
00163     ("seed,s",
00164      boost::program_options::value<stdair::RandomSeed_T>(&ioRandomSeed)->
      default_value(K_TRADEMGEN_DEFAULT_RANDOM_SEED),
00165      "Seed for the random generation")
00166     ("draws,d",
00167      boost::program_options::value<NbOfRuns_T>(&ioRandomRuns)->default_value(
      K_TRADEMGEN_DEFAULT_RANDOM_DRAWS),
00168      "Number of runs for the demand generations")
00169     ("demandgeneration,G",
00170      boost::program_options::value< char >(&lDemandGenerationMethodChar)->
      default_value(K_TRADEMGEN_DEFAULT_DEMAND_GENERATION_METHOD_CHAR
      ),
00171      "Method used to generate the demand (i.e., the booking requests): Poisson
       Process (P) or Order Statistics (S)")
00172     ("input,i",
00173      boost::program_options::value< std::string >(&ioInputFilename)->
      default_value(K_TRADEMGEN_DEFAULT_INPUT_FILENAME),
00174      "(CSV) input file for the demand distributions")
00175     ("output,o",
00176      boost::program_options::value< std::string >(&ioOutputFilename)->
      default_value(K_TRADEMGEN_DEFAULT_OUTPUT_FILENAME),
00177      "(CSV) output file for the generated requests")
00178     ("log,l",
00179      boost::program_options::value< std::string >(&ioLogFilename)->
      default_value(K_TRADEMGEN_DEFAULT_LOG_FILENAME),
00180      "Filepath for the logs")
00181     ;
00182
00183   // Hidden options, will be allowed both on command line and
00184   // in config file, but will not be shown to the user.
00185   boost::program_options::options_description hidden ("Hidden options");
```

```
00186   hidden.add_options()
00187     ("copyright",
00188      boost::program_options::value< std::vector<std::string> >(),
00189      "Show the copyright (license)");
00190
00191   boost::program_options::options_description cmdline_options;
00192   cmdline_options.add(generic).add(config).add(hidden);
00193
00194   boost::program_options::options_description config_file_options;
00195   config_file_options.add(config).add(hidden);
00196
00197   boost::program_options::options_description visible ("Allowed options");
00198   visible.add(generic).add(config);
00199
00200   boost::program_options::positional_options_description p;
00201   p.add ("copyright", -1);
00202
00203   boost::program_options::variables_map vm;
00204   boost::program_options::
00205     store (boost::program_options::command_line_parser (argc, argv).
00206            options (cmdline_options).positional(p).run(), vm);
00207
00208   std::ifstream ifs ("trademgen.cfg");
00209   boost::program_options::store (parse_config_file (ifs, config_file_options),
00210                                  vm);
00211   boost::program_options::notify (vm);
00212
00213   if (vm.count ("help")) {
00214     std::cout << visible << std::endl;
00215     return K_TRADEMGEN_EARLY_RETURN_STATUS;
00216   }
00217
00218   if (vm.count ("version")) {
00219     std::cout << PACKAGE_NAME << ", version " << PACKAGE_VERSION
       << std::endl;
00220     return K_TRADEMGEN_EARLY_RETURN_STATUS;
00221   }
00222
00223   if (vm.count ("prefix")) {
00224     std::cout << "Installation prefix: " << PREFIXDIR << std::endl;
00225     return K_TRADEMGEN_EARLY_RETURN_STATUS;
00226   }
00227
00228   if (vm.count ("builtin")) {
00229     ioIsBuiltin = true;
00230   }
00231   const std::string isBuiltinStr = (ioIsBuiltin == true)?"yes":"no";
00232   std::cout << "The BOM should be built-in? " << isBuiltinStr << std::endl;
00233
00234   if (ioIsBuiltin == false) {
00235
00236     // The BOM tree should be built from parsing a demand input file
00237     if (vm.count ("input")) {
00238       ioInputFilename = vm["input"].as< std::string >();
00239       std::cout << "Input filename is: " << ioInputFilename << std::endl;
00240
00241     } else {
00242       // The built-in option is not selected. However, no demand input file
00243       // is specified
00244       std::cerr << "Either one among the -b/--builtin and -i/--input "
00245                 << "options must be specified" << std::endl;
00246     }
00247   }
00248
00249   if (vm.count ("output")) {
00250     ioOutputFilename = vm["output"].as< std::string >();
00251     std::cout << "Output filename is: " << ioOutputFilename << std::endl;
00252   }
00253
00254   if (vm.count ("log")) {
00255     ioLogFilename = vm["log"].as< std::string >();
00256     std::cout << "Log filename is: " << ioLogFilename << std::endl;
00257   }
00258
00259   if (vm.count ("demandgeneration")) {
00260     ioDemandGenerationMethod =
00261       stdair::DemandGenerationMethod (lDemandGenerationMethodChar);
00262     std::cout << "Date-time request generation method is: "
00263               << ioDemandGenerationMethod.describe() << std::endl;
00264   }
00265
00266   //
00267   std::cout << "The random generation seed is: " << ioRandomSeed << std::endl;
00268
00269   //
00270   std::cout << "The number of runs is: " << ioRandomRuns << std::endl;
00271
```

```
00272   return 0;
00273 }
00274
00275 // ////////////////////////////////////////////////////////////////////
00276 void generateDemand (TRADEMGEN::TRADEMGEN_Service
      & ioTrademgenService,
00277                      const stdair::Filename_T& iOutputFilename,
00278                      const NbOfRuns_T& iNbOfRuns,
00279                      const stdair::DemandGenerationMethod&
      iDemandGenerationMethod) {
00280
00281   // Open and clean the .csv output file
00282   std::ofstream output;
00283   output.open (iOutputFilename.c_str());
00284   output.clear();
00285
00286   // Initialise the statistics collector/accumulator
00287   stat_acc_type lStatAccumulator;
00288
00289   // Retrieve the expected (mean value of the) number of events to be
00290   // generated
00291   const stdair::Count_T& lExpectedNbOfEventsToBeGenerated =
00292     ioTrademgenService.getExpectedTotalNumberOfRequestsToBeGenerated
      ();
00293
00294   // Initialise the (Boost) progress display object
00295   boost::progress_display lProgressDisplay (lExpectedNbOfEventsToBeGenerated
00296                                             * iNbOfRuns);
00297
00298   for (NbOfRuns_T runIdx = 1; runIdx <= iNbOfRuns; ++runIdx) {
00299     // ////////////////////////////////////////////////////
00300     output << "Run number: " << runIdx << std::endl;
00301
00306     const stdair::Count_T& lActualNbOfEventsToBeGenerated =
00307       ioTrademgenService.generateFirstRequests (
      iDemandGenerationMethod);
00308
00309     // DEBUG
00310     STDAIR_LOG_DEBUG ("[" << runIdx << "] Expected: "
00311                       << lExpectedNbOfEventsToBeGenerated << ", actual: "
00312                       << lActualNbOfEventsToBeGenerated);
00313
00321     while (ioTrademgenService.isQueueDone() == false) {
00322
00323       // Extract the next event from the event queue
00324       stdair::EventStruct lEventStruct;
00325       stdair::ProgressStatusSet lProgressStatusSet =
00326         ioTrademgenService.popEvent (lEventStruct);
00327
00328       // DEBUG
00329       // STDAIR_LOG_DEBUG ("[" << runIdx << "] Poped event: '"
00330       //                   << lEventStruct.describe() << "'.");
00331
00332       // Extract the corresponding demand/booking request
00333       const stdair::BookingRequestStruct& lPoppedRequest =
00334         lEventStruct.getBookingRequest();
00335
00336       // DEBUG
00337       STDAIR_LOG_DEBUG ("[" << runIdx << "] Poped booking request: '"
00338                         << lPoppedRequest.describe() << "'.");
00339
00340       // Dump the request into the dedicated CSV file
00341       // stdair::BomDisplay::csvDisplay (output, lPoppedRequest);
00342
00343       // Retrieve the corresponding demand stream key
00344       const stdair::DemandGeneratorKey_T& lDemandStreamKey =
00345         lPoppedRequest.getDemandGeneratorKey();
00346
00347       // Assess whether more events should be generated for that demand stream
00348       const bool stillHavingRequestsToBeGenerated = ioTrademgenService.
00349         stillHavingRequestsToBeGenerated (lDemandStreamKey,
00350                                           lProgressStatusSet,
00351                                           iDemandGenerationMethod);
00352
00353       // DEBUG
00354       STDAIR_LOG_DEBUG (lProgressStatusSet.describe());
00355       STDAIR_LOG_DEBUG ("=> [" << lDemandStreamKey << "] is now processed. "
00356                         << "Still generate events for that demand stream? "
00357                         << stillHavingRequestsToBeGenerated);
00358
00359       // If there are still events to be generated for that demand stream,
00360       // generate and add them to the event queue
00361       if (stillHavingRequestsToBeGenerated == true) {
00362
00363         stdair::BookingRequestPtr_T lNextRequest_ptr =
00364           ioTrademgenService.generateNextRequest (
      lDemandStreamKey,
```

```
00365                                                 iDemandGenerationMethod);
00366
00367         assert (lNextRequest_ptr != NULL);
00368
00369         // Sanity check
00370         const stdair::Duration_T lDuration =
00371           lNextRequest_ptr->getRequestDateTime()
00372           - lPoppedRequest.getRequestDateTime();
00373         if (lDuration.total_milliseconds() < 0) {
00374           STDAIR_LOG_ERROR ("[" << lDemandStreamKey
00375                             << "] The date-time of the generated event ("
00376                             << lNextRequest_ptr->getRequestDateTime()
00377                             << ") is lower than the date-time "
00378                             << "of the current event ("
00379                             << lPoppedRequest.getRequestDateTime() << ")");
00380           assert (false);
00381         }
00382
00383         // DEBUG
00384         STDAIR_LOG_DEBUG ("[" << lDemandStreamKey << "] Added request: '"
00385                           << lNextRequest_ptr->describe()
00386                           << "'. Is queue done? "
00387                           << ioTrademgenService.isQueueDone());
00388       }
00389       // DEBUG
00390       STDAIR_LOG_DEBUG ("");
00391
00392       // Update the progress display
00393       ++lProgressDisplay;
00394     }
00395
00396     // Add the number of events to the statistics accumulator
00397     lStatAccumulator (lActualNbOfEventsToBeGenerated);
00398
00399     // Reset the service (including the event queue) for the next run
00400     ioTrademgenService.reset();
00401   }
00402
00403   // DEBUG
00404   STDAIR_LOG_DEBUG ("End of the demand generation. Following are some "
00405                     "statistics for the " << iNbOfRuns << " runs.");
00406   std::ostringstream oStatStr;
00407   stat_display (oStatStr, lStatAccumulator);
00408   STDAIR_LOG_DEBUG (oStatStr.str());
00409
00410   // DEBUG
00411   const std::string& lBOMStr = ioTrademgenService.csvDisplay();
00412   STDAIR_LOG_DEBUG (lBOMStr);
00413
00414   // Close the output file
00415   output.close();
00416 }
00417
00418
00419 // /////////////// M A I N /////////////////
00420 int main (int argc, char* argv[]) {
00421
00422   // State whether the BOM tree should be built-in or parsed from an input file
00423   bool isBuiltin;
00424
00425   // Random generation seed
00426   stdair::RandomSeed_T lRandomSeed;
00427
00428   // Number of random draws to be generated (best if greater than 100)
00429   NbOfRuns_T lNbOfRuns;
00430
00431   // Input file name
00432   stdair::Filename_T lInputFilename;
00433
00434   // Output file name
00435   stdair::Filename_T lOutputFilename;
00436
00437   // Output log File
00438   stdair::Filename_T lLogFilename;
00439
00440   // Demand generation method.
00441   stdair::DemandGenerationMethod
00442     lDemandGenerationMethod (K_TRADEMGEN_DEFAULT_DEMAND_GENERATION_METHOD
      );
00443
00444   // Call the command-line option parser
00445   const int lOptionParserStatus =
00446     readConfiguration (argc, argv, isBuiltin, lRandomSeed,
      lNbOfRuns,
00447                        lInputFilename, lOutputFilename, lLogFilename,
00448                        lDemandGenerationMethod);
00449
```

```
00450   if (lOptionParserStatus == K_TRADEMGEN_EARLY_RETURN_STATUS) {
00451     return 0;
00452   }
00453
00454   // Set the log parameters
00455   std::ofstream logOutputFile;
00456   // Open and clean the log outputfile
00457   logOutputFile.open (lLogFilename.c_str());
00458   logOutputFile.clear();
00459
00460   // Set up the log parameters
00461   const stdair::BasLogParams lLogParams (stdair::LOG::DEBUG, logOutputFile);
00462
00463   // Initialise the TraDemGen service object
00464   TRADEMGEN::TRADEMGEN_Service trademgenService (
      lLogParams, lRandomSeed);
00465
00466   // Check wether or not a (CSV) input file should be read
00467   if (isBuiltin == true) {
00468     // Create a sample DemandStream object, and insert it within the BOM tree
00469     trademgenService.buildSampleBom();
00470
00471   } else {
00472     // Create the DemandStream objects, and insert them within the BOM tree
00473     const TRADEMGEN::DemandFilePath lDemandFilePath (
      lInputFilename);
00474     trademgenService.parseAndLoad (lDemandFilePath);
00475   }
00476
00477   // Calculate the expected number of events to be generated.
00478   generateDemand (trademgenService, lOutputFilename, lNbOfRuns,
00479                   lDemandGenerationMethod);
00480
00481   // Close the Log outputFile
00482   logOutputFile.close();
00483
00484   /*
00485     \note: as that program is not intended to be run on a server in
00486     production, it is better not to catch the exceptions. When it
00487     happens (that an exception is throwned), that way we get the
00488     call stack.
00489   */
00490
00491   return 0;
00492 }
```

23.57 trademgen/batches/trademgen_with_db.cpp File Reference

```
#include <cassert>
#include <iostream>
#include <sstream>
#include <fstream>
#include <vector>
#include <string>
#include <boost/date_time/posix_time/posix_time.hpp>
#include <boost/date_time/gregorian/gregorian.hpp>
#include <boost/tokenizer.hpp>
#include <boost/program_options.hpp>
#include <stdair/stdair_basic_types.hpp>
#include <stdair/basic/BasConst_General.hpp>
#include <stdair/basic/BasDBParams.hpp>
#include <stdair/basic/BasLogParams.hpp>
#include <trademgen/TRADEMGEN_Service.hpp>
#include <trademgen/config/trademgen-paths.hpp>
```

Typedefs

- typedef std::vector< std::string > WordList_T

Functions

- const std::string K_TRADEMGEN_DEFAULT_LOG_FILENAME ("trademgen_with_db.log")
- const std::string K_TRADEMGEN_DEFAULT_INPUT_FILENAME (STDAIR_SAMPLE_DIR"/demand01.csv")
- const std::string K_TRADEMGEN_DEFAULT_QUERY_STRING ("my good old query")
- const std::string K_TRADEMGEN_DEFAULT_DB_USER ("dsim")
- const std::string K_TRADEMGEN_DEFAULT_DB_PASSWD ("dsim")
- const std::string K_TRADEMGEN_DEFAULT_DB_DBNAME ("sim_dsim")
- const std::string K_TRADEMGEN_DEFAULT_DB_HOST ("localhost")
- const std::string K_TRADEMGEN_DEFAULT_DB_PORT ("3306")
- void tokeniseStringIntoWordList (const std::string &iPhrase, WordList_T &ioWordList)
- std::string createStringFromWordList (const WordList_T &iWordList)
- template<class T >
  std::ostream & operator<< (std::ostream &os, const std::vector< T > &v)
- int readConfiguration (int argc, char *argv[], bool &ioIsBuiltin, stdair::RandomSeed_T &ioRandomSeed, std::string &ioQueryString, stdair::Filename_T &ioInputFilename, std::string &ioLogFilename, std::string &ioDBUser, std::string &ioDBPasswd, std::string &ioDBHost, std::string &ioDBPort, std::string &ioDBDBName)
- int main (int argc, char *argv[])

Variables

- const bool K_TRADEMGEN_DEFAULT_BUILT_IN_INPUT = false
- const stdair::RandomSeed_T K_TRADEMGEN_DEFAULT_RANDOM_SEED
- const int K_TRADEMGEN_EARLY_RETURN_STATUS = 99

23.57.1 Typedef Documentation

23.57.1.1 typedef std::vector<std::string> WordList_T

Definition at line 24 of file trademgen_with_db.cpp.

23.57.2 Function Documentation

23.57.2.1 const std::string K_TRADEMGEN_DEFAULT_LOG_FILENAME ("trademgen_with_db.log")

Default name and location for the log file.

23.57.2.2 const std::string K_TRADEMGEN_DEFAULT_INPUT_FILENAME (STDAIR_SAMPLE_DIR"/demand01.csv")

Default name and location for the (CSV) input file.

23.57.2.3 const std::string K_TRADEMGEN_DEFAULT_QUERY_STRING ("my good old query")

Default query string.

Referenced by readConfiguration().

23.57.2.4 const std::string K_TRADEMGEN_DEFAULT_DB_USER ("dsim")

Default parameters for the database connection.

Referenced by readConfiguration().

23.57.2.5 const std::string K_TRADEMGEN_DEFAULT_DB_PASSWD ("dsim")

Referenced by readConfiguration().

23.57.2.6 const std::string K_TRADEMGEN_DEFAULT_DB_DBNAME ("sim_dsim")

Referenced by readConfiguration().

23.57.2.7 const std::string K_TRADEMGEN_DEFAULT_DB_HOST ("localhost")

Referenced by readConfiguration().

23.57.2.8 const std::string K_TRADEMGEN_DEFAULT_DB_PORT ("3306")

Referenced by readConfiguration().

23.57.2.9 void tokeniseStringIntoWordList (const std::string & *iPhrase,* WordList_T & *ioWordList*)

Definition at line 67 of file trademgen_with_db.cpp.

Referenced by readConfiguration().

23.57.2.10 std::string createStringFromWordList (const WordList_T & *iWordList*)

Definition at line 89 of file trademgen_with_db.cpp.

Referenced by readConfiguration().

23.57.2.11 template<class T > std::ostream& operator<< (std::ostream & *os,* const std::vector< T > & *v*)

Definition at line 108 of file trademgen_with_db.cpp.

23.57.2.12 int readConfiguration (int *argc,* char * *argv[],* bool & *ioIsBuiltin,* stdair::RandomSeed_T & *ioRandomSeed,* std::string & *ioQueryString,* stdair::Filename_T & *ioInputFilename,* std::string & *ioLogFilename,* std::string & *ioDBUser,* std::string & *ioDBPasswd,* std::string & *ioDBHost,* std::string & *ioDBPort,* std::string & *ioDBDBName*)

Read and parse the command line options.

Definition at line 118 of file trademgen_with_db.cpp.

References createStringFromWordList(), K_TRADEMGEN_DEFAULT_BUILT_IN_INPUT, K_TRADEMGEN_DEFAULT_DB_DBNAME(), K_TRADEMGEN_DEFAULT_DB_HOST(), K_TRADEMGEN_DEFAULT_DB_PASSWD(), K_TRADEMGEN_DEFAULT_DB_PORT(), K_TRADEMGEN_DEFAULT_DB_USER(), K_TRADEMGEN_DEFAULT_INPUT_FILENAME(), K_TRADEMGEN_DEFAULT_LOG_FILENAME(), K_TRADEMGEN_DEFAULT_QUERY_STRING(), K_TRADEMGEN_DEFAULT_RANDOM_SEED, K_TRADEMGEN_EARLY_RETURN_STATUS, PACKAGE_NAME, PACKAGE_VERSION, PREFIXDIR, and tokeniseStringIntoWordList().

23.57.2.13 int main (int *argc,* char * *argv[]*)

Definition at line 288 of file trademgen_with_db.cpp.

References TRADEMGEN::TRADEMGEN_Service::buildSampleBom(), TRADEMGEN::TRADEMGEN_Service::displayAirlineListFromDB(), K_TRADEMGEN_EARLY_RETURN_STATUS, TRADEMGEN::TRADEMGEN_Service::parseAndLoad(), and readConfiguration().

23.57.3 Variable Documentation

23.57.3.1 const bool K_TRADEMGEN_DEFAULT_BUILT_IN_INPUT = false

Default for the input type. It can be either built-in or provided by an input file. That latter must then be given with the -i option.

Definition at line 43 of file trademgen_with_db.cpp.

23.57.3.2 const stdair::RandomSeed_T K_TRADEMGEN_DEFAULT_RANDOM_SEED

Initial value:

stdair::DEFAULT_RANDOM_SEED

Default random generation seed (e.g., 120765987).

Definition at line 48 of file trademgen_with_db.cpp.

23.57.3.3 const int K_TRADEMGEN_EARLY_RETURN_STATUS = 99

Early return status (so that it can be differentiated from an error).

Definition at line 115 of file trademgen_with_db.cpp.

23.58 trademgen_with_db.cpp

```
00001 // STL
00002 #include <cassert>
00003 #include <iostream>
00004 #include <sstream>
00005 #include <fstream>
00006 #include <vector>
00007 #include <string>
00008 // Boost (Extended STL)
00009 #include <boost/date_time/posix_time/posix_time.hpp>
00010 #include <boost/date_time/gregorian/gregorian.hpp>
00011 #include <boost/tokenizer.hpp>
00012 #include <boost/program_options.hpp>
00013 // StdAir
00014 #include <stdair/stdair_basic_types.hpp>
00015 #include <stdair/basic/BasConst_General.hpp>
00016 #include <stdair/basic/BasDBParams.hpp>
00017 #include <stdair/basic/BasLogParams.hpp>
00018 // TraDemGen
00019 #include <trademgen/TRADEMGEN_Service.hpp>
00020 #include <trademgen/config/trademgen-paths.hpp
      >
00021
00022
00023 // //////// Type definitions ///////
00024 typedef std::vector<std::string> WordList_T;
00025
00026
00027 // //////// Constants //////
00031 const std::string K_TRADEMGEN_DEFAULT_LOG_FILENAME
       ("trademgen_with_db.log");
00032
00036 const std::string K_TRADEMGEN_DEFAULT_INPUT_FILENAME
       (STDAIR_SAMPLE_DIR
00037                                                 "/demand01.csv");
00038
00043 const bool K_TRADEMGEN_DEFAULT_BUILT_IN_INPUT
       = false;
00044
00048 const stdair::RandomSeed_T K_TRADEMGEN_DEFAULT_RANDOM_SEED
       =
00049   stdair::DEFAULT_RANDOM_SEED;
00050
00054 const std::string K_TRADEMGEN_DEFAULT_QUERY_STRING
       ("my good old query");
00055
00059 const std::string K_TRADEMGEN_DEFAULT_DB_USER ("dsim
      ");
00060 const std::string K_TRADEMGEN_DEFAULT_DB_PASSWD ("
      dsim");
00061 const std::string K_TRADEMGEN_DEFAULT_DB_DBNAME ("
      sim_dsim");
00062 const std::string K_TRADEMGEN_DEFAULT_DB_HOST ("
      localhost");
00063 const std::string K_TRADEMGEN_DEFAULT_DB_PORT ("3306
      ");
00064
00065
00066 // ////////////////////////////////////////////////////////////////////
00067 void tokeniseStringIntoWordList (const std::string&
      iPhrase,
00068                                  WordList_T& ioWordList) {
00069   // Empty the word list
00070   ioWordList.clear();
00071
00072   // Boost Tokeniser
00073   typedef boost::tokenizer<boost::char_separator<char> > Tokeniser_T;
```

```
00074
00075   // Define the separators
00076   const boost::char_separator<char> lSepatorList("
       .,;:|+-*/_=!@#$%`~^&(){}[]?'<>\"");
00077
00078   // Initialise the phrase to be tokenised
00079   Tokeniser_T lTokens (iPhrase, lSepatorList);
00080   for (Tokeniser_T::const_iterator tok_iter = lTokens.begin();
00081        tok_iter != lTokens.end(); ++tok_iter) {
00082     const std::string& lTerm = *tok_iter;
00083     ioWordList.push_back (lTerm);
00084   }
00085
00086 }
00087
00088 // ////////////////////////////////////////////////////////////////////
00089 std::string createStringFromWordList (const WordList_T
      & iWordList) {
00090   std::ostringstream oStr;
00091
00092   unsigned short idx = iWordList.size();
00093   for (WordList_T::const_iterator itWord = iWordList.begin();
00094        itWord != iWordList.end(); ++itWord, --idx) {
00095     const std::string& lWord = *itWord;
00096     oStr << lWord;
00097     if (idx > 1) {
00098       oStr << " ";
00099     }
00100   }
00101
00102   return oStr.str();
00103 }
00104
00105
00106 // ///////// Parsing of Options & Configuration /////////
00107 // A helper function to simplify the main part.
00108 template<class T> std::ostream& operator<< (std::ostream& os,
00109                                             const std::vector<T>& v) {
00110   std::copy (v.begin(), v.end(), std::ostream_iterator<T> (std::cout, " "));
00111   return os;
00112 }
00113
00115 const int K_TRADEMGEN_EARLY_RETURN_STATUS = 99;
00116
00118 int readConfiguration (int argc, char* argv[], bool&
      ioIsBuiltin,
00119                        stdair::RandomSeed_T& ioRandomSeed,
00120                        std::string& ioQueryString,
00121                        stdair::Filename_T& ioInputFilename,
00122                        std::string& ioLogFilename,
00123                        std::string& ioDBUser, std::string& ioDBPasswd,
00124                        std::string& ioDBHost, std::string& ioDBPort,
00125                        std::string& ioDBDBName) {
00126
00127   // Default for the built-in input
00128   ioIsBuiltin = K_TRADEMGEN_DEFAULT_BUILT_IN_INPUT
      ;
00129
00130   // Initialise the travel query string, if that one is empty
00131   if (ioQueryString.empty() == true) {
00132     ioQueryString = K_TRADEMGEN_DEFAULT_QUERY_STRING
      ;
00133   }
00134
00135   // Transform the query string into a list of words (STL strings)
00136   WordList_T lWordList;
00137   tokeniseStringIntoWordList (ioQueryString,
      lWordList);
00138
00139   // Declare a group of options that will be allowed only on command line
00140   boost::program_options::options_description generic ("Generic options");
00141   generic.add_options()
00142     ("prefix", "print installation prefix")
00143     ("version,v", "print version string")
00144     ("help,h", "produce help message");
00145
00146   // Declare a group of options that will be allowed both on command
00147   // line and in config file
00148   boost::program_options::options_description config ("Configuration");
00149   config.add_options()
00150     ("builtin,b",
00151      "The sample BOM tree can be either built-in or parsed from an input file.
       That latter must then be given with the -i/--input option")
00152     ("seed,s",
00153      boost::program_options::value<stdair::RandomSeed_T>(&ioRandomSeed)->
      default_value(K_TRADEMGEN_DEFAULT_RANDOM_SEED),
00154      "Seed for the random generation")
```

```
00155     ("input,i",
00156      boost::program_options::value< std::string >(&ioInputFilename)->
      default_value(K_TRADEMGEN_DEFAULT_INPUT_FILENAME),
00157      "(CVS) input file for the demand distributions")
00158     ("log,l",
00159      boost::program_options::value< std::string >(&ioLogFilename)->
      default_value(K_TRADEMGEN_DEFAULT_LOG_FILENAME),
00160      "Filepath for the logs")
00161     ("user,u",
00162      boost::program_options::value< std::string >(&ioDBUser)->default_value(
      K_TRADEMGEN_DEFAULT_DB_USER),
00163      "SQL database user (e.g., dsim)")
00164     ("passwd,p",
00165      boost::program_options::value< std::string >(&ioDBPasswd)->default_value(
      K_TRADEMGEN_DEFAULT_DB_PASSWD),
00166      "SQL database password (e.g., dsim)")
00167     ("host,H",
00168      boost::program_options::value< std::string >(&ioDBHost)->default_value(
      K_TRADEMGEN_DEFAULT_DB_HOST),
00169      "SQL database hostname (e.g., localhost)")
00170     ("port,P",
00171      boost::program_options::value< std::string >(&ioDBPort)->default_value(
      K_TRADEMGEN_DEFAULT_DB_PORT),
00172      "SQL database port (e.g., 3306)")
00173     ("dbname,m",
00174      boost::program_options::value< std::string >(&ioDBDBName)->default_value(
      K_TRADEMGEN_DEFAULT_DB_DBNAME),
00175      "SQL database name (e.g., sim_dsim)")
00176     ("query,q",
00177      boost::program_options::value< WordList_T >(&lWordList)->multitoken(),
00178      "Query word list")
00179     ;
00180
00181   // Hidden options, will be allowed both on command line and
00182   // in config file, but will not be shown to the user.
00183   boost::program_options::options_description hidden ("Hidden options");
00184   hidden.add_options()
00185     ("copyright",
00186      boost::program_options::value< std::vector<std::string> >(),
00187      "Show the copyright (license)");
00188
00189   boost::program_options::options_description cmdline_options;
00190   cmdline_options.add(generic).add(config).add(hidden);
00191
00192   boost::program_options::options_description config_file_options;
00193   config_file_options.add(config).add(hidden);
00194
00195   boost::program_options::options_description visible ("Allowed options");
00196   visible.add(generic).add(config);
00197
00198   boost::program_options::positional_options_description p;
00199   p.add ("copyright", -1);
00200
00201   boost::program_options::variables_map vm;
00202   boost::program_options::
00203     store (boost::program_options::command_line_parser (argc, argv).
00204            options (cmdline_options).positional(p).run(), vm);
00205
00206   std::ifstream ifs ("trademgen_with_db.cfg");
00207   boost::program_options::store (parse_config_file (ifs, config_file_options),
00208                                  vm);
00209   boost::program_options::notify (vm);
00210
00211   if (vm.count ("help")) {
00212     std::cout << visible << std::endl;
00213     return K_TRADEMGEN_EARLY_RETURN_STATUS;
00214   }
00215
00216   if (vm.count ("version")) {
00217     std::cout << PACKAGE_NAME << ", version " << PACKAGE_VERSION
      << std::endl;
00218     return K_TRADEMGEN_EARLY_RETURN_STATUS;
00219   }
00220
00221   if (vm.count ("prefix")) {
00222     std::cout << "Installation prefix: " << PREFIXDIR << std::endl;
00223     return K_TRADEMGEN_EARLY_RETURN_STATUS;
00224   }
00225
00226   if (vm.count ("builtin")) {
00227     ioIsBuiltin = true;
00228   }
00229   const std::string isBuiltinStr = (ioIsBuiltin == true)?"yes":"no";
00230   std::cout << "The BOM should be built-in? " << isBuiltinStr << std::endl;
00231
00232   if (ioIsBuiltin == false) {
00233
```

```
00234     // The BOM tree should be built from parsing a demand input file
00235     if (vm.count ("input")) {
00236       ioInputFilename = vm["input"].as< std::string >();
00237       std::cout << "Input filename is: " << ioInputFilename << std::endl;
00238 
00239     } else {
00240       // The built-in option is not selected. However, no demand input file
00241       // is specified
00242       std::cerr << "Either one among the -b/--builtin and -i/--input "
00243                 << "options must be specified" << std::endl;
00244     }
00245   }
00246 
00247   if (vm.count ("log")) {
00248     ioLogFilename = vm["log"].as< std::string >();
00249     std::cout << "Log filename is: " << ioLogFilename << std::endl;
00250   }
00251 
00252   if (vm.count ("user")) {
00253     ioDBUser = vm["user"].as< std::string >();
00254     std::cout << "SQL database user name is: " << ioDBUser << std::endl;
00255   }
00256 
00257   if (vm.count ("passwd")) {
00258     ioDBPasswd = vm["passwd"].as< std::string >();
00259     // std::cout << "SQL database user password is: " << ioDBPasswd <<
      std::endl;
00260   }
00261 
00262   if (vm.count ("host")) {
00263     ioDBHost = vm["host"].as< std::string >();
00264     std::cout << "SQL database host name is: " << ioDBHost << std::endl;
00265   }
00266 
00267   if (vm.count ("port")) {
00268     ioDBPort = vm["port"].as< std::string >();
00269     std::cout << "SQL database port number is: " << ioDBPort << std::endl;
00270   }
00271 
00272   if (vm.count ("dbname")) {
00273     ioDBDBName = vm["dbname"].as< std::string >();
00274     std::cout << "SQL database name is: " << ioDBDBName << std::endl;
00275   }
00276 
00277   //
00278   std::cout << "The random generation seed is: " << ioRandomSeed << std::endl;
00279 
00280   ioQueryString = createStringFromWordList (lWordList);
00281   std::cout << "The query string is: " << ioQueryString << std::endl;
00282 
00283   return 0;
00284 }
00285 
00286 
00287 // /////////////// M A I N /////////////////
00288 int main (int argc, char* argv[]) {
00289 
00290   // State whether the BOM tree should be built-in or parsed from an input file
00291   bool isBuiltin;
00292 
00293   // Random generation seed
00294   stdair::RandomSeed_T lRandomSeed;
00295 
00296   // Query
00297   std::string lQuery;
00298 
00299   // Input file name
00300   stdair::Filename_T lInputFilename;
00301 
00302   // Output log File
00303   std::string lLogFilename;
00304 
00305   // SQL database parameters
00306   std::string lDBUser;
00307   std::string lDBPasswd;
00308   std::string lDBHost;
00309   std::string lDBPort;
00310   std::string lDBDBName;
00311 
00312   // Airline code
00313   const stdair::AirlineCode_T lAirlineCode ("BA");
00314 
00315   // Call the command-line option parser
00316   const int lOptionParserStatus =
00317     readConfiguration (argc, argv, isBuiltin, lRandomSeed,
      lQuery,
00318                        lInputFilename, lLogFilename,
```

```
00319                       lDBUser, lDBPasswd, lDBHost, lDBPort, lDBDBName);
00320
00321   if (lOptionParserStatus == K_TRADEMGEN_EARLY_RETURN_STATUS
      ) {
00322     return 0;
00323   }
00324
00325   // Set the database parameters
00326   stdair::BasDBParams lDBParams (lDBUser, lDBPasswd, lDBHost, lDBPort,
00327                                  lDBDBName);
00328
00329   // Set the log parameters
00330   std::ofstream logOutputFile;
00331   // open and clean the log outputfile
00332   logOutputFile.open (lLogFilename.c_str());
00333   logOutputFile.clear();
00334
00335   // Set up the log parameters
00336   const stdair::BasLogParams lLogParams (stdair::LOG::DEBUG, logOutputFile);
00337
00338   // Initialise the TraDemGen service object
00339   TRADEMGEN::TRADEMGEN_Service trademgenService (
      lLogParams, lDBParams,
00340                                                  lRandomSeed);
00341
00342   // Check wether or not a (CSV) input file should be read
00343   if (isBuiltin == true) {
00344     // Create a sample DemandStream object, and insert it within the BOM tree
00345     trademgenService.buildSampleBom();
00346
00347   } else {
00348     // Create the DemandStream objects, and insert them within the BOM tree
00349     const TRADEMGEN::DemandFilePath lDemandFilePath (
      lInputFilename);
00350     trademgenService.parseAndLoad (lDemandFilePath);
00351   }
00352
00353   // Query the database
00354   trademgenService.displayAirlineListFromDB();
00355
00356   // Close the Log outputFile
00357   logOutputFile.close();
00358
00359   return 0;
00360 }
```

23.59 trademgen/bom/BomDisplay.cpp File Reference

```
#include <cassert>
#include <ostream>
#include <stdair/basic/BasConst_BomDisplay.hpp>
#include <stdair/bom/BomManager.hpp>
#include <sevmgr/SEVMGR_Service.hpp>
#include <sevmgr/SEVMGR_Types.hpp>
#include <trademgen/bom/DemandStream.hpp>
#include <trademgen/bom/BomDisplay.hpp>
```

Classes

- struct TRADEMGEN::FlagSaver

Namespaces

- namespace TRADEMGEN

23.60 BomDisplay.cpp

```
00001 // ////////////////////////////////////////////////////////////////////
00002 // Import section
00003 // ////////////////////////////////////////////////////////////////////
```

```
00004 // STL
00005 #include <cassert>
00006 #include <ostream>
00007 // StdAir
00008 #include <stdair/basic/BasConst_BomDisplay.hpp>
00009 #include <stdair/bom/BomManager.hpp>
00010 // SEvMgr
00011 #include <sevmgr/SEVMGR_Service.hpp>
00012 #include <sevmgr/SEVMGR_Types.hpp>
00013 // TraDemGen
00014 #include <trademgen/bom/DemandStream.hpp>
00015 #include <trademgen/bom/BomDisplay.hpp>
00016
00017 namespace TRADEMGEN {
00018
00024   struct FlagSaver {
00025   public:
00027     FlagSaver (std::ostream& oStream)
00028       : _oStream (oStream), _streamFlags (oStream.flags()) {
00029     }
00030
00032     ~FlagSaver() {
00033       // Reset formatting flags of the given output stream
00034       _oStream.flags (_streamFlags);
00035     }
00036
00037   private:
00039     std::ostream& _oStream;
00041     std::ios::fmtflags _streamFlags;
00042   };
00043
00044   // ////////////////////////////////////////////////////////////////////
00045   std::string BomDisplay::csvDisplay (const
      SEVMGR::SEVMGR_ServicePtr_T iSEVMGR_ServicePtr) {
00046     std::ostringstream oStream;
00047
00048         //
00049         assert (iSEVMGR_ServicePtr != NULL);
00050
00054     oStream << std::endl;
00055     oStream << "================================================================
      "
00056             << std::endl;
00057     oStream << "EventQueue: " << iSEVMGR_ServicePtr->describeKey() << std::endl
      ;
00058     oStream << "================================================================
      "
00059             << std::endl;
00060
00061     // Check whether there are DemandStream objects
00062     const bool hasEventGeneratorList =
00063       iSEVMGR_ServicePtr->hasEventGeneratorList<DemandStream>();
00064     if (hasEventGeneratorList == false) {
00065       return oStream.str();
00066     }
00067
00068     // Retrieve the DemandStream list
00069     const DemandStreamList_T& lDemandStreamList =
00070       iSEVMGR_ServicePtr->getEventGeneratorList<DemandStream>();
00071
00072     // Browse the inventories
00073     for (DemandStreamList_T::const_iterator itDemandStream =
00074            lDemandStreamList.begin();
00075          itDemandStream != lDemandStreamList.end(); ++itDemandStream) {
00076       DemandStream* lDemandStream_ptr = *itDemandStream;
00077       assert (lDemandStream_ptr != NULL);
00078
00079       // Display the demand stream
00080       csvDisplay (oStream, *lDemandStream_ptr);
00081     }
00082
00083     return oStream.str();
00084   }
00085
00086   // ////////////////////////////////////////////////////////////////////
00087   void BomDisplay::csvDisplay (std::ostream& oStream,
00088                                const DemandStream& iDemandStream) {
00089     // Save the formatting flags for the given STL output stream
00090     FlagSaver flagSaver (oStream);
00091
00095     oStream << "++++++++++++++++++++++++++++++++++++++++++++++++++" << std::endl
      ;
00096     oStream << iDemandStream.display();
00097     oStream << "++++++++++++++++++++++++++++++++++++++++++++++++++" << std::endl
      ;
00098   }
00099
```

```
00100 }
```

23.61 trademgen/bom/BomDisplay.hpp File Reference

```
#include <iosfwd>
#include <string>
#include <sevmgr/SEVMGR_Types.hpp>
```

Classes

- class TRADEMGEN::BomDisplay

  Utility class to display TraDemGen objects with a pretty format.

Namespaces

- namespace TRADEMGEN

23.62 BomDisplay.hpp

```
00001 #ifndef __TRADEMGEN_BOM_BOMDISPLAY_HPP
00002 #define __TRADEMGEN_BOM_BOMDISPLAY_HPP
00003
00004 // //////////////////////////////////////////////////////////////////
00005 // Import section
00006 // //////////////////////////////////////////////////////////////////
00007 // STL
00008 #include <iosfwd>
00009 #include <string>
00010 // SEvMgr
00011 #include <sevmgr/SEVMGR_Types.hpp>
00012
00013
00014 namespace TRADEMGEN {
00015
00017   class DemandStream;
00018
00023   class BomDisplay {
00024   public:
00025     // ///////////////// Display support methods /////////////////
00036     static std::string csvDisplay (const SEVMGR::SEVMGR_ServicePtr_T)
      ;
00037
00046     static void csvDisplay (std::ostream&, const DemandStream
      &);
00047   };
00048
00049 }
00050 #endif // __TRADEMGEN_BOM_BOMDISPLAY_HPP
```

23.63 trademgen/bom/DemandStream.cpp File Reference

```
#include <cassert>
#include <sstream>
#include <cmath>
#include <iomanip>
#include <boost/make_shared.hpp>
#include <stdair/basic/BasConst_General.hpp>
#include <stdair/basic/BasConst_Inventory.hpp>
#include <stdair/basic/BasConst_Request.hpp>
#include <stdair/bom/BookingRequestStruct.hpp>
#include <stdair/service/Logger.hpp>
#include <trademgen/basic/BasConst_DemandGeneration.hpp>
#include <trademgen/bom/DemandStream.hpp>
```

Namespaces

- namespace TRADEMGEN

23.64 DemandStream.cpp

```
00001 // //////////////////////////////////////////////////////////////////////
00002 // Import section
00003 // //////////////////////////////////////////////////////////////////////
00004 // STL
00005 #include <cassert>
00006 #include <sstream>
00007 #include <cmath>
00008 #include <iomanip>
00009 // Boost
00010 #include <boost/make_shared.hpp>
00011 // StdAir
00012 #include <stdair/basic/BasConst_General.hpp>
00013 #include <stdair/basic/BasConst_Inventory.hpp>
00014 #include <stdair/basic/BasConst_Request.hpp>
00015 #include <stdair/bom/BookingRequestStruct.hpp>
00016 #include <stdair/service/Logger.hpp>
00017 // TraDemGen
00018 #include <trademgen/basic/BasConst_DemandGeneration.hpp
      >
00019 #include <trademgen/bom/DemandStream.hpp>
00020
00021 namespace TRADEMGEN {
00022
00023   // //////////////////////////////////////////////////////////////////
00024   DemandStream::DemandStream()
00025     : _key (stdair::DEFAULT_ORIGIN, stdair::DEFAULT_DESTINATION,
00026             stdair::DEFAULT_DEPARTURE_DATE, stdair::DEFAULT_CABIN_CODE),
00027       _parent (NULL),
00028       _demandCharacteristics (ArrivalPatternCumulativeDistribution_T
      (),
00029                               POSProbabilityMassFunction_T
      (),
00030                               ChannelProbabilityMassFunction_T
      (),
00031                               TripTypeProbabilityMassFunction_T
      (),
00032                               StayDurationProbabilityMassFunction_T
      (),
00033                               FrequentFlyerProbabilityMassFunction_T
      (),
00034                               0.5, 50, 0.5, 50,
00035                               PreferredDepartureTimeContinuousDistribution_T
      (),
00036                               0.0,
00037                               ValueOfTimeContinuousDistribution_T
      ()),
00038       _posProMass (DEFAULT_POS_PROBALILITY_MASS),
00039       _firstDateTimeRequest (true) {
00040     assert (false);
00041   }
00042
00043   // //////////////////////////////////////////////////////////////////
00044   DemandStream::DemandStream (const DemandStream&)
00045     : _key (stdair::DEFAULT_ORIGIN, stdair::DEFAULT_DESTINATION,
00046             stdair::DEFAULT_DEPARTURE_DATE, stdair::DEFAULT_CABIN_CODE),
00047       _parent (NULL),
00048       _demandCharacteristics (ArrivalPatternCumulativeDistribution_T
      (),
00049                               POSProbabilityMassFunction_T
      (),
00050                               ChannelProbabilityMassFunction_T
      (),
00051                               TripTypeProbabilityMassFunction_T
      (),
00052                               StayDurationProbabilityMassFunction_T
      (),
00053                               FrequentFlyerProbabilityMassFunction_T
      (),
00054                               0.5, 50, 0.5, 50,
00055                               PreferredDepartureTimeContinuousDistribution_T
      (),
00056                               0.0,
00057                               ValueOfTimeContinuousDistribution_T
```

```
      ()),
00058       _posProMass (DEFAULT_POS_PROBALILITY_MASS),
00059       _firstDateTimeRequest (true) {
00060     assert (false);
00061   }
00062
00063   // ////////////////////////////////////////////////////////////////////
00064   DemandStream::DemandStream (const Key_T& iKey) :
00065     _key (iKey) {
00066   }
00067
00068   // ////////////////////////////////////////////////////////////////////
00069   DemandStream::~DemandStream() {
00070   }
00071
00072   // ////////////////////////////////////////////////////////////////////
00073   std::string DemandStream::toString() const {
00074     std::ostringstream oStr;
00075     oStr << _key.toString();
00076     return oStr.str();
00077   }
00078
00079   // ////////////////////////////////////////////////////////////////////
00080   void DemandStream::
00081   setAll (const ArrivalPatternCumulativeDistribution_T
      & iArrivalPattern,
00082           const POSProbabilityMassFunction_T&
      iPOSProbMass,
00083           const ChannelProbabilityMassFunction_T
      & iChannelProbMass,
00084           const TripTypeProbabilityMassFunction_T
      & iTripTypeProbMass,
00085           const StayDurationProbabilityMassFunction_T
      & iStayDurationProbMass,
00086           const FrequentFlyerProbabilityMassFunction_T
      & iFrequentFlyerProbMass,
00087           const stdair::ChangeFeesRatio_T& iChangeFeeProb,
00088           const stdair::Disutility_T& iChangeFeeDisutility,
00089           const stdair::NonRefundableRatio_T& iNonRefundableProb,
00090           const stdair::Disutility_T& iNonRefundableDisutility,
00091           const PreferredDepartureTimeContinuousDistribution_T
      & iPreferredDepartureTimeContinuousDistribution,
00092           const stdair::WTP_T& iMinWTP,
00093           const ValueOfTimeContinuousDistribution_T
      & iValueOfTimeContinuousDistribution,
00094           const DemandDistribution& iDemandDistribution,
00095           stdair::BaseGenerator_T& ioSharedGenerator,
00096           const stdair::RandomSeed_T& iRequestDateTimeSeed,
00097           const stdair::RandomSeed_T& iDemandCharacteristicsSeed,
00098           const POSProbabilityMass_T&
      iDefaultPOSProbablityMass) {
00099
00100     setDemandCharacteristics (iArrivalPattern,
      iPOSProbMass,
00101                               iChannelProbMass, iTripTypeProbMass,
00102                               iStayDurationProbMass, iFrequentFlyerProbMass,
00103                               iChangeFeeProb, iChangeFeeDisutility,
00104                               iNonRefundableProb, iNonRefundableDisutility,
00105                               iPreferredDepartureTimeContinuousDistribution,
00106                               iMinWTP, iValueOfTimeContinuousDistribution);
00107
00108     setDemandDistribution (iDemandDistribution);
00109     setTotalNumberOfRequestsToBeGenerated
      (0);
00110     setRequestDateTimeRandomGeneratorSeed
      (iRequestDateTimeSeed);
00111     setDemandCharacteristicsRandomGeneratorSeed
       (iDemandCharacteristicsSeed);
00112     setPOSProbabilityMass (iDefaultPOSProbablityMass);
00113
00114     //
00115     init (ioSharedGenerator);
00116   }
00117
00118   // ////////////////////////////////////////////////////////////////////
00119   std::string DemandStream::display() const {
00120     std::ostringstream oStr;
00121
00122     oStr << "Demand stream key: " << _key.toString() << std::endl;
00123
00124     //
00125     oStr << _demandCharacteristics.describe();
00126
00127     //
00128     oStr << _demandDistribution.describe() << " => "
00129          << _totalNumberOfRequestsToBeGenerated
       << " to be generated"
```

```
00130         << std::endl;
00131
00132     //
00133     oStr << "Random generation context: " << _randomGenerationContext
00134         << std::endl;
00135
00136     //
00137     oStr << "Random generator for date-time: "
00138         << _requestDateTimeRandomGenerator <<
      std::endl;
00139     oStr << "Random generator for demand characteristics: "
00140         << _demandCharacteristicsRandomGenerator
       << std::endl;
00141
00142     //
00143     oStr << _posProMass.displayProbabilityMass
      () << std::endl;
00144
00145     return oStr.str();
00146   }
00147
00148   // ////////////////////////////////////////////////////////////////////
00149   void DemandStream::init (stdair::BaseGenerator_T& ioSharedGenerator) {
00150
00151     // Generate the number of requests
00152     const stdair::RealNumber_T lMu = _demandDistribution.
      _meanNumberOfRequests;
00153     const stdair::RealNumber_T lSigma =
00154       _demandDistribution._stdDevNumberOfRequests
      ;
00155
00156     stdair::NormalDistribution_T lDistrib (lMu, lSigma);
00157     stdair::NormalGenerator_T lNormalGen (ioSharedGenerator, lDistrib);
00158
00159     const stdair::RealNumber_T lRealNumberOfRequestsToBeGenerated =lNormalGen()
      ;
00160
00161     const stdair::NbOfRequests_T lIntegerNumberOfRequestsToBeGenerated =
00162       std::floor (lRealNumberOfRequestsToBeGenerated + 0.5);
00163
00164     _totalNumberOfRequestsToBeGenerated =
      lIntegerNumberOfRequestsToBeGenerated;
00165
00166     _stillHavingRequestsToBeGenerated = true;
00167     _firstDateTimeRequest = true;
00168   }
00169
00170   // ////////////////////////////////////////////////////////////////////
00171   const bool DemandStream::
00172   stillHavingRequestsToBeGenerated (const
      stdair::DemandGenerationMethod& iDemandGenerationMethod) const {
00173
00174     const stdair::DemandGenerationMethod::EN_DemandGenerationMethod&
      lENDemandGenerationMethod =
00175       iDemandGenerationMethod.getMethod();
00176     if (lENDemandGenerationMethod == stdair::DemandGenerationMethod::STA_ORD) {
00177       bool hasStillHavingRequestsToBeGenerated = true;
00178
00179       // Check whether enough requests have already been generated
00180       const stdair::Count_T lNbOfRequestsGeneratedSoFar =
00181         _randomGenerationContext.
      getNumberOfRequestsGeneratedSoFar();
00182
00183       const stdair::Count_T lRemainingNumberOfRequestsToBeGenerated =
00184         _totalNumberOfRequestsToBeGenerated
      - lNbOfRequestsGeneratedSoFar;
00185
00186       if (lRemainingNumberOfRequestsToBeGenerated <= 0) {
00187         hasStillHavingRequestsToBeGenerated = false;
00188       }
00189
00190       return hasStillHavingRequestsToBeGenerated;
00191     } else {
00192       return _stillHavingRequestsToBeGenerated;
00193     }
00194   }
00195
00196   // ////////////////////////////////////////////////////////////////////
00197   const stdair::DateTime_T DemandStream::generateTimeOfRequestPoissonProcess
      () {
00198
00199     // Prepare arrival pattern.
00200     const ContinuousFloatDuration_T& lArrivalPattern =
00201       _demandCharacteristics._arrivalPattern
      ;
00202
00203     const stdair::Time_T lHardcodedReferenceDepartureTime =
```

```
00204       boost::posix_time::hours (8);
00205
00206     // Prepare departure date time.
00207     const stdair::DateTime_T lDepartureDateTime =
00208       boost::posix_time::ptime (_key.getPreferredDepartureDate
      (),
00209                                 lHardcodedReferenceDepartureTime);
00210
00211     // If no request has been generated so far...
00212     if (_firstDateTimeRequest) {
00213       const stdair::Probability_T lProbabilityFirstRequest = 0;
00214
00215       // Get the lower bound of the arrival pattern (correponding
00216       // to a cumulative probability of 0).
00217       _dateTimeLastRequest =
00218         lArrivalPattern.getValue (lProbabilityFirstRequest);
00219
00220       _firstDateTimeRequest = false;
00221     }
00222
00223     // Sanity check.
00224     assert (_firstDateTimeRequest == false);
00225
00226     // If the date time of the last request is equal to the lower bound of
00227     // the last daily rate interval (default value is -1, meaning one day
00228     // before departure), we stopped generating request by returning a
00229     // request date time after departure date time.
00230     if (_dateTimeLastRequest == DEFAULT_LAST_LOWER_BOUND_ARRIVAL_PATTERN
      ) {
00231       _stillHavingRequestsToBeGenerated = false;
00232
00233       // Get a positive number of days.
00234       const stdair::Duration_T lDifferenceBetweenDepartureAndThisLowerBound =
00235         convertFloatIntoDuration (-
      DEFAULT_LAST_LOWER_BOUND_ARRIVAL_PATTERN
      );
00236
00237       // Calculate a request date-time after the departure date time to end
00238       // the demand generation algorithm.
00239       const stdair::DateTime_T oDateTimeThisRequest =
00240         lDepartureDateTime + lDifferenceBetweenDepartureAndThisLowerBound;
00241
00242       return oDateTimeThisRequest;
00243     }
00244
00245     // Get the upper bound of the current daily rate interval.
00246     stdair::FloatDuration_T lUpperBound =
00247       lArrivalPattern.getUpperBound (_dateTimeLastRequest);
00248
00249     // Compute the daily rate demand.
00250     double lDailyRate =lArrivalPattern.getDerivativeValue(
      _dateTimeLastRequest);
00251     // Get the expected average number of requests.
00252     const double lDemandMean = _demandDistribution.
      _meanNumberOfRequests;
00253     // Multiply the daily rate by the expected average number of requests.
00254     lDailyRate *= lDemandMean;
00255
00256     // Generate an exponential variable.
00257     const stdair::FloatDuration_T lExponentialVariable =
00258       _requestDateTimeRandomGenerator.
      generateExponential (lDailyRate);
00259
00260     // Compute the new date time request.
00261     const stdair::FloatDuration_T lDateTimeThisRequest =
00262       _dateTimeLastRequest + lExponentialVariable;
00263
00264     stdair::DateTime_T oDateTimeThisRequest;
00265
00266     // Verify if this request is in the given daily rate interval.
00267     if (lDateTimeThisRequest < lUpperBound) {
00268
00269       // Conversion.
00270       const stdair::Duration_T lDifferenceBetweenDepartureAndThisRequest =
00271         convertFloatIntoDuration (lDateTimeThisRequest)
      ;
00272
00273       // The request date-time is derived from departure date and arrival
       pattern.
00274       oDateTimeThisRequest = lDepartureDateTime
00275         + lDifferenceBetweenDepartureAndThisRequest;
00276
00277       // Remember this date time request.
00278       _dateTimeLastRequest = lDateTimeThisRequest;
00279
00280       // Update the counter of requests generated so far.
00281       incrementGeneratedRequestsCounter();
```

```
00282
00283       const double lRefDateTimeThisRequest = lDateTimeThisRequest + double(2880
    0.001/86400.0);
00284       STDAIR_LOG_NOTIFICATION (boost::gregorian::to_iso_string(_key.
    getPreferredDepartureDate()) << ";" <<
    std::setprecision(10) << lRefDateTimeThisRequest);
00285     } else {
00286
00287       // The current request is not in the given daily rate interval.
00288       // Change the daily rate.
00289       _dateTimeLastRequest = lUpperBound;
00290
00291       // Generate a date time request in the new daily rate interval.
00292       oDateTimeThisRequest = generateTimeOfRequestPoissonProcess
     ();
00293     }
00294
00295     return oDateTimeThisRequest;
00296   }
00297
00298   // ////////////////////////////////////////////////////////////////////
00299   const stdair::DateTime_T DemandStream::generateTimeOfRequestStatisticsOrder
    () {
00300
00317     //
00318     // Calculate the result of the formula above step by step.
00319     //
00320
00321     // 1) Get the number of requests generated so far.
00322     //    (equal to k - 1)
00323     const stdair::Count_T& lNbOfRequestsGeneratedSoFar =
00324       _randomGenerationContext.
    getNumberOfRequestsGeneratedSoFar();
00325
00326     // 2) Deduce the number of requests not generated yet.
00327     //    (equal to n - k + 1)
00328     const stdair::Count_T lRemainingNumberOfRequestsToBeGenerated =
00329       _totalNumberOfRequestsToBeGenerated -
    lNbOfRequestsGeneratedSoFar;
00330
00331     // Assert that there are still requests to be generated.
00332     assert (lRemainingNumberOfRequestsToBeGenerated > 0);
00333
00334     // 3) Inverse the number of requests not generated yet.
00335     //    1/(n - k + 1)
00336     const double lRemainingRate =
00337       1.0 / static_cast<double> (lRemainingNumberOfRequestsToBeGenerated);
00338
00339     // 4) Get the cumulative probality so far and take its complement.
00340     //    (equal to 1 - x(k-1))
00341     const stdair::Probability_T& lCumulativeProbabilitySoFar =
00342       _randomGenerationContext.
    getCumulativeProbabilitySoFar();
00343     const stdair::Probability_T lComplementOfCumulativeProbabilitySoFar =
00344       1.0 - lCumulativeProbabilitySoFar;
00345
00346     // 5) Draw a random variable y and calculate the factor equal to
00347     //    (1 - y)^(1/(n - k + 1)).
00348     const stdair::Probability_T& lVariate = _requestDateTimeRandomGenerator
    ();
00349     double lFactor = std::pow (1.0 - lVariate, lRemainingRate);
00350     if (lFactor >= 1.0 - 1e-6){
00351       lFactor = 1.0 - 1e-6;
00352     }
00353
00354     // 6) Apply the whole formula above to calculate the cumulative probability
00355     //    of the new request.
00356     //    (equal to 1 - (1 - x(k-1))(1 - y)^(1/(n - k + 1)))
00357     const stdair::Probability_T lCumulativeProbabilityThisRequest =
00358       1.0 - lComplementOfCumulativeProbabilitySoFar * lFactor;
00359
00360     // Now that the cumulative proportion of events generated has been
00361     // calculated, we deduce from the arrival pattern the arrival time of the
00362     // k-th event.
00363     const stdair::FloatDuration_T lNumberOfDaysBetweenDepartureAndThisRequest =
00364       _demandCharacteristics._arrivalPattern
    .getValue (lCumulativeProbabilityThisRequest);
00365
00366     const stdair::Duration_T lDifferenceBetweenDepartureAndThisRequest =
00367       convertFloatIntoDuration (
    lNumberOfDaysBetweenDepartureAndThisRequest);
00368
00369     const stdair::Time_T lHardcodedReferenceDepartureTime =
00370       boost::posix_time::hours (8);
00371
00372     const stdair::DateTime_T lDepartureDateTime =
00373       boost::posix_time::ptime (_key.getPreferredDepartureDate
```

```
    (),
00374                                lHardcodedReferenceDepartureTime);
00375
00376     // The request date-time is derived from departure date and arrival
     pattern.
00377     const stdair::DateTime_T oDateTimeThisRequest =
00378       lDepartureDateTime + lDifferenceBetweenDepartureAndThisRequest;
00379
00380     // Update random generation context
00381     _randomGenerationContext.
    setCumulativeProbabilitySoFar (
    lCumulativeProbabilityThisRequest);
00382
00383     // Update the counter of requests generated so far.
00384     incrementGeneratedRequestsCounter();
00385
00386     // DEBUG
00387     // STDAIR_LOG_DEBUG (lCumulativeProbabilityThisRequest << "; "
00388     //                   << lNumberOfDaysBetweenDepartureAndThisRequest);
00389
00390     // NOTIFICATION
00391     double lRefNumberOfDaysBetweenDepartureAndThisRequest =
00392       lNumberOfDaysBetweenDepartureAndThisRequest + double(1.0/3.0);
00393     STDAIR_LOG_NOTIFICATION (boost::gregorian::to_iso_string(_key.
    getPreferredDepartureDate()) << ";" <<
    std::setprecision(10) << lRefNumberOfDaysBetweenDepartureAndThisRequest);
00394
00395     return oDateTimeThisRequest;
00396   }
00397
00398   // ////////////////////////////////////////////////////////////////////
00399
00400   const stdair::Duration_T DemandStream::
00401   convertFloatIntoDuration (const
    stdair::FloatDuration_T iNumberOfDays) {
00402
00403     // Convert the number of days in number of seconds + number of milliseconds
00404     const stdair::FloatDuration_T lNumberOfSeconds =
00405       iNumberOfDays * stdair::SECONDS_IN_ONE_DAY;
00406
00407     // Get the number of seconds.
00408     const stdair::IntDuration_T lIntNumberOfSeconds =
00409       std::floor (lNumberOfSeconds);
00410
00411     // Get the number of milliseconds.
00412     const stdair::FloatDuration_T lNumberOfMilliseconds =
00413       (lNumberOfSeconds - lIntNumberOfSeconds)
00414       * stdair::MILLISECONDS_IN_ONE_SECOND;
00415
00416     // +1 is a trick to ensure that the next Event is strictly later
00417     // than the current one
00418     const stdair::IntDuration_T lIntNumberOfMilliseconds =
00419       std::floor (lNumberOfMilliseconds) + 1;
00420
00421     // Convert the number of seconds and milliseconds into a duration.
00422     const stdair::Duration_T lDifferenceBetweenDepartureAndThisRequest =
00423       boost::posix_time::seconds (lIntNumberOfSeconds)
00424       + boost::posix_time::millisec (lIntNumberOfMilliseconds);
00425
00426     return lDifferenceBetweenDepartureAndThisRequest;
00427   }
00428
00429   // ////////////////////////////////////////////////////////////////////
00430   const stdair::AirportCode_T DemandStream::generatePOS
    () {
00431
00432     // Generate a random number between 0 and 1.
00433     const stdair::Probability_T& lVariate =
    _demandCharacteristicsRandomGenerator();
00434     const stdair::AirportCode_T& oPOS = _demandCharacteristics
    .getPOSValue (lVariate);
00435
00436     return oPOS;
00437   }
00438
00439   // ////////////////////////////////////////////////////////////////////
00440   const stdair::ChannelLabel_T DemandStream::generateChannel
    () {
00441     // Generate a random number between 0 and 1.
00442     const stdair::Probability_T lVariate =
00443       _demandCharacteristicsRandomGenerator
    ();
00444
00445     return _demandCharacteristics._channelProbabilityMass
    .getValue (lVariate);
00446   }
00447
```

```
00448   // ////////////////////////////////////////////////////////////////////
00449   const stdair::TripType_T DemandStream::generateTripType
      () {
00450     // Generate a random number between 0 and 1.
00451     const stdair::Probability_T lVariate =
00452       _demandCharacteristicsRandomGenerator
      ();
00453
00454     return _demandCharacteristics.
      _tripTypeProbabilityMass.getValue (lVariate);
00455   }
00456
00457   // ////////////////////////////////////////////////////////////////////
00458   const stdair::DayDuration_T DemandStream::generateStayDuration
      () {
00459     // Generate a random number between 0 and 1.
00460     const stdair::Probability_T lVariate =
00461       _demandCharacteristicsRandomGenerator
      ();
00462
00463     return _demandCharacteristics.
      _stayDurationProbabilityMass.getValue (
      lVariate);
00464   }
00465
00466   // ////////////////////////////////////////////////////////////////////
00467   const stdair::FrequentFlyer_T DemandStream::generateFrequentFlyer
      () {
00468     // Generate a random number between 0 and 1.
00469     const stdair::Probability_T lVariate =
00470       _demandCharacteristicsRandomGenerator
      ();
00471
00472     return _demandCharacteristics.
      _frequentFlyerProbabilityMass.getValue (
      lVariate);
00473   }
00474
00475   // ////////////////////////////////////////////////////////////////////
00476   const stdair::ChangeFees_T DemandStream::generateChangeFees
      () {
00477     // Generate a random number between 0 and 1.
00478     const stdair::Probability_T lVariate =
00479       _demandCharacteristicsRandomGenerator
      ();
00480     if (lVariate < _demandCharacteristics._changeFeeProb
      ) {
00481       return true;
00482     }
00483     return false;
00484   }
00485
00486   // ////////////////////////////////////////////////////////////////////
00487   const stdair::NonRefundable_T DemandStream::generateNonRefundable
      () {
00488     // Generate a random number between 0 and 1.
00489     const stdair::Probability_T lVariate =
00490       _demandCharacteristicsRandomGenerator
      ();
00491     if (lVariate < _demandCharacteristics.
      _nonRefundableProb) {
00492       return true;
00493     }
00494     return false;
00495   }
00496
00497   // ////////////////////////////////////////////////////////////////////
00498   const stdair::Duration_T DemandStream::generatePreferredDepartureTime
      () {
00499     // Generate a random number between 0 and 1.
00500     const stdair::Probability_T lVariate =
00501       _demandCharacteristicsRandomGenerator
      ();
00502     const stdair::IntDuration_T lNbOfSeconds = _demandCharacteristics
      .
00503       _preferredDepartureTimeCumulativeDistribution.getValue (lVariate);
00504
00505     const stdair::Duration_T oTime = boost::posix_time::seconds (lNbOfSeconds);
00506
00507     return oTime;
00508   }
00509
00510   // ////////////////////////////////////////////////////////////////////
00511   const stdair::WTP_T DemandStream::
00512   generateWTP (stdair::RandomGeneration& ioGenerator,
00513                const stdair::Date_T& iDepartureDate,
00514                const stdair::DateTime_T& iDateTimeThisRequest,
```

```
00515                const stdair::DayDuration_T& iDurationOfStay) {
00516     const stdair::Date_T lDateThisRequest = iDateTimeThisRequest.date();
00517     const stdair::DateOffset_T lAP = iDepartureDate - lDateThisRequest;
00518     const stdair::DayDuration_T lAPInDays = lAP.days();
00519
00520     stdair::RealNumber_T lProb = -lAPInDays;
00521     stdair::RealNumber_T lFrat5Coef =
00522       _demandCharacteristics._frat5Pattern.
      getValue (lProb);
00523
00524     const stdair::WTP_T lWTP =  _demandCharacteristics.
      _minWTP
00525       * (1.0 + (lFrat5Coef - 1.0) * log(ioGenerator()) / log(0.5));
00526
00527     return lWTP;
00528   }
00529
00530   // ////////////////////////////////////////////////////////////////////
00531   const stdair::PriceValue_T DemandStream::generateValueOfTime
      () {
00532     // Generate a random number between 0 and 1.
00533     const stdair::Probability_T lVariate =
00534       _demandCharacteristicsRandomGenerator
      ();
00535
00536     return _demandCharacteristics.
      _valueOfTimeCumulativeDistribution.getValue
       (lVariate);
00537   }
00538
00539   // ////////////////////////////////////////////////////////////////////
00540   stdair::BookingRequestPtr_T DemandStream::
00541   generateNextRequest (stdair::RandomGeneration&
      ioGenerator,
00542                        const stdair::DemandGenerationMethod&
      iDemandGenerationMethod) {
00543
00544     // Origin
00545     const stdair::AirportCode_T& lOrigin = _key.getOrigin();
00546     // Destination
00547     const stdair::AirportCode_T& lDestination = _key.getDestination
      ();
00548     // Preferred departure date
00549     const stdair::Date_T& lPreferredDepartureDate =
00550       _key.getPreferredDepartureDate();
00551     // Preferred cabin
00552     const stdair::CabinCode_T& lPreferredCabin = _key.getPreferredCabin
      ();
00553     // Party size
00554     const stdair::NbOfSeats_T lPartySize = stdair::DEFAULT_PARTY_SIZE;
00555     // POS
00556     const stdair::AirportCode_T lPOS = generatePOS();
00557
00558     // Compute the request date time with the correct algorithm.
00559     stdair::DateTime_T lDateTimeThisRequest;
00560     const stdair::DemandGenerationMethod::EN_DemandGenerationMethod&
      lENDemandGenerationMethod =
00561       iDemandGenerationMethod.getMethod();
00562     switch(lENDemandGenerationMethod) {
00563     case stdair::DemandGenerationMethod::POI_PRO:
00564       lDateTimeThisRequest = generateTimeOfRequestPoissonProcess
      (); break;
00565     case stdair::DemandGenerationMethod::STA_ORD:
00566       lDateTimeThisRequest = generateTimeOfRequestStatisticsOrder
      (); break;
00567     default: assert (false); break;
00568     }
00569
00570     // Booking channel.
00571     const stdair::ChannelLabel_T lChannelLabel = generateChannel
      ();
00572     // Trip type.
00573     const stdair::TripType_T lTripType = generateTripType();
00574     // Stay duration.
00575     const stdair::DayDuration_T lStayDuration = generateStayDuration
      ();
00576     // Frequet flyer type.
00577     const stdair::FrequentFlyer_T lFrequentFlyer = generateFrequentFlyer
      ();
00578     // Change fees
00579     const stdair::ChangeFees_T lChangeFees = generateChangeFees
      ();
00580     // Change fee disutility
00581     const stdair::Disutility_T lChangeFeeDisutility =
00582       _demandCharacteristics._changeFeeDisutility
      ;
00583     // Non refundable
```

```
00584     const stdair::NonRefundable_T lNonRefundable = generateNonRefundable
      ();
00585     // Non refundable disutility
00586     const stdair::Disutility_T lNonRefundableDisutility =
00587       _demandCharacteristics._nonRefundableDisutility
      ;
00588     // Preferred departure time.
00589     const stdair::Duration_T lPreferredDepartureTime =
00590       generatePreferredDepartureTime();
00591     // Value of time
00592     const stdair::PriceValue_T lValueOfTime = generateValueOfTime
      ();
00593     // WTP
00594     const stdair::WTP_T lWTP = generateWTP (ioGenerator,
      lPreferredDepartureDate,
00595                                             lDateTimeThisRequest,lStayDuration)
      ;
00596
00597     // TODO: move the creation of the structure out of the BOM layer
00598     //  (into the command layer, e.g., within the DemandManager command).
00599
00600     // Create the booking request
00601     stdair::BookingRequestStruct lBookingRequestStruct (describeKey(
      ), lOrigin,
00602                                                         lDestination, lPOS,
00603                                                         lPreferredDepartureDate
      ,
00604                                                         lDateTimeThisRequest,
00605                                                         lPreferredCabin,
      lPartySize,
00606                                                         lChannelLabel,
      lTripType,
00607                                                         lStayDuration,
      lFrequentFlyer,
00608                                                         lPreferredDepartureTime
      ,
00609                                                         lWTP, lValueOfTime,
      lChangeFees,
00610                                                         lChangeFeeDisutility,
      lNonRefundable,
00611
      lNonRefundableDisutility);
00612
00613     stdair::BookingRequestPtr_T oBookingRequest_ptr =
00614       boost::make_shared<stdair::BookingRequestStruct>  (lBookingRequestStruct)
      ;
00615
00616     // DEBUG
00617     // STDAIR_LOG_DEBUG ("\n[BKG] " << oBookingRequest_ptr->describe());
00618
00619     return oBookingRequest_ptr;
00620   }
00621
00622   // ////////////////////////////////////////////////////////////////////
00623   void DemandStream::reset (stdair::BaseGenerator_T&
      ioSharedGenerator) {
00624     _randomGenerationContext.reset();
00625     init (ioSharedGenerator);
00626   }
00627
00628 }
```

23.65 trademgen/bom/DemandStream.hpp File Reference

```
#include <stdair/bom/BomAbstract.hpp>
#include <stdair/bom/BookingRequestTypes.hpp>
#include <stdair/basic/RandomGeneration.hpp>
#include <stdair/basic/DemandGenerationMethod.hpp>
#include <trademgen/basic/DemandCharacteristics.hpp>
#include <trademgen/basic/DemandDistribution.hpp>
#include <trademgen/basic/RandomGenerationContext.hpp>
#include <trademgen/bom/DemandStreamKey.hpp>
#include <trademgen/bom/DemandStreamTypes.hpp>
```

Classes

- class TRADEMGEN::DemandStream

  Class modeling a demand stream.

Namespaces

- namespace stdair

  Forward declarations.
- namespace TRADEMGEN

23.66 DemandStream.hpp

```
00001 #ifndef __TRADEMGEN_BOM_DEMANDSTREAM_HPP
00002 #define __TRADEMGEN_BOM_DEMANDSTREAM_HPP
00003
00004 // //////////////////////////////////////////////////////////////////
00005 // Import section
00006 // //////////////////////////////////////////////////////////////////
00007 // StdAir
00008 #include <stdair/bom/BomAbstract.hpp>
00009 #include <stdair/bom/BookingRequestTypes.hpp>
00010 #include <stdair/basic/RandomGeneration.hpp>
00011 #include <stdair/basic/DemandGenerationMethod.hpp>
00012 // TraDemGen
00013 #include <trademgen/basic/DemandCharacteristics.hpp
      >
00014 #include <trademgen/basic/DemandDistribution.hpp
      >
00015 #include <trademgen/basic/RandomGenerationContext.hpp
      >
00016 #include <trademgen/bom/DemandStreamKey.hpp>
00017 #include <trademgen/bom/DemandStreamTypes.hpp
      >
00018
00020 namespace stdair {
00021   class FacBomManager;
00022   template <typename BOM> class FacBom;
00023 }
00024
00025 namespace TRADEMGEN {
00026
00030   class DemandStream : public stdair::BomAbstract {
00031     template <typename BOM> friend class stdair::FacBom;
00032     friend class stdair::FacBomManager;
00033
00034   public:
00035     // ////////// Type definitions ////////////
00039     typedef DemandStreamKey Key_T;
00040
00041
00042   public:
00043     // ////////////// Getters ///////////
00045     const Key_T& getKey() const {
00046       return _key;
00047     }
00048
00050     BomAbstract* const getParent() const {
00051       return _parent;
00052     }
00053
00055     const stdair::AirportCode_T& getOrigin() const {
00056       return _key.getOrigin();
00057     }
00058
00060     const stdair::AirportCode_T& getDestination() const {
00061       return _key.getDestination();
00062     }
00063
00065     const stdair::Date_T& getPreferredDepartureDate()
       const {
00066       return _key.getPreferredDepartureDate();
00067     }
00068
00070     const stdair::CabinCode_T& getPreferredCabin() const {
00071       return _key.getPreferredCabin();
00072     }
00073
```

```
00075     const stdair::HolderMap_T& getHolderMap() const {
00076       return _holderMap;
00077     }
00078
00080     const DemandCharacteristics& getDemandCharacteristics
      () const {
00081       return _demandCharacteristics;
00082     }
00083
00085     const DemandDistribution& getDemandDistribution
      () const {
00086       return _demandDistribution;
00087     }
00088
00090     const stdair::NbOfRequests_T& getTotalNumberOfRequestsToBeGenerated
      () const{
00091       return _totalNumberOfRequestsToBeGenerated
      ;
00092     }
00093
00095     const stdair::NbOfRequests_T& getMeanNumberOfRequests
      () const {
00096       return _demandDistribution._meanNumberOfRequests
      ;
00097     }
00098
00100     const stdair::StdDevValue_T& getStdDevNumberOfRequests
      () const {
00101       return _demandDistribution._stdDevNumberOfRequests
      ;
00102     }
00103
00105     const stdair::Count_T& getNumberOfRequestsGeneratedSoFar
      () const {
00106       return _randomGenerationContext.
      getNumberOfRequestsGeneratedSoFar();
00107     }
00108
00110     const stdair::Disutility_T& getChangeFeeDisutility()
       const {
00111       return _demandCharacteristics._changeFeeDisutility
      ;
00112     }
00113
00115     const stdair::Disutility_T& getNonRefundableDisutility
      () const {
00116       return _demandCharacteristics.
      _nonRefundableDisutility;
00117     }
00118
00123     const POSProbabilityMass_T& getPOSProbabilityMass
      () const {
00124       return _posProMass;
00125     }
00126
00127
00128   public:
00129     // ///////////////// Setters //////////////////
00131     void setNumberOfRequestsGeneratedSoFar (
      const stdair:: Count_T& iCount) {
00132       _randomGenerationContext.
      setNumberOfRequestsGeneratedSoFar (iCount);
00133     }
00134
00136     void setDemandDistribution (const DemandDistribution
      & iDemandDistribution) {
00137       _demandDistribution = iDemandDistribution;
00138     }
00139
00141     void
00142     setDemandCharacteristics (const
      ArrivalPatternCumulativeDistribution_T&
      iArrivalPattern,
00143                               const POSProbabilityMassFunction_T
      & iPOSProbMass,
00144                               const ChannelProbabilityMassFunction_T
      & iChannelProbMass,
00145                               const TripTypeProbabilityMassFunction_T
      & iTripTypeProbMass,
00146                               const StayDurationProbabilityMassFunction_T
      & iStayDurationProbMass,
00147                               const FrequentFlyerProbabilityMassFunction_T
      & iFrequentFlyerProbMass,
00148                               const stdair::ChangeFeesRatio_T& iChangeFeeProb,
00149                               const stdair::Disutility_T& iChangeFeeDisutility,
00150                               const stdair::NonRefundableRatio_T&
      iNonRefundableProb,
```

```
00151                               const stdair::Disutility_T&
      iNonRefundableDisutility,
00152                               const
      PreferredDepartureTimeContinuousDistribution_T
      & iPreferredDepartureTimeContinuousDistribution,
00153                               const stdair::WTP_T& iMinWTP,
00154                               const ValueOfTimeContinuousDistribution_T
      & iValueOfTimeContinuousDistribution) {
00155       _demandCharacteristics =
00156         DemandCharacteristics (iArrivalPattern,
      iPOSProbMass,
00157                                iChannelProbMass, iTripTypeProbMass,
00158                                iStayDurationProbMass, iFrequentFlyerProbMass,
00159                                iChangeFeeProb, iChangeFeeDisutility,
00160                                iNonRefundableProb, iNonRefundableDisutility,
00161                                iPreferredDepartureTimeContinuousDistribution,
00162                                iMinWTP, iValueOfTimeContinuousDistribution);
00163     }
00164
00166     void setTotalNumberOfRequestsToBeGenerated
       (const stdair::NbOfRequests_T& iNbOfRequests) {
00167       _totalNumberOfRequestsToBeGenerated =
      iNbOfRequests;
00168     }
00169
00171     void setRequestDateTimeRandomGeneratorSeed
       (const stdair::RandomSeed_T& iSeed) {
00172       _requestDateTimeRandomGenerator.init (
      iSeed);
00173     }
00174
00176     void setDemandCharacteristicsRandomGeneratorSeed
       (const stdair::RandomSeed_T& iSeed) {
00177       _demandCharacteristicsRandomGenerator
      .init (iSeed);
00178     }
00179
00184     void setPOSProbabilityMass (const POSProbabilityMass_T
      & iProbMass) {
00185       _posProMass = iProbMass;
00186     }
00187
00191     void setAll (const ArrivalPatternCumulativeDistribution_T
      &,
00192                  const POSProbabilityMassFunction_T
      &,
00193                  const ChannelProbabilityMassFunction_T
      &,
00194                  const TripTypeProbabilityMassFunction_T
      &,
00195                  const StayDurationProbabilityMassFunction_T
      &,
00196                  const FrequentFlyerProbabilityMassFunction_T
      &,
00197                  const stdair::ChangeFeesRatio_T&,
00198                  const stdair::Disutility_T&,
00199                  const stdair::NonRefundableRatio_T&,
00200                  const stdair::Disutility_T&,
00201                  const PreferredDepartureTimeContinuousDistribution_T
      &,
00202                  const stdair::WTP_T&,
00203                  const ValueOfTimeContinuousDistribution_T
      &,
00204                  const DemandDistribution&,
00205                  stdair::BaseGenerator_T& ioSharedGenerator,
00206                  const stdair::RandomSeed_T& iRequestDateTimeSeed,
00207                  const stdair::RandomSeed_T& iDemandCharacteristicsSeed,
00208                  const POSProbabilityMass_T&);
00209
00214     void setBoolFirstDateTimeRequest (const bool&
      iFirstDateTimeRequest) {
00215       _firstDateTimeRequest = iFirstDateTimeRequest;
00216     }
00217
00218
00219   public:
00220     // ////////////////// Business Methods /////////////////
00222     void incrementGeneratedRequestsCounter() {
00223       _randomGenerationContext.
      incrementGeneratedRequestsCounter();
00224     }
00225
00227     const bool stillHavingRequestsToBeGenerated
       (const stdair::DemandGenerationMethod& iDemandGenerationMethod) const;
00228
00230     const stdair::DateTime_T generateTimeOfRequestPoissonProcess
      ();
```

```
00231
00233     const stdair::DateTime_T generateTimeOfRequestStatisticsOrder
      ();
00234
00236     const stdair::AirportCode_T generatePOS();
00237
00239     const stdair::ChannelLabel_T generateChannel();
00240
00242     const stdair::TripType_T generateTripType();
00243
00245     const stdair::DayDuration_T generateStayDuration();
00246
00248     const stdair::FrequentFlyer_T generateFrequentFlyer();
00249
00251     const stdair::ChangeFees_T generateChangeFees();
00252
00254     const stdair::NonRefundable_T generateNonRefundable();
00255
00257     const stdair::Duration_T generatePreferredDepartureTime
      ();
00258
00260     const stdair::WTP_T generateWTP (stdair::RandomGeneration&,
00261                                      const stdair::Date_T&,
00262                                      const stdair::DateTime_T&,
00263                                      const stdair::DayDuration_T&);
00264
00266     const stdair::PriceValue_T generateValueOfTime();
00267
00278     stdair::BookingRequestPtr_T
00279     generateNextRequest (stdair::RandomGeneration&,
00280                          const stdair::DemandGenerationMethod&);
00281
00283     void reset (stdair::BaseGenerator_T& ioSharedGenerator);
00284
00285
00286   public:
00287     // ////////////////// Display support methods //////////////
00292     void toStream (std::ostream& ioOut) const {
00293       ioOut << toString();
00294     }
00295
00300     void fromStream (std::istream& ioIn) {
00301     }
00302
00306     std::string toString() const;
00307
00311     const std::string describeKey() const {
00312       return _key.toString();
00313     }
00314
00318     std::string display() const;
00319     const stdair::Duration_T convertFloatIntoDuration (
      const stdair::FloatDuration_T);
00320
00321   protected:
00322     // ////////// Constructors and destructors /////////
00326     DemandStream (const Key_T&);
00330     virtual ~DemandStream();
00331
00332   private:
00334     DemandStream();
00336     DemandStream (const DemandStream&);
00338     void init (stdair::BaseGenerator_T& ioSharedGenerator);
00339
00340
00341   protected:
00342     // ////////// Attributes //////////
00346     Key_T _key;
00347
00351     BomAbstract* _parent;
00352
00356     stdair::HolderMap_T _holderMap;
00357
00361     DemandCharacteristics _demandCharacteristics
      ;
00362
00366     DemandDistribution _demandDistribution
      ;
00367
00371     stdair::NbOfRequests_T _totalNumberOfRequestsToBeGenerated
      ;
00372
00376     RandomGenerationContext _randomGenerationContext
      ;
00377
00381     stdair::RandomGeneration _requestDateTimeRandomGenerator
      ;
```

```
00382
00386     stdair::RandomGeneration _demandCharacteristicsRandomGenerator
    ;
00387
00392     POSProbabilityMass_T _posProMass;
00393
00394   private:
00395     bool _stillHavingRequestsToBeGenerated;
00396     bool _firstDateTimeRequest;
00397     stdair::FloatDuration_T _dateTimeLastRequest;
00398   };
00399
00400 }
00401 #endif // __TRADEMGEN_BOM_DEMANDSTREAM_HPP
```

23.67 trademgen/bom/DemandStreamKey.cpp File Reference

```
#include <cassert>
#include <sstream>
#include <stdair/basic/BasConst_Inventory.hpp>
#include <trademgen/bom/DemandStreamKey.hpp>
```

Namespaces

- namespace TRADEMGEN

23.68 DemandStreamKey.cpp

```
00001 // ////////////////////////////////////////////////////////////////////
00002 // Import section
00003 // ////////////////////////////////////////////////////////////////////
00004 // STL
00005 #include <cassert>
00006 #include <sstream>
00007 // StdAir
00008 #include <stdair/basic/BasConst_Inventory.hpp>
00009 // TraDemGen
00010 #include <trademgen/bom/DemandStreamKey.hpp>
00011
00012 namespace TRADEMGEN {
00013
00014   // ////////////////////////////////////////////////////////////////////
00015   DemandStreamKey::DemandStreamKey()
00016     : _origin (stdair::DEFAULT_ORIGIN),
00017       _destination (stdair::DEFAULT_DESTINATION),
00018       _preferredDepartureDate (stdair::DEFAULT_DEPARTURE_DATE),
00019       _preferredCabin (stdair::DEFAULT_CABIN_CODE) {
00020     assert (false);
00021   }
00022
00023   // ////////////////////////////////////////////////////////////////////
00024   DemandStreamKey::
00025   DemandStreamKey (const stdair::AirportCode_T& iOrigin,
00026                    const stdair::AirportCode_T& iDestination,
00027                    const stdair::Date_T& iPreferredDepartureDate,
00028                    const stdair::CabinCode_T& iPreferredCabin)
00029     : _origin (iOrigin), _destination (iDestination),
00030       _preferredDepartureDate (iPreferredDepartureDate),
00031       _preferredCabin (iPreferredCabin) {
00032   }
00033
00034   // ////////////////////////////////////////////////////////////////////
00035   DemandStreamKey::DemandStreamKey (const DemandStreamKey& iKey)
00036     : _origin (iKey._origin), _destination (iKey._destination),
00037       _preferredDepartureDate (iKey._preferredDepartureDate),
00038       _preferredCabin (iKey._preferredCabin) {
00039   }
00040
00041   // ////////////////////////////////////////////////////////////////////
00042   DemandStreamKey::~DemandStreamKey () {
00043   }
00044
00045   // ////////////////////////////////////////////////////////////////////
00046   void DemandStreamKey::toStream (std::ostream& ioOut)
       const {
```

```
00047     ioOut << "DemandStreamKey: " << toString();
00048   }
00049
00050   // ////////////////////////////////////////////////////////////////////
00051   void DemandStreamKey::fromStream (std::istream&
      ioIn) {
00052   }
00053
00054   // ////////////////////////////////////////////////////////////////////
00055   const std::string DemandStreamKey::toString() const
      {
00056     std::ostringstream oStr;
00057     oStr << _origin << "-" << _destination << " " << _preferredDepartureDate
00058          << " " << _preferredCabin;
00059     return oStr.str();
00060   }
00061
00062 }
```

23.69 trademgen/bom/DemandStreamKey.hpp File Reference

```
#include <stdair/stdair_basic_types.hpp>
#include <stdair/stdair_date_time_types.hpp>
#include <stdair/bom/KeyAbstract.hpp>
```

Classes

- struct TRADEMGEN::DemandStreamKey

Namespaces

- namespace TRADEMGEN

23.70 DemandStreamKey.hpp

```
00001 #ifndef __TRADEMGEN_BOM_DEMANDSTREAMKEY_HPP
00002 #define __TRADEMGEN_BOM_DEMANDSTREAMKEY_HPP
00003
00004 // ////////////////////////////////////////////////////////////////////
00005 // Import section
00006 // ////////////////////////////////////////////////////////////////////
00007 // StdAir
00008 #include <stdair/stdair_basic_types.hpp>
00009 #include <stdair/stdair_date_time_types.hpp>
00010 #include <stdair/bom/KeyAbstract.hpp>
00011
00012 namespace TRADEMGEN {
00013
00020   struct DemandStreamKey : public stdair::KeyAbstract {
00021
00022     // ////////// Constructors and destructors //////////
00023   private:
00025     DemandStreamKey();
00026
00027   public:
00029     DemandStreamKey (const stdair::AirportCode_T& iOrigin,
00030                      const stdair::AirportCode_T& iDestination,
00031                      const stdair::Date_T& iPreferredDepartureDate,
00032                      const stdair::CabinCode_T& iPreferredCabin);
00034     DemandStreamKey (const DemandStreamKey&);
00035
00037     ~DemandStreamKey();
00038
00039
00040   public:
00041     // ////////// Getters //////////
00043     const stdair::AirportCode_T& getOrigin() const {
00044       return _origin;
00045     }
00046
00048     const stdair::AirportCode_T& getDestination() const {
00049       return _destination;
```

```
00050     }
00051
00053     const stdair::Date_T& getPreferredDepartureDate ()
      const {
00054       return _preferredDepartureDate;
00055     }
00056
00058     const stdair::CabinCode_T& getPreferredCabin() const {
00059       return _preferredCabin;
00060     }
00061
00062
00063     // ////////// Display support methods /////////
00066     void toStream (std::ostream& ioOut) const;
00067
00070     void fromStream (std::istream& ioIn);
00071
00077     const std::string toString() const;
00078
00079
00080   private:
00081     // ////////////////// Attributes ///////////////
00083     stdair::AirportCode_T _origin;
00084
00086     stdair::AirportCode_T _destination;
00087
00089     stdair::Date_T _preferredDepartureDate;
00090
00092     stdair::CabinCode_T _preferredCabin;
00093   };
00094
00095 }
00096 #endif // __TRADEMGEN_BOM_DEMANDSTREAMKEY_HPP
```

23.71 trademgen/bom/DemandStreamTypes.hpp File Reference

```
#include <map>
#include <list>
#include <stdair/bom/key_types.hpp>
```

Namespaces

- namespace TRADEMGEN

Typedefs

- typedef std::list< DemandStream * > TRADEMGEN::DemandStreamList_T
- typedef std::map< const stdair::MapKey_T, DemandStream * > TRADEMGEN::DemandStreamMap_T

23.72 DemandStreamTypes.hpp

```
00001 #ifndef __TRADEMGEN_BOM_DEMANDSTREAMTYPES_HPP
00002 #define __TRADEMGEN_BOM_DEMANDSTREAMTYPES_HPP
00003
00004 // //////////////////////////////////////////////////////////////////
00005 // Import section
00006 // //////////////////////////////////////////////////////////////////
00007 // STL
00008 #include <map>
00009 #include <list>
00010 // StdAir
00011 #include <stdair/bom/key_types.hpp>
00012
00013 namespace TRADEMGEN {
00014
00015   // Forward declarations.
00016   class DemandStream;
00017
00019   typedef std::list<DemandStream*> DemandStreamList_T;
00020
```

```
00022   typedef std::map<const stdair::MapKey_T, DemandStream*> DemandStreamMap_T
      ;
00023
00024 }
00025 #endif // __TRADEMGEN_BOM_DEMANDSTREAMTYPES_HPP
```

23.73 trademgen/bom/DemandStruct.cpp File Reference

```
#include <cassert>
#include <sstream>
#include <stdair/basic/BasConst_Inventory.hpp>
#include <stdair/basic/BasConst_Period_BOM.hpp>
#include <stdair/service/Logger.hpp>
#include <trademgen/TRADEMGEN_Types.hpp>
#include <trademgen/bom/DemandStruct.hpp>
```

Namespaces

- namespace TRADEMGEN

23.74 DemandStruct.cpp

```
00001 // ////////////////////////////////////////////////////////////////////
00002 // Import section
00003 // ////////////////////////////////////////////////////////////////////
00004 // STL
00005 #include <cassert>
00006 #include <sstream>
00007 // StdAir
00008 #include <stdair/basic/BasConst_Inventory.hpp>
00009 #include <stdair/basic/BasConst_Period_BOM.hpp>
00010 #include <stdair/service/Logger.hpp>
00011 // TRADEMGEN
00012 #include <trademgen/TRADEMGEN_Types.hpp>
00013 #include <trademgen/bom/DemandStruct.hpp>
00014
00015 namespace TRADEMGEN {
00016
00017   // ////////////////////////////////////////////////////////////////////
00018   DemandStruct::DemandStruct()
00019     : _dateRange (stdair::BOOST_DEFAULT_DATE_PERIOD),
00020       _dow (stdair::DEFAULT_DOW_STRING),
00021       _prefCabin (stdair::DEFAULT_CABIN_CODE),
00022       _itHours (0), _itMinutes (0), _itSeconds (0), _itFFCode ("") {
00023   }
00024
00025   // ////////////////////////////////////////////////////////////////////
00026   DemandStruct::~DemandStruct() {
00027   }
00028
00029   // ////////////////////////////////////////////////////////////////////
00030   stdair::Date_T DemandStruct::getDate() const {
00031     return stdair::Date_T (_itYear, _itMonth, _itDay);
00032   }
00033
00034   // ////////////////////////////////////////////////////////////////////
00035   stdair::Duration_T DemandStruct::getTime() const {
00036     return boost::posix_time::hours (_itHours)
00037       + boost::posix_time::minutes (_itMinutes)
00038       + boost::posix_time::seconds (_itSeconds);
00039   }
00040
00041   // ////////////////////////////////////////////////////////////////////
00042   const std::string DemandStruct::describe() const {
00043     std::ostringstream ostr;
00044     ostr << _dateRange << " - " << _dow
00045          << " " << _origin << "-" << _destination
00046          << " " << _prefCabin
00047          << ", N(" << _demandMean << ", " << _demandStdDev
    << "); ";
00048
00049     unsigned short idx = 0;
00050     for (POSProbabilityMassFunction_T::const_iterator it = _posProbDist
```

```
    .begin();
00051          it != _posProbDist.end(); ++it, ++idx) {
00052       const stdair::AirportCode_T& lPosCode = it->first;
00053       const stdair::Probability_T& lPosProbMass = it->second;
00054       if (idx != 0) {
00055         ostr << ", ";
00056       }
00057       ostr << lPosCode << ":" << lPosProbMass;
00058     }
00059     ostr << "; ";
00060
00061     idx = 0;
00062     for (ChannelProbabilityMassFunction_T::const_iterator it =
00063            _channelProbDist.begin();
00064          it != _channelProbDist.end(); ++it, ++idx) {
00065       const stdair::ChannelLabel_T lChannelCode = it->first;
00066       const stdair::Probability_T& lChannelProbMass = it->second;
00067       if (idx != 0) {
00068         ostr << ", ";
00069       }
00070       ostr << lChannelCode << ":" << lChannelProbMass;
00071     }
00072     ostr << "; ";
00073
00074     idx = 0;
00075     for (TripTypeProbabilityMassFunction_T::const_iterator it =
00076            _tripProbDist.begin();
00077          it != _tripProbDist.end(); ++it, ++idx) {
00078       const stdair::TripType_T lTripCode = it->first;
00079       const stdair::Probability_T& lTripProbMass = it->second;
00080       if (idx != 0) {
00081         ostr << ", ";
00082       }
00083       ostr << lTripCode << ":" << lTripProbMass;
00084     }
00085     ostr << "; ";
00086
00087     idx = 0;
00088     for (StayDurationProbabilityMassFunction_T::const_iterator it =
00089            _stayProbDist.begin();
00090          it != _stayProbDist.end(); ++it, ++idx) {
00091       const stdair::DayDuration_T& lStayDuration = it->first;
00092       const stdair::Probability_T& lStayProbMass = it->second;
00093       if (idx != 0) {
00094         ostr << ", ";
00095       }
00096       ostr << lStayDuration << ":" << lStayProbMass;
00097     }
00098     ostr << "; ";
00099
00100     idx = 0;
00101     for (FrequentFlyerProbabilityMassFunction_T::const_iterator it =
00102            _ffProbDist.begin();
00103          it != _ffProbDist.end(); ++it, ++idx) {
00104       const stdair::FrequentFlyer_T lFFCode = it->first;
00105       const stdair::Probability_T& lFFProbMass = it->second;
00106       if (idx != 0) {
00107         ostr << ", ";
00108       }
00109       ostr << lFFCode << ":" << lFFProbMass;
00110     }
00111     ostr << "; ";
00112
00113     ostr << _changeFeeProb << "; ";
00114
00115     ostr << "; ";
00116
00117     ostr << _nonRefundableProb << "; ";
00118
00119     idx = 0;
00120     for (PreferredDepartureTimeContinuousDistribution_T::const_iterator it =
00121            _prefDepTimeProbDist.begin();
00122          it != _prefDepTimeProbDist.end(); ++it, ++idx) {
00123       const stdair::IntDuration_T& lPrefDepTime = it->first;
00124       const stdair::Probability_T& lPrefDepTimeProbMass = it->second;
00125       if (idx != 0) {
00126         ostr << ", ";
00127       }
00128       ostr << lPrefDepTime << ":" << lPrefDepTimeProbMass;
00129     }
00130     ostr << "; ";
00131
00132     ostr << _minWTP << "; ";
00133
00134     idx = 0;
00135     for (ValueOfTimeContinuousDistribution_T::const_iterator it =
00136            _timeValueProbDist.begin();
```

```
00137          it != _timeValueProbDist.end(); ++it, ++idx) {
00138       const stdair::PriceValue_T& lTimeValue = it->first;
00139       const stdair::Probability_T& lTimeValueProbMass = it->second;
00140       if (idx != 0) {
00141         ostr << ", ";
00142       }
00143       ostr << lTimeValue << ":" << lTimeValueProbMass;
00144     }
00145     ostr << "; ";
00146
00147     idx = 0;
00148     for (ArrivalPatternCumulativeDistribution_T::const_iterator it =
00149            _dtdProbDist.begin(); it != _dtdProbDist.end
      (); ++it, ++idx) {
00150       const stdair::FloatDuration_T& lDTD = it->first;
00151       const stdair::Probability_T& lDTDProbMass = it->second;
00152       if (idx != 0) {
00153         ostr << ", ";
00154       }
00155       ostr << lDTD << ":" << lDTDProbMass;
00156     }
00157     ostr << "; ";
00158
00159     return ostr.str();
00160   }
00161
00162 }
```

23.75 trademgen/bom/DemandStruct.hpp File Reference

```
#include <string>
#include <stdair/stdair_basic_types.hpp>
#include <stdair/stdair_maths_types.hpp>
#include <stdair/stdair_date_time_types.hpp>
#include <stdair/basic/StructAbstract.hpp>
#include <stdair/bom/DoWStruct.hpp>
#include <trademgen/basic/DemandCharacteristicsTypes.hpp>
```

Classes

- struct TRADEMGEN::DemandStruct

Namespaces

- namespace TRADEMGEN

23.76 DemandStruct.hpp

```
00001 #ifndef __TRADEMGEN_BOM_DEMANDSTRUCT_HPP
00002 #define __TRADEMGEN_BOM_DEMANDSTRUCT_HPP
00003
00004 // //////////////////////////////////////////////////////////////////
00005 // Import section
00006 // //////////////////////////////////////////////////////////////////
00007 // STL
00008 #include <string>
00009 // StdAir
00010 #include <stdair/stdair_basic_types.hpp>
00011 #include <stdair/stdair_maths_types.hpp>
00012 #include <stdair/stdair_date_time_types.hpp>
00013 #include <stdair/basic/StructAbstract.hpp>
00014 #include <stdair/bom/DoWStruct.hpp>
00015 // TraDemGen
00016 #include <trademgen/basic/DemandCharacteristicsTypes.hpp
      >
00017
00018 namespace TRADEMGEN {
00019
00021   struct DemandStruct : public stdair::StructAbstract {
00022
```

```
00023   public:
00024     // ////////////////////// Getters ////////////////////
00026     stdair::Date_T getDate() const;
00027
00029     stdair::Duration_T getTime() const;
00030
00031
00032   public:
00033     // ////////////////// Display Support Methods ////////////////
00035     const std::string describe() const;
00036
00037
00038   public:
00039     // /////////////// Constructors and destructors ///////////////
00041     DemandStruct();
00043     ~DemandStruct();
00044   private:
00046     DemandStruct (const DemandStruct&);
00047
00048
00049   public:
00050     // ////////////// Attributes ////////////////////
00051     stdair::DatePeriod_T _dateRange;
00052     stdair::DoWStruct _dow;
00053     stdair::AirportCode_T _origin;
00054     stdair::AirportCode_T _destination;
00055     stdair::CabinCode_T _prefCabin;
00056     stdair::MeanValue_T _demandMean;
00057     stdair::StdDevValue_T _demandStdDev;
00058     stdair::ChangeFeesRatio_T _changeFeeProb;
00059     stdair::Disutility_T _changeFeeDisutility;
00060     stdair::NonRefundableRatio_T _nonRefundableProb;
00061     stdair::Disutility_T _nonRefundableDisutility;
00062     POSProbabilityMassFunction_T _posProbDist
      ;
00063     ChannelProbabilityMassFunction_T
      _channelProbDist;
00064     TripTypeProbabilityMassFunction_T
      _tripProbDist;
00065     StayDurationProbabilityMassFunction_T
      _stayProbDist;
00066     FrequentFlyerProbabilityMassFunction_T
       _ffProbDist;
00067     PreferredDepartureTimeContinuousDistribution_T
       _prefDepTimeProbDist;
00068     stdair::WTP_T _minWTP;
00069     ValueOfTimeContinuousDistribution_T
      _timeValueProbDist;
00070     ArrivalPatternCumulativeDistribution_T
       _dtdProbDist;
00071
00072   public:
00073     // ////////////// Staging ////////////////////
00075     stdair::Date_T _prefDepDateStart;
00076     stdair::Date_T _prefDepDateEnd;
00077     unsigned int _itYear;
00078     unsigned int _itMonth;
00079     unsigned int _itDay;
00080
00082     long _itHours;
00083     long _itMinutes;
00084     long _itSeconds;
00085
00087     stdair::AirportCode_T _itPosCode;
00088
00090     stdair::ChannelLabel_T _itChannelCode;
00091
00093     stdair::TripType_T _itTripCode;
00094
00096     stdair::DayDuration_T _itStayDuration;
00097
00099     stdair::FrequentFlyer_T _itFFCode;
00100
00102     stdair::Duration_T _itPrefDepTime;
00103
00105     stdair::PriceValue_T _itTimeValue;
00106
00108     stdair::DayDuration_T _itDTD;
00109   };
00110
00111 }
00112 #endif // __TRADEMGEN_BOM_DEMANDSTRUCT_HPP
```

23.77 trademgen/command/DBManager.cpp File Reference

```
#include <cassert>
#include <soci/soci.h>
#include <soci/mysql/soci-mysql.h>
#include <stdair/bom/AirlineStruct.hpp>
#include <stdair/service/Logger.hpp>
#include <trademgen/command/DBManager.hpp>
```

Namespaces

- namespace TRADEMGEN

23.78 DBManager.cpp

```
00001 // ////////////////////////////////////////////////////////////////////
00002 // Import section
00003 // ////////////////////////////////////////////////////////////////////
00004 // STL
00005 #include <cassert>
00006 // SOCI
00007 #if defined(SOCI_HEADERS_BURIED)
00008 #include <soci/core/soci.h>
00009 #include <soci/backends/mysql/soci-mysql.h>
00010 #else // SOCI_HEADERS_BURIED
00011 #include <soci/soci.h>
00012 #include <soci/mysql/soci-mysql.h>
00013 #endif // SOCI_HEADERS_BURIED
00014 // StdAir
00015 #include <stdair/bom/AirlineStruct.hpp>
00016 #include <stdair/service/Logger.hpp>
00017 // TraDemGen
00018 #include <trademgen/command/DBManager.hpp>
00019
00020 namespace TRADEMGEN {
00021
00022   // ////////////////////////////////////////////////////////////////////
00023   void DBManager::
00024   prepareSelectStatement (stdair::DBSession_T&
      ioSociSession,
00025                           stdair::DBRequestStatement_T& ioSelectStatement,
00026                           stdair::AirlineStruct& ioAirline) {
00027
00028     try {
00029
00030       // Instanciate a SQL statement (no request is performed at that stage)
00044     } catch (std::exception const& lException) {
00045       STDAIR_LOG_ERROR ("Error: " << lException.what());
00046       throw stdair::SQLDatabaseException (lException.what());
00047     }
00048   }
00049
00050   // ////////////////////////////////////////////////////////////////////
00051   void DBManager::
00052   prepareSelectOnAirlineCodeStatement (stdair::DBSession_T& ioSociSession,
00053                                        stdair::DBRequestStatement_T&
      ioSelectStatement,
00054                                        const stdair::AirlineCode_T&
      iAirlineCode,
00055                                        stdair::AirlineStruct& ioAirline) {
00056
00057     try {
00058
00059       // Instanciate a SQL statement (no request is performed at that stage)
00090     } catch (std::exception const& lException) {
00091       STDAIR_LOG_ERROR ("Error: " << lException.what());
00092       throw stdair::SQLDatabaseException (lException.what());
00093     }
00094   }
00095
00096   // ////////////////////////////////////////////////////////////////////
00097   bool DBManager::iterateOnStatement (
      stdair::DBRequestStatement_T& ioStatement,
00098                                       stdair::AirlineStruct& ioAirline,
00099                                       const bool iShouldDoReset) {
00100     bool hasStillData = false;
```

```
00101
00102     try {
00103
00104       // Reset the list of names of the given Airline object
00105       if (iShouldDoReset == true) {
00106         // ioAirline.resetMatrix();
00107       }
00108
00109       // Retrieve the next row of Airline object
00110       hasStillData = ioStatement.fetch();
00111
00112     } catch (std::exception const& lException) {
00113       STDAIR_LOG_ERROR ("Error: " << lException.what());
00114       throw stdair::SQLDatabaseException (lException.what());
00115     }
00116
00117     return hasStillData;
00118   }
00119
00120   // ////////////////////////////////////////////////////////////////////
00121   void DBManager::updateAirlineInDB (
      stdair::DBSession_T& ioSociSession,
00122                                      const stdair::AirlineStruct& iAirline) {
00123
00124     try {
00125
00126       // Begin a transaction on the database
00127       ioSociSession.begin();
00128
00129       // Instanciate a SQL statement (no request is performed at that stage)
00130       std::string lAirlineCode;
00131       /*
00132       stdair::DBRequestStatement_T lUpdateStatement =
00133         (ioSociSession.prepare
00134          << "update ref_airline_details "
00135          << "set xapian_docid = :xapian_docid "
00136          << "where code = :code", soci::use (lDocID), soci::use
       (lAirlineCode));
00137
00138       // Execute the SQL query
00139       lDocID = iAirline.getDocID();
00140       lAirlineCode = iAirline.getAirlineCode();
00141       lUpdateStatement.execute (true);
00142       */
00143
00144       // Commit the transaction on the database
00145       ioSociSession.commit();
00146
00147       // Debug
00148       // TRADEMGEN_LOG_DEBUG ("[" << lDocID << "] " << iAirline);
00149
00150     } catch (std::exception const& lException) {
00151       STDAIR_LOG_ERROR ("Error: " << lException.what());
00152       throw stdair::SQLDatabaseException (lException.what());
00153     }
00154   }
00155
00156   // ////////////////////////////////////////////////////////////////////
00157   bool DBManager::retrieveAirline (
      stdair::DBSession_T& ioSociSession,
00158                                    const stdair::AirlineCode_T& iAirlineCode,
00159                                    stdair::AirlineStruct& ioAirline) {
00160     bool oHasRetrievedAirline = false;
00161
00162     try {
00163
00164       // Prepare the SQL request corresponding to the select statement
00165       stdair::DBRequestStatement_T lSelectStatement (ioSociSession);
00166       DBManager::prepareSelectOnAirlineCodeStatement (ioSociSession,
00167                                                       lSelectStatement,
00168                                                       iAirlineCode, ioAirline);
00169       const bool shouldDoReset = true;
00170       bool hasStillData = iterateOnStatement (
      lSelectStatement, ioAirline,
00171                                               shouldDoReset);
00172       if (hasStillData == true) {
00173         oHasRetrievedAirline = true;
00174       }
00175
00176       // Sanity check
00177       const bool shouldNotDoReset = false;
00178       hasStillData = iterateOnStatement (lSelectStatement,
      ioAirline,
00179                                          shouldNotDoReset);
00180       // Debug
00181       // STDAIR_LOG_DEBUG ("[" << iDocID << "] " << ioAirline);
00182
```

```
00183     } catch (std::exception const& lException) {
00184       STDAIR_LOG_ERROR ("Error: " << lException.what());
00185       throw stdair::SQLDatabaseException (lException.what());
00186     }
00187
00188     return oHasRetrievedAirline;
00189   }
00190
00191 }
```

23.79 trademgen/command/DBManager.hpp File Reference

```
#include <stdair/stdair_basic_types.hpp>
#include <stdair/stdair_db.hpp>
#include <trademgen/TRADEMGEN_Types.hpp>
```

Classes

- class TRADEMGEN::DBManager

Namespaces

- namespace TRADEMGEN

23.80 DBManager.hpp

```
00001 #ifndef __TRADEMGEN_CMD_DBMANAGER_HPP
00002 #define __TRADEMGEN_CMD_DBMANAGER_HPP
00003
00004 // //////////////////////////////////////////////////////////////////
00005 // Import section
00006 // //////////////////////////////////////////////////////////////////
00007 // StdAir
00008 #include <stdair/stdair_basic_types.hpp>
00009 #include <stdair/stdair_db.hpp>
00010 // Trademgen
00011 #include <trademgen/TRADEMGEN_Types.hpp>
00012
00013 namespace TRADEMGEN {
00014
00015   // Forward declarations
00016   struct AirlineStruct;
00017
00020   class DBManager {
00021   public:
00024     static void updateAirlineInDB (stdair::DBSession_T&,
00025                                    const stdair::AirlineStruct&);
00026
00030     static bool retrieveAirline (stdair::DBSession_T&,
00031                                  const stdair::AirlineCode_T&,
00032                                  stdair::AirlineStruct&);
00033
00034
00035   public:
00037     static void prepareSelectStatement (
      stdair::DBSession_T&,
00038                                         stdair::DBRequestStatement_T&,
00039                                         stdair::AirlineStruct&);
00040
00045     static bool iterateOnStatement (
      stdair::DBRequestStatement_T&,
00046                                     stdair::AirlineStruct&,
00047                                     const bool iShouldDoReset);
00048
00049
00050   private:
00052     static void prepareSelectOnAirlineCodeStatement (stdair::DBSession_T&,
00053
      stdair::DBRequestStatement_T&,
00054                                                      const
      stdair::AirlineCode_T&,
00055                                                      stdair::AirlineStruct&);
```

```
00056
00057
00058   private:
00060     DBManager() {}
00061     DBManager(const DBManager&) {}
00063     ~DBManager() {}
00064   };
00065
00066 }
00067 #endif // __TRADEMGEN_CMD_DBMANAGER_HPP
```

23.81 trademgen/command/DemandManager.cpp File Reference

```
#include <cassert>
#include <boost/make_shared.hpp>
#include <stdair/basic/ProgressStatusSet.hpp>
#include <stdair/basic/BasConst_Request.hpp>
#include <stdair/bom/BomManager.hpp>
#include <stdair/bom/EventStruct.hpp>
#include <stdair/bom/BookingRequestStruct.hpp>
#include <stdair/bom/TravelSolutionStruct.hpp>
#include <stdair/bom/CancellationStruct.hpp>
#include <stdair/factory/FacBom.hpp>
#include <stdair/factory/FacBomManager.hpp>
#include <stdair/service/Logger.hpp>
#include <sevmgr/SEVMGR_Service.hpp>
#include <trademgen/basic/DemandCharacteristics.hpp>
#include <trademgen/basic/DemandDistribution.hpp>
#include <trademgen/bom/DemandStruct.hpp>
#include <trademgen/bom/DemandStream.hpp>
#include <trademgen/command/DemandManager.hpp>
```

Namespaces

- namespace TRADEMGEN

23.82 DemandManager.cpp

```
00001 // ////////////////////////////////////////////////////////////////////
00002 // Import section
00003 // ////////////////////////////////////////////////////////////////////
00004 // STL
00005 #include <cassert>
00006 // Boost
00007 #include <boost/make_shared.hpp>
00008 // StdAir
00009 #include <stdair/basic/ProgressStatusSet.hpp>
00010 #include <stdair/basic/BasConst_Request.hpp>
00011 #include <stdair/bom/BomManager.hpp>
00012 #include <stdair/bom/EventStruct.hpp>
00013 #include <stdair/bom/BookingRequestStruct.hpp>
00014 #include <stdair/bom/TravelSolutionStruct.hpp>
00015 #include <stdair/bom/CancellationStruct.hpp>
00016 #include <stdair/factory/FacBom.hpp>
00017 #include <stdair/factory/FacBomManager.hpp>
00018 #include <stdair/service/Logger.hpp>
00019 // SEvMgr
00020 #include <sevmgr/SEVMGR_Service.hpp>
00021 // TraDemGen
00022 #include <trademgen/basic/DemandCharacteristics.hpp
      >
00023 #include <trademgen/basic/DemandDistribution.hpp
      >
00024 #include <trademgen/bom/DemandStruct.hpp>
00025 #include <trademgen/bom/DemandStream.hpp>
00026 #include <trademgen/command/DemandManager.hpp
      >
00027
```

```
00028 namespace TRADEMGEN {
00029
00030   // ////////////////////////////////////////////////////////////////////
00031   void DemandManager::
00032   buildSampleBomStd (SEVMGR::SEVMGR_ServicePtr_T ioSEVMGR_ServicePtr,
00033                      stdair::RandomGeneration& ioSharedGenerator,
00034                      const POSProbabilityMass_T&
      iPOSProbMass) {
00035     // Sanity check
00036     assert (ioSEVMGR_ServicePtr != NULL);
00037
00038     // Key of the demand stream
00039     const stdair::AirportCode_T lOrigin ("SIN");
00040     const stdair::AirportCode_T lDestination ("BKK");
00041     const stdair::Date_T lDepDate (2011, 2, 14);
00042     const stdair::CabinCode_T lCabin ("Y");
00043
00044     //
00045     const DemandStreamKey lDemandStreamKey (lOrigin, lDestination, lDepDate,
00046                                             lCabin);
00047
00048     // DEBUG
00049     // STDAIR_LOG_DEBUG ("Demand stream key: " << lDemandStreamKey.describe());
00050
00051     // Distribution for the number of requests
00052     const stdair::MeanValue_T lDemandMean (10.0);
00053     const stdair::StdDevValue_T lDemandStdDev (1.0);
00054     const DemandDistribution lDemandDistribution (lDemandMean, lDemandStdDev);
00055
00056     // Seed
00057     const stdair::RandomSeed_T& lRequestDateTimeSeed =
00058       generateSeed (ioSharedGenerator);
00059     const stdair::RandomSeed_T& lDemandCharacteristicsSeed =
00060       generateSeed (ioSharedGenerator);
00061
00062     //
00063     ArrivalPatternCumulativeDistribution_T
       lDTDProbDist;
00064     lDTDProbDist.insert(ArrivalPatternCumulativeDistribution_T::value_type(-330
      ,
00065                                                                             0));
00066     lDTDProbDist.insert(ArrivalPatternCumulativeDistribution_T::value_type(-40,
00067                                                                             0.2)
      );
00068     lDTDProbDist.insert(ArrivalPatternCumulativeDistribution_T::value_type(-20,
00069                                                                             0.6)
      );
00070     lDTDProbDist.insert(ArrivalPatternCumulativeDistribution_T::value_type(-1,
00071                                                                             1.0)
      );
00072     //
00073     POSProbabilityMassFunction_T lPOSProbDist;
00074     lPOSProbDist.insert (POSProbabilityMassFunction_T::value_type ("BKK", 0.3))
      ;
00075     lPOSProbDist.insert (POSProbabilityMassFunction_T::value_type ("SIN", 0.7))
      ;
00076     //
00077     ChannelProbabilityMassFunction_T
      lChannelProbDist;
00078     lChannelProbDist.insert (ChannelProbabilityMassFunction_T::value_type ("DF"
      ,
00079                                                                            0.1)
      );
00080     lChannelProbDist.insert (ChannelProbabilityMassFunction_T::value_type ("DN"
      ,
00081                                                                            0.3)
      );
00082     lChannelProbDist.insert (ChannelProbabilityMassFunction_T::value_type ("IF"
      ,
00083                                                                            0.4)
      );
00084     lChannelProbDist.insert (ChannelProbabilityMassFunction_T::value_type ("IN"
      ,
00085                                                                            0.2)
      );
00086     //
00087     TripTypeProbabilityMassFunction_T
      lTripProbDist;
00088     lTripProbDist.insert (TripTypeProbabilityMassFunction_T::value_type ("RO",
00089                                                                          0.6));
00090     lTripProbDist.insert (TripTypeProbabilityMassFunction_T::value_type ("RI",
00091                                                                          0.2));
00092     lTripProbDist.insert (TripTypeProbabilityMassFunction_T::value_type ("OW",
00093                                                                          0.2));
00094     //
00095     StayDurationProbabilityMassFunction_T
      lStayProbDist;
```

```
00096     lStayProbDist.insert(StayDurationProbabilityMassFunction_T::value_type(0,
00097                                                                             0.1)
      );
00098     lStayProbDist.insert(StayDurationProbabilityMassFunction_T::value_type(1,
00099                                                                             0.1)
      );
00100     lStayProbDist.insert(StayDurationProbabilityMassFunction_T::value_type(2,
00101                                                                             .15)
      );
00102     lStayProbDist.insert(StayDurationProbabilityMassFunction_T::value_type(3,
00103                                                                             .15)
      );
00104     lStayProbDist.insert(StayDurationProbabilityMassFunction_T::value_type(4,
00105                                                                             .15)
      );
00106     lStayProbDist.insert(StayDurationProbabilityMassFunction_T::value_type(5,
00107                                                                             .35)
      );
00108     //
00109     FrequentFlyerProbabilityMassFunction_T
       lFFProbDist;
00110     lFFProbDist.insert(FrequentFlyerProbabilityMassFunction_T::value_type("P",
00111                                                                           0.01)
      );
00112     lFFProbDist.insert(FrequentFlyerProbabilityMassFunction_T::value_type("G",
00113                                                                           0.05)
      );
00114     lFFProbDist.insert(FrequentFlyerProbabilityMassFunction_T::value_type("S",
00115                                                                           0.15)
      );
00116     lFFProbDist.insert(FrequentFlyerProbabilityMassFunction_T::value_type("M",
00117                                                                           0.3))
      ;
00118     lFFProbDist.insert(FrequentFlyerProbabilityMassFunction_T::value_type("N",
00119                                                                           0.49)
      );
00120     //
00121     PreferredDepartureTimeContinuousDistribution_T
       lPrefDepTimeProbDist;
00122     lPrefDepTimeProbDist.
00123       insert (PreferredDepartureTimeContinuousDistribution_T::value_type (6 *
      stdair::HOUR_CONVERTED_IN_SECONDS, 0));
00124     lPrefDepTimeProbDist.
00125       insert (PreferredDepartureTimeContinuousDistribution_T::value_type (7 *
      stdair::HOUR_CONVERTED_IN_SECONDS,
00126                                                                           0.1))
      ;
00127     lPrefDepTimeProbDist.
00128       insert (PreferredDepartureTimeContinuousDistribution_T::value_type (9 *
      stdair::HOUR_CONVERTED_IN_SECONDS,
00129                                                                           0.3))
      ;
00130     lPrefDepTimeProbDist.
00131       insert (PreferredDepartureTimeContinuousDistribution_T::value_type (17 *
      stdair::HOUR_CONVERTED_IN_SECONDS,
00132                                                                           0.4))
      ;
00133     lPrefDepTimeProbDist.
00134       insert (PreferredDepartureTimeContinuousDistribution_T::value_type (19 *
      stdair::HOUR_CONVERTED_IN_SECONDS,
00135                                                                           0.80)
      );
00136     lPrefDepTimeProbDist.
00137       insert (PreferredDepartureTimeContinuousDistribution_T::value_type (20 *
      stdair::HOUR_CONVERTED_IN_SECONDS,
00138                                                                           0.95)
      );
00139     lPrefDepTimeProbDist.
00140       insert (PreferredDepartureTimeContinuousDistribution_T::value_type (22 *
      stdair::HOUR_CONVERTED_IN_SECONDS,
00141                                                                           1));
00142     //
00143     ValueOfTimeContinuousDistribution_T
      lTimeValueProbDist;
00144     lTimeValueProbDist.insert(ValueOfTimeContinuousDistribution_T::value_type(1
      5,
00145                                                                               0
      ));
00146     lTimeValueProbDist.insert(ValueOfTimeContinuousDistribution_T::value_type(6
      0,
00147                                                                               1
      ));
00148
00149     //
00150     const stdair::WTP_T lWTP (1000.0);
00151     const stdair::ChangeFeesRatio_T lChangeFees (0.5);
00152     const stdair::Disutility_T lChangeFeeDisutility (50);
```

```
00153     const stdair::NonRefundableRatio_T lNonRefundable (0.5);
00154     const stdair::Disutility_T lNonRefundableDisutility (50);
00155
00156
00157     // Delegate the call to the dedicated command
00158     DemandStream& lDemandStream =
00159       createDemandStream (ioSEVMGR_ServicePtr, lDemandStreamKey, lDTDProbDist,
00160                           lPOSProbDist, lChannelProbDist, lTripProbDist,
00161                           lStayProbDist, lFFProbDist,
00162                           lChangeFees, lChangeFeeDisutility,
00163                           lNonRefundable, lNonRefundableDisutility,
00164                           lPrefDepTimeProbDist,
00165                           lWTP, lTimeValueProbDist, lDemandDistribution,
00166                           ioSharedGenerator.getBaseGenerator(),
00167                           lRequestDateTimeSeed,
00168                           lDemandCharacteristicsSeed, iPOSProbMass);
00169
00170     // Calculate the expected total number of events for the current
00171     // demand stream
00172     const stdair::NbOfRequests_T& lExpectedTotalNbOfEvents =
00173       lDemandStream.getMeanNumberOfRequests();
00174
00178     ioSEVMGR_ServicePtr->addStatus (stdair::EventType::BKG_REQ,
00179                                     lExpectedTotalNbOfEvents);
00180   }
00181
00182   // ////////////////////////////////////////////////////////////////////
00183   DemandStream& DemandManager::createDemandStream
00184   (SEVMGR::SEVMGR_ServicePtr_T ioSEVMGR_ServicePtr,
00185    const DemandStreamKey& iKey,
00186    const ArrivalPatternCumulativeDistribution_T
      & iArrivalPattern,
00187    const POSProbabilityMassFunction_T& iPOSProbMass
      ,
00188    const ChannelProbabilityMassFunction_T&
      iChannelProbMass,
00189    const TripTypeProbabilityMassFunction_T&
      iTripTypeProbMass,
00190    const StayDurationProbabilityMassFunction_T
      & iStayDurationProbMass,
00191    const FrequentFlyerProbabilityMassFunction_T
      & iFrequentFlyerProbMass,
00192    const stdair::ChangeFeesRatio_T& iChangeFeeProb,
00193    const stdair::Disutility_T& iChangeFeeDisutility,
00194    const stdair::NonRefundableRatio_T& iNonRefundableProb,
00195    const stdair::Disutility_T& iNonRefundableDisutility,
00196    const PreferredDepartureTimeContinuousDistribution_T
      & iPreferredDepartureTimeContinuousDistribution,
00197    const stdair::WTP_T& iMinWTP,
00198    const ValueOfTimeContinuousDistribution_T
      & iValueOfTimeContinuousDistribution,
00199    const DemandDistribution& iDemandDistribution,
00200    stdair::BaseGenerator_T&  ioSharedGenerator,
00201    const stdair::RandomSeed_T& iRequestDateTimeSeed,
00202    const stdair::RandomSeed_T& iDemandCharacteristicsSeed,
00203    const POSProbabilityMass_T& iDefaultPOSProbablityMass) {
00204
00205     // Sanity check
00206     assert (ioSEVMGR_ServicePtr != NULL);
00207
00208         //
00209     DemandStream& oDemandStream =
00210       stdair::FacBom<DemandStream>::instance().create (iKey);
00211
00212     oDemandStream.setAll (iArrivalPattern, iPOSProbMass,
00213                           iChannelProbMass, iTripTypeProbMass,
00214                           iStayDurationProbMass, iFrequentFlyerProbMass,
00215                           iChangeFeeProb, iChangeFeeDisutility,
00216                           iNonRefundableProb, iNonRefundableDisutility,
00217                           iPreferredDepartureTimeContinuousDistribution,
00218                           iMinWTP, iValueOfTimeContinuousDistribution,
00219                           iDemandDistribution, ioSharedGenerator,
00220                           iRequestDateTimeSeed, iDemandCharacteristicsSeed,
00221                           iDefaultPOSProbablityMass);
00222
00223     ioSEVMGR_ServicePtr->addEventGenerator (oDemandStream);
00224
00225     return oDemandStream;
00226   }
00227
00228   // ////////////////////////////////////////////////////////////////////
00229   void DemandManager::
00230   createDemandCharacteristics (SEVMGR::SEVMGR_ServicePtr_T ioSEVMGR_ServicePtr,
00231                                stdair::RandomGeneration& ioSharedGenerator,
00232                                const POSProbabilityMass_T&
      iPOSProbMass,
00233                                const DemandStruct& iDemand) {
```

```
00234     // Sanity check
00235     assert (ioSEVMGR_ServicePtr != NULL);
00236
00237     //
00238     stdair::BaseGenerator_T& lSharedGenerator =
00239       ioSharedGenerator.getBaseGenerator();
00240
00241     // Parse the date period and DoW and generate demand characteristics.
00242     const stdair::DatePeriod_T lDateRange = iDemand._dateRange;
00243     for (boost::gregorian::day_iterator itDate = lDateRange.begin();
00244          itDate != lDateRange.end(); ++itDate) {
00245       const stdair::Date_T& currentDate = *itDate;
00246
00247       // Retrieve, for the current day, the Day-Of-the-Week (thanks to Boost)
00248       const unsigned short currentDoW = currentDate.day_of_week().as_number();
00249
00250       // The demand structure stores which Days (-Of-the-Week) are
00251       // active within the week. For each day (Mon., Tue., etc.), a boolean
00252       // states whether the Flight is active for that day.
00253       const stdair::DoWStruct& lDoWList = iDemand._dow;
00254       const bool isDoWActive = lDoWList.getStandardDayOfWeek (currentDoW);
00255
00256       if (isDoWActive == true) {
00257         const DemandStreamKey lDemandStreamKey (iDemand._origin,
00258                                                 iDemand._destination,
00259                                                 currentDate,
00260                                                 iDemand._prefCabin);
00261         // DEBUG
00262         // STDAIR_LOG_DEBUG ("Demand stream key: " <<
      lDemandStreamKey.describe());
00263
00264         //
00265         const DemandDistribution lDemandDistribution (iDemand._demandMean,
00266                                                       iDemand._demandStdDev);
00267
00268         // Seed
00269         const stdair::RandomSeed_T& lRequestDateTimeSeed =
00270           generateSeed (ioSharedGenerator);
00271         const stdair::RandomSeed_T& lDemandCharacteristicsSeed =
00272           generateSeed (ioSharedGenerator);
00273
00274         // Delegate the call to the dedicated command
00275         DemandStream& lDemandStream =
00276           createDemandStream (ioSEVMGR_ServicePtr, lDemandStreamKey,
00277                               iDemand._dtdProbDist, iDemand._posProbDist,
00278                               iDemand._channelProbDist,
00279                               iDemand._tripProbDist,
00280                               iDemand._stayProbDist, iDemand._ffProbDist,
00281                               iDemand._changeFeeProb,
00282                               iDemand._changeFeeDisutility,
00283                               iDemand._nonRefundableProb,
00284                               iDemand._nonRefundableDisutility,
00285                               iDemand._prefDepTimeProbDist,
00286                               iDemand._minWTP,
00287                               iDemand._timeValueProbDist,
00288                               lDemandDistribution, lSharedGenerator,
00289                               lRequestDateTimeSeed,
00290                               lDemandCharacteristicsSeed,
00291                               iPOSProbMass);
00292
00293         // Calculate the expected total number of events for the current
00294         // demand stream
00295         const stdair::NbOfRequests_T& lExpectedTotalNbOfEvents =
00296           lDemandStream.getMeanNumberOfRequests();
00297
00302         ioSEVMGR_ServicePtr->addStatus (stdair::EventType::BKG_REQ,
00303                                         lExpectedTotalNbOfEvents);
00304       }
00305     }
00306   }
00307
00308   // ////////////////////////////////////////////////////////////////////
00309   stdair::RandomSeed_T DemandManager::
00310   generateSeed (stdair::RandomGeneration& ioSharedGenerator) {
00311     stdair::RealNumber_T lVariateUnif = ioSharedGenerator() * 1e9;
00312     stdair::RandomSeed_T oSeed = static_cast<stdair::RandomSeed_T>(lVariateUnif
      );
00313     return oSeed;
00314   }
00315
00316   // ////////////////////////////////////////////////////////////////////
00317   const bool DemandManager::
00318   stillHavingRequestsToBeGenerated (SEVMGR::SEVMGR_ServicePtr_T
      ioSEVMGR_ServicePtr,
00319                                     const stdair::DemandStreamKeyStr_T& iKey,
00320                                     stdair::ProgressStatusSet& ioPSS,
00321                                     const stdair::DemandGenerationMethod&
```

```
      iDemandGenerationMethod) {
00322     // Sanity check
00323     assert (ioSEVMGR_ServicePtr != NULL);
00324
00325     // Retrieve the DemandStream which corresponds to the given key.
00326     const DemandStream& lDemandStream =
00327       ioSEVMGR_ServicePtr->getEventGenerator<DemandStream,
      stdair::DemandStreamKeyStr_T>(iKey);
00328
00329     // Retrieve the progress status of the demand stream.
00330     stdair::ProgressStatus
00331       lProgressStatus (lDemandStream.getNumberOfRequestsGeneratedSoFar(),
00332                        lDemandStream.getMeanNumberOfRequests(),
00333                        lDemandStream.getTotalNumberOfRequestsToBeGenerated());
00334     ioPSS.setSpecificGeneratorStatus (lProgressStatus, iKey);
00335
00336     return lDemandStream.stillHavingRequestsToBeGenerated (
      iDemandGenerationMethod);
00337   }
00338
00339   // ////////////////////////////////////////////////////////////////////
00340   stdair::BookingRequestPtr_T DemandManager::
00341   generateNextRequest (SEVMGR::SEVMGR_ServicePtr_T ioSEVMGR_ServicePtr,
00342                        stdair::RandomGeneration& ioGenerator,
00343                        const stdair::DemandStreamKeyStr_T& iKey,
00344                        const stdair::DemandGenerationMethod&
      iDemandGenerationMethod) {
00345     // Sanity check
00346     assert (ioSEVMGR_ServicePtr != NULL);
00347
00348     // Retrieve the DemandStream which corresponds to the given key.
00349     DemandStream& lDemandStream =
00350       ioSEVMGR_ServicePtr->getEventGenerator<DemandStream,
      stdair::DemandStreamKeyStr_T>(iKey);
00351
00352     // Generate the next booking request
00353     stdair::BookingRequestPtr_T lBookingRequest =
00354       lDemandStream.generateNextRequest (ioGenerator,
00355                                          iDemandGenerationMethod);
00356
00357     const stdair::DateTime_T& lBookingRequestDateTime =
00358       lBookingRequest->getRequestDateTime();
00359     const stdair::Date_T& lBookingRequestDate =
00360       lBookingRequestDateTime.date();
00361     const stdair::Duration_T& lBookingRequestTime =
00362       lBookingRequestDateTime.time_of_day();
00363     const stdair::Date_T& lPreferedDepartureDate =
00364       lBookingRequest->getPreferedDepartureDate();
00365     const stdair::Duration_T& lPreferedDepartureTime =
00366       lBookingRequest->getPreferredDepartureTime();
00367
00368     if ((lPreferedDepartureDate > lBookingRequestDate) ||
00369         (lPreferedDepartureDate == lBookingRequestDate &&
00370          lPreferedDepartureTime > lBookingRequestTime)) {
00371
00372       // Create an event structure
00373       stdair::EventStruct lEventStruct (stdair::EventType::BKG_REQ,
00374                                         lBookingRequest);
00375
00383       ioSEVMGR_ServicePtr->addEvent (lEventStruct);
00384
00385     } else {
00386
00387       // Update the expected number of eventss for the given event type (i.e.,
00388       // booking request)
00389       stdair::Count_T lCurrentBRNumber =
00390         ioSEVMGR_ServicePtr->getActualTotalNumberOfEventsToBeGenerated (
      stdair::EventType::BKG_REQ);
00391       lCurrentBRNumber--;
00392       ioSEVMGR_ServicePtr->updateStatus (stdair::EventType::BKG_REQ,
      lCurrentBRNumber);
00393
00394     }
00395
00396     return lBookingRequest;
00397   }
00398
00399   // ////////////////////////////////////////////////////////////////////
00400   stdair::Count_T DemandManager::
00401   generateFirstRequests (SEVMGR::SEVMGR_ServicePtr_T ioSEVMGR_ServicePtr,
00402                          stdair::RandomGeneration& ioGenerator,
00403                          const stdair::DemandGenerationMethod&
      iDemandGenerationMethod) {
00404     // Sanity check
00405     assert (ioSEVMGR_ServicePtr != NULL);
00406
00407     // Actual total number of events to be generated
```

```
00408     stdair::NbOfRequests_T lActualTotalNbOfEvents = 0.0;
00409
00410     // Retrieve the DemandStream list
00411     const DemandStreamList_T& lDemandStreamList =
00412       ioSEVMGR_ServicePtr->getEventGeneratorList<DemandStream>();
00413
00414     for (DemandStreamList_T::const_iterator itDemandStream =
00415            lDemandStreamList.begin();
00416          itDemandStream != lDemandStreamList.end(); ++itDemandStream) {
00417       DemandStream* lDemandStream_ptr = *itDemandStream;
00418       assert (lDemandStream_ptr != NULL);
00419
00420       lDemandStream_ptr->setBoolFirstDateTimeRequest(true);
00421
00422       // Calculate the expected total number of events for the current
00423       // demand stream
00424       const stdair::NbOfRequests_T& lActualNbOfEvents =
00425         lDemandStream_ptr->getTotalNumberOfRequestsToBeGenerated();
00426       lActualTotalNbOfEvents += lActualNbOfEvents;
00427
00428       // Retrieve the key of the demand stream
00429       const DemandStreamKey& lKey = lDemandStream_ptr->getKey();
00430
00431       // Check whether there are still booking requests to be generated
00432       const bool stillHavingRequestsToBeGenerated =
00433         lDemandStream_ptr->stillHavingRequestsToBeGenerated (
      iDemandGenerationMethod);
00434
00435       if (stillHavingRequestsToBeGenerated) {
00436         // Generate the next event (booking request), and insert it
00437         // into the event queue
00438         generateNextRequest (ioSEVMGR_ServicePtr, ioGenerator,
00439                              lKey.toString(),
00440                              iDemandGenerationMethod);
00441       }
00442     }
00443
00444     // Update the progress status for the given event type (i.e.,
00445     // booking request)
00446     ioSEVMGR_ServicePtr->updateStatus (stdair::EventType::BKG_REQ,
00447                                        lActualTotalNbOfEvents);
00448
00449     // Retrieve the actual total number of events to be generated
00450     const stdair::Count_T oTotalNbOfEvents = std::floor (lActualTotalNbOfEvents
      );
00451
00452     //
00453     return oTotalNbOfEvents;
00454   }
00455
00456   // ////////////////////////////////////////////////////////////////////
00457   void DemandManager::reset (SEVMGR::SEVMGR_ServicePtr_T ioSEVMGR_ServicePtr,
00458                              stdair::BaseGenerator_T& ioShareGenerator) {
00459     // Sanity check
00460     assert (ioSEVMGR_ServicePtr != NULL);
00461
00462     // TODO: check whether it is really necessary to destroy the
00463     // objects manually. Indeed, FacSupervisor::cleanAll() should
00464     // destroy any BOM object.
00465
00466     // Reset all the DemandStream objects
00467     const DemandStreamList_T& lDemandStreamList =
00468       ioSEVMGR_ServicePtr->getEventGeneratorList<DemandStream>();
00469     for (DemandStreamList_T::const_iterator itDS = lDemandStreamList.begin();
00470          itDS != lDemandStreamList.end(); ++itDS) {
00471       DemandStream* lCurrentDS_ptr = *itDS;
00472       assert (lCurrentDS_ptr != NULL);
00473
00474       lCurrentDS_ptr->reset (ioShareGenerator);
00475     }
00476
00484     ioSEVMGR_ServicePtr->reset();
00485   }
00486
00487   // ////////////////////////////////////////////////////////////////////
00488   bool DemandManager::
00489   generateCancellation (stdair::RandomGeneration& ioGenerator,
00490                         const stdair::TravelSolutionStruct& iTravelSolution,
00491                         const stdair::PartySize_T& iPartySize,
00492                         const stdair::DateTime_T& iRequestTime,
00493                         const stdair::Date_T& iDepartureDate,
00494                         stdair::EventStruct& ioEventStruct) {
00495
00496     // Draw a random number to decide if we generate a
00497     // cancellation. For instance, the probability will be hardcoded.
00498     // The cancellation time will be generated uniformly.
00499     double lRandomNumber = ioGenerator();
```

```
00500
00501     if (lRandomNumber >= 0.05) {
00502       return false;
00503     }
00504     lRandomNumber /= 0.05;
00505
00506     // Hardcode the latest cancellation time.
00507     const stdair::Time_T lMidNight =
00508       boost::posix_time::hours (0);
00509     const stdair::DateTime_T lDepartureDateTime =
00510       boost::posix_time::ptime (iDepartureDate, lMidNight);
00511
00512     // Time to departure.
00513     const stdair::Duration_T lTimeToDeparture = lDepartureDateTime-iRequestTime
      ;
00514
00515     // Cancellation time to departure
00516     const long lTimeToDepartureInSeconds = lTimeToDeparture.total_seconds();
00517     const long lCancellationTimeToDepartureInSeconds =
00518       static_cast<long> (lTimeToDepartureInSeconds * lRandomNumber);
00519     const stdair::Duration_T lCancellationTimeToDeparture (0, 0,
      lCancellationTimeToDepartureInSeconds);
00520
00521     // Cancellation time
00522     const stdair::DateTime_T lCancellationTime =
00523       lDepartureDateTime - lCancellationTimeToDeparture;
00524     const stdair::Duration_T lTimeBetweenCancellationAndTheRequest =
00525       lCancellationTime - iRequestTime;
00526
00527     if (lTimeBetweenCancellationAndTheRequest.is_negative() == true) {
00528       return false;
00529     }
00530
00531     // Build the list of Class ID's.
00532     stdair::BookingClassIDList_T lClassIDList;
00533
00534     const stdair::ClassObjectIDMapHolder_T& lClassObjectIDMapHolder =
00535       iTravelSolution.getClassObjectIDMapHolder();
00536     const stdair::FareOptionStruct& lChosenFareOption =
00537       iTravelSolution.getChosenFareOption ();
00538     const stdair::ClassList_StringList_T& lClassPath =
00539       lChosenFareOption.getClassPath();
00540     const stdair::SegmentPath_T& lSegmentPath =
00541       iTravelSolution.getSegmentPath();
00542     stdair::ClassList_StringList_T::const_iterator itClassKeyList =
00543       lClassPath.begin();
00544     for (stdair::ClassObjectIDMapHolder_T::const_iterator itClassObjectIDMap =
00545            lClassObjectIDMapHolder.begin();
00546          itClassObjectIDMap != lClassObjectIDMapHolder.end();
00547          ++itClassObjectIDMap, ++itClassKeyList) {
00548       const stdair::ClassObjectIDMap_T& lClassObjectIDMap = *itClassObjectIDMap
      ;
00549
00550       // TODO: Remove this hard-coded part.
00551       std::ostringstream ostr;
00552       const stdair::ClassList_String_T& lClassList = *itClassKeyList;
00553       assert (lClassList.empty() == false);
00554
00555       ostr << lClassList.at(0);
00556       const stdair::ClassCode_T lClassCode (ostr.str());
00557
00558       stdair::ClassObjectIDMap_T::const_iterator itClassID =
00559         lClassObjectIDMap.find (lClassCode);
00560       assert (itClassID != lClassObjectIDMap.end());
00561       const stdair::BookingClassID_T& lClassID = itClassID->second;
00562
00563       lClassIDList.push_back (lClassID);
00564
00565
00566     }
00567
00568     // Create the cancellation.
00569     stdair::CancellationStruct lCancellationStruct (lSegmentPath,
00570                                                     lClassIDList,
00571                                                     iPartySize,
00572                                                     lCancellationTime);
00573
00574     stdair::CancellationPtr_T lCancellation_ptr =
00575       boost::make_shared<stdair::CancellationStruct> (lCancellationStruct);
00576
00577     // Create an event structure
00578     stdair::EventStruct lEventStruct (stdair::EventType::CX, lCancellation_ptr)
      ;
00579     ioEventStruct = lEventStruct;
00580
00581     return true;
00582   }
```

```
00583
00584   // ////////////////////////////////////////////////////////////////////
00585   void DemandManager::
00586   buildSampleBom (SEVMGR::SEVMGR_ServicePtr_T ioSEVMGR_ServicePtr,
00587                   stdair::RandomGeneration& ioSharedGenerator,
00588                   const POSProbabilityMass_T& iPOSProbMass)
       {
00589     // Sanity check
00590     assert (ioSEVMGR_ServicePtr != NULL);
00591
00592     //
00593     ArrivalPatternCumulativeDistribution_T
       lDTDProbDist;
00594     lDTDProbDist.insert(ArrivalPatternCumulativeDistribution_T::value_type(-330
       ,
00595                                                                             0));
00596     lDTDProbDist.insert(ArrivalPatternCumulativeDistribution_T::value_type(-150
       ,
00597                                                                             0.1)
       );
00598     lDTDProbDist.insert(ArrivalPatternCumulativeDistribution_T::value_type(-92,
00599                                                                             0.2)
       );
00600     lDTDProbDist.insert(ArrivalPatternCumulativeDistribution_T::value_type(-55,
00601                                                                             0.3)
       );
00602     lDTDProbDist.insert(ArrivalPatternCumulativeDistribution_T::value_type(-34,
00603                                                                             0.4)
       );
00604     lDTDProbDist.insert(ArrivalPatternCumulativeDistribution_T::value_type(-21,
00605                                                                             0.5)
       );
00606     lDTDProbDist.insert(ArrivalPatternCumulativeDistribution_T::value_type(-12,
00607                                                                             0.6)
       );
00608     lDTDProbDist.insert(ArrivalPatternCumulativeDistribution_T::value_type(-6,
00609                                                                             0.7)
       );
00610     lDTDProbDist.insert(ArrivalPatternCumulativeDistribution_T::value_type(-3,
00611                                                                             0.8)
       );
00612     lDTDProbDist.insert(ArrivalPatternCumulativeDistribution_T::value_type(-1,
00613                                                                             0.9)
       );
00614     lDTDProbDist.insert(ArrivalPatternCumulativeDistribution_T::value_type(0,
00615                                                                             1.0)
       );
00616
00617     //
00618     ChannelProbabilityMassFunction_T
       lChannelProbDist;
00619     lChannelProbDist.insert (ChannelProbabilityMassFunction_T::value_type ("DF"
       ,
00620                                                                             0.0)
       );
00621     lChannelProbDist.insert (ChannelProbabilityMassFunction_T::value_type ("DN"
       ,
00622                                                                             0.0)
       );
00623     lChannelProbDist.insert (ChannelProbabilityMassFunction_T::value_type ("IF"
       ,
00624                                                                             0.0)
       );
00625     lChannelProbDist.insert (ChannelProbabilityMassFunction_T::value_type ("IN"
       ,
00626                                                                             1.0)
       );
00627
00628     //
00629     TripTypeProbabilityMassFunction_T
       lTripProbDist;
00630     lTripProbDist.insert (TripTypeProbabilityMassFunction_T::value_type ("RO",
00631                                                                           0.0));
00632     lTripProbDist.insert (TripTypeProbabilityMassFunction_T::value_type ("RI",
00633                                                                           0.0));
00634     lTripProbDist.insert (TripTypeProbabilityMassFunction_T::value_type ("OW",
00635                                                                           1.0));
00636
00637     //
00638     StayDurationProbabilityMassFunction_T
       lStayProbDist;
00639     lStayProbDist.insert(StayDurationProbabilityMassFunction_T::value_type(0,
00640                                                                             0.1)
       );
00641     lStayProbDist.insert(StayDurationProbabilityMassFunction_T::value_type(1,
00642                                                                             0.1)
       );
```

```
00643     lStayProbDist.insert(StayDurationProbabilityMassFunction_T::value_type(2,
00644                                                                             .15)
      );
00645     lStayProbDist.insert(StayDurationProbabilityMassFunction_T::value_type(3,
00646                                                                             .15)
      );
00647     lStayProbDist.insert(StayDurationProbabilityMassFunction_T::value_type(4,
00648                                                                             .15)
      );
00649     lStayProbDist.insert(StayDurationProbabilityMassFunction_T::value_type(5,
00650                                                                             .35)
      );
00651
00652     //
00653     FrequentFlyerProbabilityMassFunction_T
       lFFProbDist;
00654     lFFProbDist.insert(FrequentFlyerProbabilityMassFunction_T::value_type("P",
00655                                                                           0.1))
      ;
00656     lFFProbDist.insert(FrequentFlyerProbabilityMassFunction_T::value_type("G",
00657                                                                           0.01)
      );
00658     lFFProbDist.insert(FrequentFlyerProbabilityMassFunction_T::value_type("S",
00659                                                                           0.09)
      );
00660     lFFProbDist.insert(FrequentFlyerProbabilityMassFunction_T::value_type("M",
00661                                                                           0.4))
      ;
00662     lFFProbDist.insert(FrequentFlyerProbabilityMassFunction_T::value_type("N",
00663                                                                           0.4))
      ;
00664
00665     //
00666     ValueOfTimeContinuousDistribution_T
      lTimeValueProbDist;
00667     lTimeValueProbDist.insert(ValueOfTimeContinuousDistribution_T::value_type(1
      5,
00668                                                                               0
      ));
00669     lTimeValueProbDist.insert(ValueOfTimeContinuousDistribution_T::value_type(6
      0,
00670                                                                               1
      ));
00671
00672     /*
      ============================================================================*/
00673
00674     // Key of the demand stream
00675     const stdair::AirportCode_T lSINOrigin ("SIN");
00676     const stdair::AirportCode_T lBKKDestination ("BKK");
00677     const stdair::Date_T lDepDate (2010, 2, 8);
00678     const stdair::CabinCode_T lCabin ("Y");
00679
00680     //
00681     const DemandStreamKey lSINBKKDemandStreamKey (lSINOrigin, lBKKDestination,
      lDepDate,
00682                                                   lCabin);
00683
00684     // DEBUG
00685     // STDAIR_LOG_DEBUG ("Demand stream key: " << lDemandStreamKey.describe());
00686
00687     // Distribution for the number of requests
00688     const stdair::MeanValue_T lSINBKKDemandMean (60.0);
00689     const stdair::StdDevValue_T lSINBKKDemandStdDev (4.0);
00690     const DemandDistribution lSINBKKDemandDistribution (lSINBKKDemandMean,
      lSINBKKDemandStdDev);
00691
00692     // Seed
00693     const stdair::RandomSeed_T& lSINBKKRequestDateTimeSeed =
00694       generateSeed (ioSharedGenerator);
00695     const stdair::RandomSeed_T& lSINBKKDemandCharacteristicsSeed =
00696       generateSeed (ioSharedGenerator);
00697
00698
00699     //
00700     POSProbabilityMassFunction_T lSINBKKPOSProbDist
      ;
00701     lSINBKKPOSProbDist.insert (POSProbabilityMassFunction_T::value_type ("SIN",
       1.0));
00702     lSINBKKPOSProbDist.insert (POSProbabilityMassFunction_T::value_type ("BKK",
       0.0));
00703
00704     //
00705     PreferredDepartureTimeContinuousDistribution_T
       lSINPrefDepTimeProbDist;
00706     lSINPrefDepTimeProbDist.
00707       insert (PreferredDepartureTimeContinuousDistribution_T::value_type (6 *
```

```
      stdair::HOUR_CONVERTED_IN_SECONDS, 0));
00708     lSINPrefDepTimeProbDist.
00709       insert (PreferredDepartureTimeContinuousDistribution_T::value_type (8 *
      stdair::HOUR_CONVERTED_IN_SECONDS,
00710                                                                            0.7))
      ;
00711     lSINPrefDepTimeProbDist.
00712       insert (PreferredDepartureTimeContinuousDistribution_T::value_type (10 *
      stdair::HOUR_CONVERTED_IN_SECONDS,
00713                                                                            0.8))
      ;
00714     lSINPrefDepTimeProbDist.
00715       insert (PreferredDepartureTimeContinuousDistribution_T::value_type (12 *
      stdair::HOUR_CONVERTED_IN_SECONDS,
00716                                                                            0.9))
      ;
00717     lSINPrefDepTimeProbDist.
00718       insert (PreferredDepartureTimeContinuousDistribution_T::value_type (14 *
      stdair::HOUR_CONVERTED_IN_SECONDS,
00719                                                                            1.0))
      ;
00720
00721     //
00722     const stdair::WTP_T lSINBKKWTP (400.0);
00723     const stdair::ChangeFeesRatio_T lChangeFees (0.5);
00724     const stdair::Disutility_T lChangeFeeDisutility (50);
00725     const stdair::NonRefundableRatio_T lNonRefundable (0.5);
00726     const stdair::Disutility_T lNonRefundableDisutility (50);
00727
00728
00729     // Delegate the call to the dedicated command
00730     DemandStream& lSINBKKDemandStream =
00731       createDemandStream (ioSEVMGR_ServicePtr, lSINBKKDemandStreamKey,
      lDTDProbDist,
00732                           lSINBKKPOSProbDist, lChannelProbDist, lTripProbDist,
00733                           lStayProbDist, lFFProbDist,
00734                           lChangeFees, lChangeFeeDisutility,
00735                           lNonRefundable, lNonRefundableDisutility,
00736                           lSINPrefDepTimeProbDist,
00737                           lSINBKKWTP, lTimeValueProbDist,
00738                           lSINBKKDemandDistribution,
00739                           ioSharedGenerator.getBaseGenerator(),
00740                           lSINBKKRequestDateTimeSeed,
00741                           lSINBKKDemandCharacteristicsSeed, iPOSProbMass);
00742
00743     // Calculate the expected total number of events for the current
00744     // demand stream
00745     const stdair::NbOfRequests_T& lSINBKKExpectedNbOfEvents =
00746       lSINBKKDemandStream.getMeanNumberOfRequests();
00747
00748     /*
      ============================================================================*/
00749
00750     // Key of the demand stream
00751     const stdair::AirportCode_T lBKKOrigin ("BKK");
00752     const stdair::AirportCode_T lHKGDestination ("HKG");
00753
00754     //
00755     const DemandStreamKey lBKKHKGDemandStreamKey (lBKKOrigin, lHKGDestination,
      lDepDate,
00756                                                   lCabin);
00757
00758     // DEBUG
00759     // STDAIR_LOG_DEBUG ("Demand stream key: " << lDemandStreamKey.describe());
00760
00761     // Distribution for the number of requests
00762     const stdair::MeanValue_T lBKKHKGDemandMean (60.0);
00763     const stdair::StdDevValue_T lBKKHKGDemandStdDev (4.0);
00764     const DemandDistribution lBKKHKGDemandDistribution (lBKKHKGDemandMean,
      lBKKHKGDemandStdDev);
00765
00766     // Seed
00767     const stdair::RandomSeed_T& lBKKHKGRequestDateTimeSeed =
00768       generateSeed (ioSharedGenerator);
00769     const stdair::RandomSeed_T& lBKKHKGDemandCharacteristicsSeed =
00770       generateSeed (ioSharedGenerator);
00771
00772
00773     //
00774     POSProbabilityMassFunction_T lBKKHKGPOSProbDist
      ;
00775     lBKKHKGPOSProbDist.insert (POSProbabilityMassFunction_T::value_type ("BKK",
       1.0));
00776     lBKKHKGPOSProbDist.insert (POSProbabilityMassFunction_T::value_type ("HKG",
       0.0));
00777
00778     //
```

```
00779     PreferredDepartureTimeContinuousDistribution_T
       lBKKPrefDepTimeProbDist;
00780     lBKKPrefDepTimeProbDist.
00781       insert (PreferredDepartureTimeContinuousDistribution_T::value_type (8 *
      stdair::HOUR_CONVERTED_IN_SECONDS, 0));
00782     lBKKPrefDepTimeProbDist.
00783       insert (PreferredDepartureTimeContinuousDistribution_T::value_type (10 *
      stdair::HOUR_CONVERTED_IN_SECONDS,
00784                                                                           0.2))
      ;
00785     lBKKPrefDepTimeProbDist.
00786       insert (PreferredDepartureTimeContinuousDistribution_T::value_type (1 *
      stdair::HOUR_CONVERTED_IN_SECONDS,
00787                                                                           0.6))
      ;
00788     lBKKPrefDepTimeProbDist.
00789       insert (PreferredDepartureTimeContinuousDistribution_T::value_type (14 *
      stdair::HOUR_CONVERTED_IN_SECONDS,
00790                                                                           0.8))
      ;
00791     lBKKPrefDepTimeProbDist.
00792       insert (PreferredDepartureTimeContinuousDistribution_T::value_type (16 *
      stdair::HOUR_CONVERTED_IN_SECONDS,
00793                                                                           1.0))
      ;
00794
00795     //
00796     const stdair::WTP_T lBKKHKGWTP (400.0);
00797
00798
00799     // Delegate the call to the dedicated command
00800     DemandStream& lBKKHKGDemandStream =
00801       createDemandStream (ioSEVMGR_ServicePtr, lBKKHKGDemandStreamKey,
      lDTDProbDist,
00802                           lBKKHKGPOSProbDist, lChannelProbDist, lTripProbDist,
00803                           lStayProbDist, lFFProbDist,
00804                           lChangeFees, lChangeFeeDisutility,
00805                           lNonRefundable, lNonRefundableDisutility,
00806                           lBKKPrefDepTimeProbDist,
00807                           lBKKHKGWTP, lTimeValueProbDist,
00808                           lBKKHKGDemandDistribution,
00809                           ioSharedGenerator.getBaseGenerator(),
00810                           lBKKHKGRequestDateTimeSeed,
00811                           lBKKHKGDemandCharacteristicsSeed, iPOSProbMass);
00812
00813     // Calculate the expected total number of events for the current
00814     // demand stream
00815     const stdair::NbOfRequests_T& lBKKHKGExpectedNbOfEvents =
00816       lBKKHKGDemandStream.getMeanNumberOfRequests();
00817
00818     /*
      ============================================================================*/
00819
00820     // Key of the demand stream
00821
00822     //
00823     const DemandStreamKey lSINHKGDemandStreamKey (lSINOrigin, lHKGDestination,
      lDepDate,
00824                                                   lCabin);
00825
00826     // DEBUG
00827     // STDAIR_LOG_DEBUG ("Demand stream key: " << lDemandStreamKey.describe());
00828
00829     // Distribution for the number of requests
00830     const stdair::MeanValue_T lSINHKGDemandMean (60.0);
00831     const stdair::StdDevValue_T lSINHKGDemandStdDev (4.0);
00832     const DemandDistribution lSINHKGDemandDistribution (lSINHKGDemandMean,
      lSINHKGDemandStdDev);
00833
00834     // Seed
00835     const stdair::RandomSeed_T& lSINHKGRequestDateTimeSeed =
00836       generateSeed (ioSharedGenerator);
00837     const stdair::RandomSeed_T& lSINHKGDemandCharacteristicsSeed =
00838       generateSeed (ioSharedGenerator);
00839
00840
00841     //
00842     POSProbabilityMassFunction_T lSINHKGPOSProbDist
      ;
00843     lSINHKGPOSProbDist.insert (POSProbabilityMassFunction_T::value_type ("SIN",
       1.0));
00844     lSINHKGPOSProbDist.insert (POSProbabilityMassFunction_T::value_type ("HKG",
       0.0));
00845
00846     //
00847     const stdair::WTP_T lSINHKGWTP (750.0);
00848
```

```
00849
00850     // Delegate the call to the dedicated command
00851     DemandStream& lSINHKGDemandStream =
00852       createDemandStream (ioSEVMGR_ServicePtr, lSINHKGDemandStreamKey,
      lDTDProbDist,
00853                           lSINHKGPOSProbDist, lChannelProbDist, lTripProbDist,
00854                           lStayProbDist, lFFProbDist,
00855                           lChangeFees, lChangeFeeDisutility,
00856                           lNonRefundable, lNonRefundableDisutility,
00857                           lSINPrefDepTimeProbDist,
00858                           lSINHKGWTP, lTimeValueProbDist,
      lSINHKGDemandDistribution,
00859                           ioSharedGenerator.getBaseGenerator(),
00860                           lSINHKGRequestDateTimeSeed,
00861                           lSINHKGDemandCharacteristicsSeed, iPOSProbMass);
00862
00863     // Calculate the expected total number of events for the current
00864     // demand stream
00865     const stdair::NbOfRequests_T& lSINHKGExpectedNbOfEvents =
00866       lSINHKGDemandStream.getMeanNumberOfRequests();
00867
00868     /*
      ============================================================================*/
00869
00873     const stdair::NbOfRequests_T lExpectedTotalNbOfEvents =
00874       lSINBKKExpectedNbOfEvents + lBKKHKGExpectedNbOfEvents +
      lSINHKGExpectedNbOfEvents;
00875     ioSEVMGR_ServicePtr->addStatus (stdair::EventType::BKG_REQ,
00876                                     lExpectedTotalNbOfEvents);
00877   }
00878
00879 }
00880
```

23.83 trademgen/command/DemandManager.hpp File Reference

```
#include <stdair/stdair_basic_types.hpp>
#include <stdair/basic/RandomGeneration.hpp>
#include <stdair/basic/DemandGenerationMethod.hpp>
#include <stdair/bom/BookingRequestTypes.hpp>
#include <stdair/command/CmdAbstract.hpp>
#include <sevmgr/SEVMGR_Types.hpp>
#include <trademgen/TRADEMGEN_Types.hpp>
#include <trademgen/basic/DemandCharacteristicsTypes.hpp>
#include <trademgen/bom/DemandStreamKey.hpp>
```

Classes

- class TRADEMGEN::DemandManager

  Utility class for Demand and DemandStream objects.

Namespaces

- namespace stdair

  Forward declarations.
- namespace TRADEMGEN
- namespace TRADEMGEN::DemandParserHelper

23.84 DemandManager.hpp

```
00001 #ifndef __TRADEMGEN_CMD_DEMANDMANAGER_HPP
00002 #define __TRADEMGEN_CMD_DEMANDMANAGER_HPP
00003
00004 // //////////////////////////////////////////////////////////////////
00005 // Import section
00006 // //////////////////////////////////////////////////////////////////
```

```
00007 // StdAir
00008 #include <stdair/stdair_basic_types.hpp>
00009 #include <stdair/basic/RandomGeneration.hpp>
00010 #include <stdair/basic/DemandGenerationMethod.hpp>
00011 #include <stdair/bom/BookingRequestTypes.hpp>
00012 #include <stdair/command/CmdAbstract.hpp>
00013 // SEvMgr
00014 #include <sevmgr/SEVMGR_Types.hpp>
00015 // TraDemGen
00016 #include <trademgen/TRADEMGEN_Types.hpp>
00017 #include <trademgen/basic/DemandCharacteristicsTypes.hpp
      >
00018 #include <trademgen/bom/DemandStreamKey.hpp>
00019
00020 // Forward declarations
00021 namespace stdair {
00022   class EventStruct;
00023   struct ProgressStatusSet;
00024   struct TravelSolutionStruct;
00025 }
00026
00027 namespace TRADEMGEN {
00028
00029   // Forward declarations
00030   struct DemandDistribution;
00031   struct DemandStruct;
00032   class DemandStream;
00033   namespace DemandParserHelper {
00034     struct doEndDemand;
00035   }
00036
00040   class DemandManager : public stdair::CmdAbstract {
00041     friend struct DemandParserHelper::doEndDemand
      ;
00042     friend class TRADEMGEN_Service;
00043
00044   private:
00045     // //////// Business methodes //////////
00125     static void buildSampleBomStd (SEVMGR::SEVMGR_ServicePtr_T,
00126                                    stdair::RandomGeneration&,
00127                                    const POSProbabilityMass_T
      &);
00128
00129     // Demand sample bom for partnerships study.
00130     static void buildSampleBom (SEVMGR::SEVMGR_ServicePtr_T,
00131                                 stdair::RandomGeneration&,
00132                                 const POSProbabilityMass_T&
      );
00133
00143     static void createDemandCharacteristics (SEVMGR::SEVMGR_ServicePtr_T,
00144                                              stdair::RandomGeneration&,
00145                                              const POSProbabilityMass_T
      &,
00146                                              const DemandStruct&);
00147
00155     static stdair::RandomSeed_T generateSeed (stdair::RandomGeneration&);
00156
00177     static DemandStream&
00178     createDemandStream (SEVMGR::SEVMGR_ServicePtr_T,
00179                         const DemandStreamKey&,
00180                         const ArrivalPatternCumulativeDistribution_T
      &,
00181                         const POSProbabilityMassFunction_T
      &,
00182                         const ChannelProbabilityMassFunction_T
      &,
00183                         const TripTypeProbabilityMassFunction_T
      &,
00184                         const StayDurationProbabilityMassFunction_T
      &,
00185                         const FrequentFlyerProbabilityMassFunction_T
      &,
00186                         const stdair::ChangeFeesRatio_T&,
00187                         const stdair::Disutility_T&,
00188                         const stdair::NonRefundableRatio_T&,
00189                         const stdair::Disutility_T&,
00190                         const PreferredDepartureTimeContinuousDistribution_T
      &,
00191                         const stdair::WTP_T&,
00192                         const ValueOfTimeContinuousDistribution_T
      &,
00193                         const DemandDistribution&,
      stdair::BaseGenerator_T&,
00194                         const stdair::RandomSeed_T&,
00195                         const stdair::RandomSeed_T&,
00196                         const POSProbabilityMass_T&);
00197
```

```
00215     static const bool
00216     stillHavingRequestsToBeGenerated (SEVMGR::SEVMGR_ServicePtr_T,
00217                                       const stdair::DemandStreamKeyStr_T&,
00218                                       stdair::ProgressStatusSet&,
00219                                       const stdair::DemandGenerationMethod&);
00220
00236     static stdair::Count_T generateFirstRequests (SEVMGR::SEVMGR_ServicePtr_T,
00237                                                   stdair::RandomGeneration&,
00238                                                   const
      stdair::DemandGenerationMethod&);
00239
00268     static stdair::BookingRequestPtr_T
00269     generateNextRequest (SEVMGR::SEVMGR_ServicePtr_T, stdair::RandomGeneration&
     ,
00270                          const stdair::DemandStreamKeyStr_T&,
00271                          const stdair::DemandGenerationMethod&);
00272
00282     static void reset (SEVMGR::SEVMGR_ServicePtr_T, stdair::BaseGenerator_T&);
00283
00287     static bool generateCancellation (stdair::RandomGeneration&,
00288                                       const stdair::TravelSolutionStruct&,
00289                                       const stdair::PartySize_T&,
00290                                       const stdair::DateTime_T&,
00291                                       const stdair::Date_T&,
00292                                       stdair::EventStruct& ioEventStruct);
00293   };
00294
00295 }
00296 #endif // __TRADEMGEN_CMD_DEMANDMANAGER_HPP
```

23.85 trademgen/command/DemandParser.cpp File Reference

```
#include <cassert>
#include <stdair/basic/BasFileMgr.hpp>
#include <stdair/basic/RandomGeneration.hpp>
#include <stdair/bom/Inventory.hpp>
#include <trademgen/command/DemandParserHelper.hpp>
#include <trademgen/command/DemandParser.hpp>
```

Namespaces

- namespace TRADEMGEN

23.86 DemandParser.cpp

```
00001 // ////////////////////////////////////////////////////////////////////
00002 // Import section
00003 // ////////////////////////////////////////////////////////////////////
00004 // STL
00005 #include <cassert>
00006 // StdAir
00007 #include <stdair/basic/BasFileMgr.hpp>
00008 #include <stdair/basic/RandomGeneration.hpp>
00009 #include <stdair/bom/Inventory.hpp>
00010 // TraDemGen
00011 #include <trademgen/command/DemandParserHelper.hpp
      >
00012 #include <trademgen/command/DemandParser.hpp>
00013
00014 namespace TRADEMGEN {
00015
00016   // ////////////////////////////////////////////////////////////////////
00017   void DemandParser::
00018   generateDemand (const DemandFilePath&
      iDemandFilename,
00019                   SEVMGR::SEVMGR_ServicePtr_T ioSEVMGR_ServicePtr,
00020                   stdair::RandomGeneration& ioSharedGenerator,
00021                   const POSProbabilityMass_T&
      iDefaultPOSProbablityMass) {
00022
00023     const stdair::Filename_T lFilename = iDemandFilename.name();
00024
00025     // Check that the file path given as input corresponds to an actual file
00026     const bool doesExistAndIsReadable =
```

```
00027       stdair::BasFileMgr::doesExistAndIsReadable (lFilename);
00028     if (doesExistAndIsReadable == false) {
00029       STDAIR_LOG_ERROR ("The demand input file '" << lFilename
00030                         << "' does not exist or can not be read");
00031
00032       throw DemandInputFileNotFoundException ("
      The demand file '" + lFilename
00033                                               + "' does not exist or can not "
00034                                               "be read");
00035     }
00036
00037     // Initialise the demand file parser.
00038     DemandFileParser lDemandParser (ioSEVMGR_ServicePtr,
      ioSharedGenerator,
00039                                     iDefaultPOSProbablityMass, lFilename);
00040
00041     // Parse the CSV-formatted demand input file, and generate the
00042     // corresponding DemandCharacteristic objects.
00043     lDemandParser.generateDemand();
00044   }
00045
00046 }
```

23.87 trademgen/command/DemandParser.hpp File Reference

```
#include <string>
#include <stdair/stdair_basic_types.hpp>
#include <stdair/command/CmdAbstract.hpp>
#include <sevmgr/SEVMGR_Types.hpp>
#include <trademgen/TRADEMGEN_Types.hpp>
#include <trademgen/basic/DemandCharacteristicsTypes.hpp>
```

Classes

- class TRADEMGEN::DemandParser

  Class wrapping the parser entry point.

Namespaces

- namespace stdair

  Forward declarations.
- namespace TRADEMGEN

23.88 DemandParser.hpp

```
00001 #ifndef __TRADEMGEN_CMD_DEMANDPARSER_HPP
00002 #define __TRADEMGEN_CMD_DEMANDPARSER_HPP
00003
00004 // //////////////////////////////////////////////////////////////////
00005 // Import section
00006 // //////////////////////////////////////////////////////////////////
00007 // STL
00008 #include <string>
00009 // StdAir
00010 #include <stdair/stdair_basic_types.hpp>
00011 #include <stdair/command/CmdAbstract.hpp>
00012 // SEvMgr
00013 #include <sevmgr/SEVMGR_Types.hpp>
00014 // TraDemGen
00015 #include <trademgen/TRADEMGEN_Types.hpp>
00016 #include <trademgen/basic/DemandCharacteristicsTypes.hpp
      >
00017
00019 namespace stdair {
00020   struct RandomGeneration;
00021 }
00022
00023 namespace TRADEMGEN {
00024
```

```
00028   class DemandParser : public stdair::CmdAbstract {
00029   public:
00043     static void generateDemand (const DemandFilePath
      &,
00044                                 SEVMGR::SEVMGR_ServicePtr_T,
00045                                 stdair::RandomGeneration&,
00046                                 const POSProbabilityMass_T&
      );
00047   };
00048 }
00049 #endif // __TRADEMGEN_CMD_DEMANDPARSER_HPP
```

23.89 trademgen/command/DemandParserHelper.cpp File Reference

```
#include <cassert>
#include <stdair/basic/RandomGeneration.hpp>
#include <stdair/basic/BasFileMgr.hpp>
#include <stdair/service/Logger.hpp>
#include <trademgen/basic/DemandCharacteristicsTypes.hpp>
#include <trademgen/command/DemandParserHelper.hpp>
#include <trademgen/command/DemandManager.hpp>
```

Namespaces

- namespace TRADEMGEN
- namespace TRADEMGEN::DemandParserHelper

Functions

- repeat_p_t TRADEMGEN::DemandParserHelper::airline_code_p (chset_t("0-9A-Z").derived(), 2, 3)
- bounded1_4_p_t TRADEMGEN::DemandParserHelper::flight_number_p (uint1_4_p.derived(), 0u, 9999u)
- bounded4_p_t TRADEMGEN::DemandParserHelper::year_p (uint4_p.derived(), 2000u, 2099u)
- bounded2_p_t TRADEMGEN::DemandParserHelper::month_p (uint2_p.derived(), 1u, 12u)
- bounded2_p_t TRADEMGEN::DemandParserHelper::day_p (uint2_p.derived(), 1u, 31u)
- repeat_p_t TRADEMGEN::DemandParserHelper::dow_p (chset_t("0-1").derived().derived(), 7, 7)
- repeat_p_t TRADEMGEN::DemandParserHelper::airport_p (chset_t("0-9A-Z").derived(), 3, 3)
- bounded1_2_p_t TRADEMGEN::DemandParserHelper::hours_p (uint1_2_p.derived(), 0u, 23u)
- bounded2_p_t TRADEMGEN::DemandParserHelper::minutes_p (uint2_p.derived(), 0u, 59u)
- bounded2_p_t TRADEMGEN::DemandParserHelper::seconds_p (uint2_p.derived(), 0u, 59u)
- chset_t TRADEMGEN::DemandParserHelper::cabin_code_p ("A-Z")
- chset_t TRADEMGEN::DemandParserHelper::passenger_type_p ("A-Z")
- chset_t TRADEMGEN::DemandParserHelper::ff_type_p ("A-Z")
- repeat_p_t TRADEMGEN::DemandParserHelper::class_code_list_p (chset_t("A-Z").derived(), 1, 26)
- bounded1_3_p_t TRADEMGEN::DemandParserHelper::stay_duration_p (uint1_3_p.derived(), 0u, 999u)

Variables

- int1_p_t TRADEMGEN::DemandParserHelper::int1_p
- uint2_p_t TRADEMGEN::DemandParserHelper::uint2_p
- uint1_2_p_t TRADEMGEN::DemandParserHelper::uint1_2_p
- uint1_3_p_t TRADEMGEN::DemandParserHelper::uint1_3_p
- uint4_p_t TRADEMGEN::DemandParserHelper::uint4_p
- uint1_4_p_t TRADEMGEN::DemandParserHelper::uint1_4_p
- int1_p_t TRADEMGEN::DemandParserHelper::family_code_p

23.90 DemandParserHelper.cpp

```
00001 // //////////////////////////////////////////////////////////////////////
00002 // Import section
00003 // //////////////////////////////////////////////////////////////////////
00004 // STL
00005 #include <cassert>
00006 // StdAir
00007 #include <stdair/basic/RandomGeneration.hpp>
00008 #include <stdair/basic/BasFileMgr.hpp>
00009 #include <stdair/service/Logger.hpp>
00010 // TraDemGen
00011 #include <trademgen/basic/DemandCharacteristicsTypes.hpp
      >
00012 //#define BOOST_SPIRIT_DEBUG
00013 #include <trademgen/command/DemandParserHelper.hpp
      >
00014 #include <trademgen/command/DemandManager.hpp
      >
00015
00016 namespace bsc = boost::spirit::classic;
00017
00018 namespace TRADEMGEN {
00019
00020   namespace DemandParserHelper {
00021
00022     // //////////////////////////////////////////////////////////////////
00023     //  Semantic actions
00024     // //////////////////////////////////////////////////////////////////
00025
00026     ParserSemanticAction::ParserSemanticAction
       (DemandStruct& ioDemand)
00027       : _demand (ioDemand) {
00028     }
00029
00030     // //////////////////////////////////////////////////////////////////
00031     storePrefDepDateRangeStart::
00032     storePrefDepDateRangeStart (DemandStruct
      & ioDemand)
00033       : ParserSemanticAction (ioDemand) {
00034     }
00035
00036     // //////////////////////////////////////////////////////////////////
00037     void storePrefDepDateRangeStart::operator()
      (iterator_t iStr,
00038                                          iterator_t iStrEnd) const {
00039       _demand._prefDepDateStart = _demand.
      getDate();
00040
00041       // Reset the number of seconds
00042       _demand._itSeconds = 0;
00043     }
00044
00045     // //////////////////////////////////////////////////////////////////
00046     storePrefDepDateRangeEnd::
00047     storePrefDepDateRangeEnd (DemandStruct
      & ioDemand)
00048       : ParserSemanticAction (ioDemand) {
00049     }
00050
00051     // //////////////////////////////////////////////////////////////////
00052     void storePrefDepDateRangeEnd::operator()
      (iterator_t iStr,
00053                                        iterator_t iStrEnd) const {
00054       // As a Boost date period (DatePeriod_T) defines the last day of
00055       // the period to be end-date - one day, we have to add one day to that
00056       // end date before.
00057       const stdair::DateOffset_T oneDay (1);
00058       _demand._prefDepDateEnd = _demand.getDate
      () + oneDay;
00059
00060       // Transform the date pair (i.e., the date range) into a date period
00061       _demand._dateRange =
00062         stdair::DatePeriod_T (_demand._prefDepDateStart
      ,
00063                               _demand._prefDepDateEnd);
00064
00065       // Reset the number of seconds
00066       _demand._itSeconds = 0;
00067     }
00068
00069     // //////////////////////////////////////////////////////////////////
00070     storeDow::storeDow (DemandStruct& ioDemand)
00071       : ParserSemanticAction (ioDemand) {
00072     }
00073
00074     // //////////////////////////////////////////////////////////////////
```

```
00075     void storeDow::operator() (iterator_t iStr,
      iterator_t iStrEnd) const {
00076       stdair::DOW_String_T lDow (iStr, iStrEnd);
00077       _demand._dow = lDow;
00078     }
00079
00080     // ////////////////////////////////////////////////////////////////////
00081     storeOrigin::storeOrigin (DemandStruct&
       ioDemand)
00082       : ParserSemanticAction (ioDemand) {
00083     }
00084
00085     // ////////////////////////////////////////////////////////////////////
00086     void storeOrigin::operator() (iterator_t
      iStr, iterator_t iStrEnd) const {
00087       stdair::AirportCode_T lOrigin (iStr, iStrEnd);
00088       _demand._origin = lOrigin;
00089     }
00090
00091     // ////////////////////////////////////////////////////////////////////
00092     storeDestination::storeDestination (
      DemandStruct& ioDemand)
00093       : ParserSemanticAction (ioDemand) {
00094     }
00095
00096     // ////////////////////////////////////////////////////////////////////
00097     void storeDestination::operator() (iterator_t
       iStr,
00098                                        iterator_t iStrEnd) const {
00099       stdair::AirportCode_T lDestination (iStr, iStrEnd);
00100       _demand._destination = lDestination;
00101     }
00102
00103     // ////////////////////////////////////////////////////////////////////
00104     storePrefCabin::storePrefCabin (DemandStruct
      & ioDemand)
00105       : ParserSemanticAction (ioDemand) {
00106     }
00107
00108     // ////////////////////////////////////////////////////////////////////
00109     void storePrefCabin::operator() (iterator_t
       iStr,
00110                                      iterator_t iStrEnd) const {
00111       stdair::CabinCode_T lPrefCabin  (iStr, iStrEnd);
00112       _demand._prefCabin = lPrefCabin;
00113       //STDAIR_LOG_DEBUG ("Preferred cabin: " << lPrefCabin);
00114     }
00115
00116     // ////////////////////////////////////////////////////////////////////
00117     storeDemandMean::storeDemandMean (
      DemandStruct& ioDemand)
00118       : ParserSemanticAction (ioDemand) {
00119     }
00120
00121     // ////////////////////////////////////////////////////////////////////
00122     void storeDemandMean::operator() (double iReal)
       const {
00123       _demand._demandMean = iReal;
00124       //STDAIR_LOG_DEBUG ("Demand mean: " << iReal);
00125     }
00126
00127     // ////////////////////////////////////////////////////////////////////
00128     storeDemandStdDev::storeDemandStdDev (
      DemandStruct& ioDemand)
00129       : ParserSemanticAction (ioDemand) {
00130     }
00131
00132     // ////////////////////////////////////////////////////////////////////
00133     void storeDemandStdDev::operator() (double
      iReal) const {
00134       _demand._demandStdDev = iReal;
00135       //STDAIR_LOG_DEBUG ("Demand stddev: " << iReal);
00136     }
00137
00138     // ////////////////////////////////////////////////////////////////////
00139     storeDemandChangeFeeProb::storeDemandChangeFeeProb
       (DemandStruct& ioDemand)
00140       : ParserSemanticAction (ioDemand) {
00141     }
00142
00143     // ////////////////////////////////////////////////////////////////////
00144     void storeDemandChangeFeeProb::operator()
      (double iReal) const {
00145       _demand._changeFeeProb = iReal;
00146       //STDAIR_LOG_DEBUG ("Demand change fee prob: " << iReal);
00147     }
00148
```

```
00149     // ////////////////////////////////////////////////////////////////////
00150     storeDemandChangeFeeDisutility::storeDemandChangeFeeDisutility
      (DemandStruct& ioDemand)
00151       : ParserSemanticAction (ioDemand) {
00152     }
00153
00154     // ////////////////////////////////////////////////////////////////////
00155     void storeDemandChangeFeeDisutility::operator()
      (double iReal) const {
00156       _demand._changeFeeDisutility = iReal;
00157       //STDAIR_LOG_DEBUG ("Demand change fee disutility: " << iReal);
00158     }
00159
00160     // ////////////////////////////////////////////////////////////////////
00161     storeDemandNonRefundableProb::
00162     storeDemandNonRefundableProb (DemandStruct
      & ioDemand)
00163       : ParserSemanticAction (ioDemand) {
00164     }
00165
00166     // ////////////////////////////////////////////////////////////////////
00167     void storeDemandNonRefundableProb::operator()
      (double iReal) const {
00168       _demand._nonRefundableProb = iReal;
00169       //STDAIR_LOG_DEBUG ("Demand non refundable prob: " << iReal);
00170     }
00171
00172     // ////////////////////////////////////////////////////////////////////
00173     storeDemandNonRefundableDisutility::
00174     storeDemandNonRefundableDisutility (
      DemandStruct& ioDemand)
00175       : ParserSemanticAction (ioDemand) {
00176     }
00177
00178     // ////////////////////////////////////////////////////////////////////
00179     void storeDemandNonRefundableDisutility::operator()
      (double iReal) const {
00180       _demand._nonRefundableDisutility = iReal;
00181       //STDAIR_LOG_DEBUG ("Demand non refundable disutility: " << iReal);
00182     }
00183
00184     // ////////////////////////////////////////////////////////////////////
00185     storePosCode::storePosCode (DemandStruct
      & ioDemand)
00186       : ParserSemanticAction (ioDemand) {
00187     }
00188
00189     // ////////////////////////////////////////////////////////////////////
00190     void storePosCode::operator() (iterator_t
       iStr, iterator_t iStrEnd) const {
00191       const stdair::AirportCode_T lPosCode (iStr, iStrEnd);
00192       _demand._itPosCode = lPosCode;
00193       //STDAIR_LOG_DEBUG ("Pos code: " << lPosCode);
00194     }
00195
00196     // ////////////////////////////////////////////////////////////////////
00197     storePosProbMass::storePosProbMass (
      DemandStruct& ioDemand)
00198       : ParserSemanticAction (ioDemand) {
00199     }
00200
00201     // ////////////////////////////////////////////////////////////////////
00202     void storePosProbMass::operator() (double
      iReal) const {
00203       const bool hasInsertBeenSuccessfull =
00204         _demand._posProbDist.
00205         insert (POSProbabilityMassFunction_T::
00206                 value_type (_demand._itPosCode, iReal)).second
      ;
00207       if (hasInsertBeenSuccessfull == false) {
00208         STDAIR_LOG_ERROR ("The same POS code ('" << _demand._itPosCode
00209                           << "') has probably been given twice");
00210         throw stdair::CodeDuplicationException ("The same POS code ('"
00211                                                 + _demand._itPosCode
00212                                                 + "') has probably been given
       twice");
00213       }
00214
00215       //STDAIR_LOG_DEBUG ("PosProbMass: " << iReal);
00216     }
00217
00218     // ////////////////////////////////////////////////////////////////////
00219     storeChannelCode::storeChannelCode (
      DemandStruct& ioDemand)
00220       : ParserSemanticAction (ioDemand) {
00221     }
00222
```

```
00223     // ////////////////////////////////////////////////////////////////////
00224     void storeChannelCode::operator() (iterator_t
      iStr,
00225                                        iterator_t iStrEnd) const {
00226       _demand._itChannelCode = std::string (iStr, iStrEnd)
      ;
00227       //STDAIR_LOG_DEBUG ("Channel code: " << _demand._itChannelCode);
00228     }
00229
00230     // ////////////////////////////////////////////////////////////////////
00231     storeChannelProbMass::storeChannelProbMass
      (DemandStruct& ioDemand)
00232       : ParserSemanticAction (ioDemand) {
00233     }
00234
00235     // ////////////////////////////////////////////////////////////////////
00236     void storeChannelProbMass::operator() (
      double iReal) const {
00237       const bool hasInsertBeenSuccessfull =
00238         _demand._channelProbDist.
00239         insert (ChannelProbabilityMassFunction_T
      ::
00240                 value_type (_demand._itChannelCode, iReal)
      ).second;
00241       if (hasInsertBeenSuccessfull == false) {
00242         STDAIR_LOG_ERROR ("The same channel type code ('"
00243                           << _demand._itChannelCode
00244                           << "') has probably been given twice");
00245         throw stdair::CodeDuplicationException ("The same channel type code ('"
00246                                                 + _demand._itChannelCode
00247                                                 + "') has probably been given
      twice");
00248       }
00249
00250       //STDAIR_LOG_DEBUG ("ChannelProbMass: " << iReal);
00251     }
00252
00253     // ////////////////////////////////////////////////////////////////////
00254     storeTripCode::storeTripCode (DemandStruct
      & ioDemand)
00255       : ParserSemanticAction (ioDemand) {
00256     }
00257
00258     // ////////////////////////////////////////////////////////////////////
00259     void storeTripCode::operator() (iterator_t
      iStr,
00260                                     iterator_t iStrEnd) const {
00261       _demand._itTripCode = std::string (iStr, iStrEnd);
00262       //STDAIR_LOG_DEBUG ("Trip code: " << _demand._itTripCode);
00263     }
00264
00265     // ////////////////////////////////////////////////////////////////////
00266     storeTripProbMass::storeTripProbMass (
      DemandStruct& ioDemand)
00267       : ParserSemanticAction (ioDemand) {
00268     }
00269
00270     // ////////////////////////////////////////////////////////////////////
00271     void storeTripProbMass::operator() (double
      iReal) const {
00272       const bool hasInsertBeenSuccessfull =
00273         _demand._tripProbDist.
00274         insert (TripTypeProbabilityMassFunction_T
      ::
00275                 value_type (_demand._itTripCode, iReal)).
      second;
00276       if (hasInsertBeenSuccessfull == false) {
00277         STDAIR_LOG_ERROR ("The same trip type code ('"
00278                           << _demand._itTripCode
00279                           << "') has probably been given twice");
00280         throw stdair::CodeDuplicationException ("The same trip type code ('"
00281                                                 + _demand._itTripCode
00282                                                 + "') has probably been given
      twice");
00283       }
00284
00285       //STDAIR_LOG_DEBUG ("TripProbMass: " << iReal);
00286     }
00287
00288     // ////////////////////////////////////////////////////////////////////
00289     storeStayCode::storeStayCode (DemandStruct
      & ioDemand)
00290       : ParserSemanticAction (ioDemand) {
00291     }
00292
00293     // ////////////////////////////////////////////////////////////////////
00294     void storeStayCode::operator() (unsigned int
```

```
      iInteger) const {
00295       const stdair::DayDuration_T lStayDuration (iInteger);
00296       _demand._itStayDuration = lStayDuration;
00297       // STDAIR_LOG_DEBUG ("Stay duration: " << lStayDuration);
00298     }
00299
00300     // ////////////////////////////////////////////////////////////////////
00301     storeStayProbMass::storeStayProbMass (
      DemandStruct& ioDemand)
00302       : ParserSemanticAction (ioDemand) {
00303     }
00304
00305     // ////////////////////////////////////////////////////////////////////
00306     void storeStayProbMass::operator() (double
      iReal) const {
00307       const bool hasInsertBeenSuccessfull =
00308         _demand._stayProbDist.
00309         insert (StayDurationProbabilityMassFunction_T
      ::
00310                 value_type (_demand._itStayDuration,
      iReal)).second;
00311       if (hasInsertBeenSuccessfull == false) {
00312         std::ostringstream oStr;
00313         oStr << "The same stay duration ('" << _demand._itStayDuration
00314              << "') has probably been given twice";
00315         STDAIR_LOG_ERROR (oStr.str());
00316         throw stdair::CodeDuplicationException (oStr.str());
00317       }
00318
00319       // STDAIR_LOG_DEBUG ("StayProbMass: " << iReal);
00320     }
00321
00322     // ////////////////////////////////////////////////////////////////////
00323     storeFFCode::storeFFCode (DemandStruct&
       ioDemand)
00324       : ParserSemanticAction (ioDemand) {
00325     }
00326
00327     // ////////////////////////////////////////////////////////////////////
00328     void storeFFCode::operator() (iterator_t
      iStr, iterator_t iStrEnd) const {
00329       _demand._itFFCode = std::string (iStr, iStrEnd);
00330       //STDAIR_LOG_DEBUG ("FF code: " << _demand._itFFCode);
00331     }
00332
00333     // ////////////////////////////////////////////////////////////////////
00334     storeFFProbMass::storeFFProbMass (
      DemandStruct& ioDemand)
00335       : ParserSemanticAction (ioDemand) {
00336     }
00337
00338     // ////////////////////////////////////////////////////////////////////
00339     void storeFFProbMass::operator() (double iReal)
       const {
00340       const bool hasInsertBeenSuccessfull =
00341         _demand._ffProbDist.
00342         insert (FrequentFlyerProbabilityMassFunction_T
      ::
00343                 value_type (_demand._itFFCode, iReal)).second;
00344       if (hasInsertBeenSuccessfull == false) {
00345         STDAIR_LOG_ERROR ("The same Frequent Flyer code ('"
00346                           << _demand._itFFCode
00347                           << "') has probably been given twice");
00348         throw stdair::CodeDuplicationException("The same Frequent Flyer code ('
      "
00349                                                + _demand._itFFCode
00350                                                + "') has probably been given
       twice");
00351       }
00352
00353       //STDAIR_LOG_DEBUG ("FfProbMass: " << iReal);
00354     }
00355
00356     // ////////////////////////////////////////////////////////////////////
00357     storePrefDepTime::storePrefDepTime (
      DemandStruct& ioDemand)
00358       : ParserSemanticAction (ioDemand) {
00359     }
00360
00361     // ////////////////////////////////////////////////////////////////////
00362     void storePrefDepTime::operator() (iterator_t
       iStr,
00363                                        iterator_t iStrEnd) const {
00364       _demand._itPrefDepTime = _demand.getTime
      ();
00365
00366       // DEBUG
```

```
00367       // STDAIR_LOG_DEBUG ("Pref dep time: " << _demand._itHours << ":"
00368       //                   << _demand._itMinutes << ":" << _demand._itSeconds
00369       //                   << " ==> " << _demand._itPrefDepTime);
00370
00371       // Reset the number of minutes and seconds
00372       _demand._itMinutes = 0;
00373       _demand._itSeconds = 0;
00374     }
00375
00376     // ////////////////////////////////////////////////////////////////////
00377     storePrefDepTimeProbMass::storePrefDepTimeProbMass
       (DemandStruct& ioDemand)
00378       : ParserSemanticAction (ioDemand) {
00379     }
00380
00381     // ////////////////////////////////////////////////////////////////////
00382     void storePrefDepTimeProbMass::operator()
      (double iReal) const {
00383       const stdair::IntDuration_T lIntDuration =
00384         _demand._itPrefDepTime.total_seconds();
00385
00386       _demand._prefDepTimeProbDist.
00387         insert (PreferredDepartureTimeContinuousDistribution_T
      ::
00388                 value_type (lIntDuration, iReal));
00389       //STDAIR_LOG_DEBUG ("PrefDepTimeProbMass: " << iReal);
00390     }
00391
00392     // ////////////////////////////////////////////////////////////////////
00393     storeWTP::storeWTP (DemandStruct& ioDemand)
00394       : ParserSemanticAction (ioDemand) {
00395     }
00396
00397     // ////////////////////////////////////////////////////////////////////
00398     void storeWTP::operator() (double iReal) const {
00399       _demand._minWTP = iReal;
00400       //STDAIR_LOG_DEBUG ("WTP: " << iReal);
00401     }
00402
00403     // ////////////////////////////////////////////////////////////////////
00404     storeTimeValue::storeTimeValue (DemandStruct
      & ioDemand)
00405       : ParserSemanticAction (ioDemand) {
00406     }
00407
00408     // ////////////////////////////////////////////////////////////////////
00409     void storeTimeValue::operator() (double iReal)
       const {
00410       _demand._itTimeValue = iReal;
00411       //STDAIR_LOG_DEBUG ("Time value: " << iReal);
00412     }
00413
00414     // ////////////////////////////////////////////////////////////////////
00415     storeTimeValueProbMass::storeTimeValueProbMass
       (DemandStruct& ioDemand)
00416       : ParserSemanticAction (ioDemand) {
00417     }
00418
00419     // ////////////////////////////////////////////////////////////////////
00420     void storeTimeValueProbMass::operator()
      (double iReal) const {
00421       _demand._timeValueProbDist.
00422         insert (ValueOfTimeContinuousDistribution_T
      ::
00423                 value_type (_demand._itTimeValue, iReal));
00424       //STDAIR_LOG_DEBUG ("TimeValueProbMass: " << iReal);
00425     }
00426
00427     // ////////////////////////////////////////////////////////////////////
00428     storeDTD::storeDTD (DemandStruct& ioDemand)
00429       : ParserSemanticAction (ioDemand) {
00430     }
00431
00432     // ////////////////////////////////////////////////////////////////////
00433     void storeDTD::operator() (unsigned int iInteger)
       const {
00434       const stdair::DayDuration_T lDTD (iInteger);
00435       _demand._itDTD = lDTD;
00436       //STDAIR_LOG_DEBUG ("DTD: " << lDTD);
00437     }
00438
00439     // ////////////////////////////////////////////////////////////////////
00440     storeDTDProbMass::storeDTDProbMass (
      DemandStruct& ioDemand)
00441       : ParserSemanticAction (ioDemand) {
00442     }
00443
```

```
00444     // ////////////////////////////////////////////////////////////////////
00445     void storeDTDProbMass::operator() (double
      iReal) const {
00446       const stdair::FloatDuration_T lZeroDTDFloat = 0.0;
00447       stdair::FloatDuration_T lDTDFloat =
00448         static_cast<stdair::FloatDuration_T> (_demand._itDTD);
00449       lDTDFloat = lZeroDTDFloat - lDTDFloat;
00450
00451       _demand._dtdProbDist.insert (
      ArrivalPatternCumulativeDistribution_T::
00452                                    value_type (lDTDFloat, iReal));
00453       //STDAIR_LOG_DEBUG ("DTDProbMass: " << iReal);
00454     }
00455
00456     // ////////////////////////////////////////////////////////////////////
00457     doEndDemand::doEndDemand (
      SEVMGR::SEVMGR_ServicePtr_T ioSEVMGR_ServicePtr,
00458                               stdair::RandomGeneration& ioSharedGenerator,
00459                               const POSProbabilityMass_T&
      iPOSProbMass,
00460                               DemandStruct& ioDemand)
00461       : ParserSemanticAction (ioDemand),
00462         _sevmgrServicePtr (ioSEVMGR_ServicePtr),
00463         _uniformGenerator (ioSharedGenerator),
00464         _posProbabilityMass (iPOSProbMass) {
00465     }
00466
00467     // ////////////////////////////////////////////////////////////////////
00468     // void doEndDemand::operator() (char iChar) const {
00469     void doEndDemand::operator() (iterator_t
      iStr, iterator_t iStrEnd) const {
00470
00471       // DEBUG: Display the result
00472       // STDAIR_LOG_DEBUG ("Demand: " << _demand.describe());
00473
00474       // Create the Demand BOM objects
00475       DemandManager::createDemandCharacteristics (_sevmgrServicePtr
      ,
00476                                                   _uniformGenerator
      ,
00477                                                   _posProbabilityMass
      , _demand);
00478
00479       // Clean the lists
00480       _demand._posProbDist.clear();
00481       _demand._channelProbDist.clear();
00482       _demand._tripProbDist.clear();
00483       _demand._stayProbDist.clear();
00484       _demand._ffProbDist.clear();
00485       _demand._prefDepTimeProbDist.clear();
00486       _demand._timeValueProbDist.clear();
00487       _demand._dtdProbDist.clear();
00488     }
00489
00490
00491     // ////////////////////////////////////////////////////////////////////
00492     //
00493     //  Utility Parsers
00494     //
00495     // ////////////////////////////////////////////////////////////////////
00497     int1_p_t int1_p;
00498
00500     uint2_p_t uint2_p;
00501
00503     uint1_2_p_t uint1_2_p;
00504
00506     uint1_3_p_t uint1_3_p;
00507
00509     uint4_p_t uint4_p;
00510
00512     uint1_4_p_t uint1_4_p;
00513
00515     repeat_p_t airline_code_p (chset_t("0-9A-Z")
      .derived(), 2, 3);
00516
00518     bounded1_4_p_t flight_number_p (uint1_4_p
      .derived(), 0u, 9999u);
00519
00521     bounded4_p_t year_p (uint4_p.derived(), 2000u,
      2099u);
00522
00524     bounded2_p_t month_p (uint2_p.derived(), 1u, 12u)
      ;
00525
00527     bounded2_p_t day_p (uint2_p.derived(), 1u, 31u);
00528
00530     repeat_p_t dow_p (chset_t("0-1").derived().derived(),
```

```
      7, 7);
00531
00533     repeat_p_t airport_p (chset_t("0-9A-Z").derived()
      , 3, 3);
00534
00536     bounded1_2_p_t hours_p (uint1_2_p.derived(),
      0u, 23u);
00537
00539     bounded2_p_t minutes_p (uint2_p.derived(), 0u,
      59u);
00540
00542     bounded2_p_t seconds_p (uint2_p.derived(), 0u,
      59u);
00543
00545     chset_t cabin_code_p ("A-Z");
00546
00548     chset_t passenger_type_p ("A-Z");
00549
00551     chset_t ff_type_p ("A-Z");
00552
00554     int1_p_t family_code_p;
00555
00557     repeat_p_t class_code_list_p (chset_t("
      A-Z").derived(), 1, 26);
00558
00560     bounded1_3_p_t stay_duration_p (uint1_3_p
      .derived(), 0u, 999u);
00561
00562
00563     // ////////////////////////////////////////////////////////////////
00564     //  (Boost Spirit) Grammar Definition
00565     // ////////////////////////////////////////////////////////////////
00566
00567     // ////////////////////////////////////////////////////////////////
00568     DemandParser::DemandParser (
      SEVMGR::SEVMGR_ServicePtr_T ioSEVMGR_ServicePtr,
00569                                 stdair::RandomGeneration& ioSharedGenerator,
00570                                 const POSProbabilityMass_T&
       iPOSProbMass,
00571                                 DemandStruct& ioDemand)
00572       : _sevmgrServicePtr (ioSEVMGR_ServicePtr),
00573         _uniformGenerator (ioSharedGenerator),
00574         _posProbabilityMass (iPOSProbMass), _demand (ioDemand) {
00575     }
00576
00577     // ////////////////////////////////////////////////////////////////
00578     template<typename ScannerT>
00579     DemandParser::definition<ScannerT>::
00580     definition (DemandParser const& self) {
00581
00582       demand_list = *( not_to_be_parsed |
00583                        demand)
00584         ;
00585
00586      not_to_be_parsed = bsc::
00587        lexeme_d[bsc::comment_p("//")
00588                 | bsc::comment_p("/*", "*/")
00589                 | bsc::eol_p]
00590         ;
00591
00592       demand =
00593         pref_dep_date_range
00594         >> ';' >> origin >> ';' >> destination
00595         >> ';' >> pref_cabin[storePrefCabin(self._demand)]
00596         >> ';' >> pos_dist
00597         >> ';' >> channel_dist
00598         >> ';' >> trip_dist
00599         >> ';' >> stay_dist
00600         >> ';' >> ff_dist
00601         >> ';' >> change_fees
00602         >> ';' >> non_refundable
00603         >> ';' >> pref_dep_time_dist
00604         >> ';' >> wtp
00605         >> ';' >> time_value_dist
00606         >> ';' >> dtd_dist
00607         >> ';' >> demand_params
00608         >> demand_end[doEndDemand (self._sevmgrServicePtr,
00609                                    self._uniformGenerator,
00610                                    self._posProbabilityMass, self._demand)]
00611         ;
00612
00613       demand_end = bsc::ch_p(';')
00614         ;
00615
00616       pref_dep_date_range = date[storePrefDepDateRangeStart
      (self._demand)]
00617         >> ';' >> date[storePrefDepDateRangeEnd(self.
```

```
_demand)]
00618         >> ';' >> dow[storeDow(self._demand)]
00619         ;
00620
00621       date =
00622         bsc::lexeme_d[(year_p)[bsc::assign_a(self._demand._itYear)]
00623          >> '-' >> (month_p)[bsc::assign_a(self._demand._itMonth)]
00624          >> '-' >> (day_p)[bsc::assign_a(self._demand._itDay)]
00625          ]
00626         ;
00627
00628       dow = bsc::lexeme_d[ dow_p ]
00629         ;
00630
00631       origin =
00632         (airport_p)[storeOrigin(self._demand)]
00633         ;
00634
00635       destination =
00636         (airport_p)[storeDestination(self._demand)]
00637         ;
00638
00639       pref_cabin = cabin_code_p;
00640
00641       pos_dist =
00642         pos_pair >> *( ',' >> pos_pair )
00643         ;
00644
00645       pos_pair =
00646         pos_code[storePosCode(self._demand)]
00647         >> ':' >> pos_share
00648         ;
00649
00650       pos_code =
00651         airport_p
00652         | bsc::chseq_p("row")
00653         ;
00654
00655       pos_share =
00656         (bsc::ureal_p)[storePosProbMass(self._demand)]
00657         ;
00658
00659       channel_dist =
00660         channel_pair >> *( ',' >> channel_pair )
00661         ;
00662
00663       channel_pair =
00664         channel_code[storeChannelCode(self._demand)]
00665         >> ':' >> channel_share
00666         ;
00667
00668       channel_code =
00669         bsc::chseq_p("DF") | bsc::chseq_p("DN")
00670         | bsc::chseq_p("IF") | bsc::chseq_p("IN")
00671         ;
00672
00673       channel_share =
00674         (bsc::ureal_p)[storeChannelProbMass(self._demand)]
00675         ;
00676
00677       trip_dist =
00678         trip_pair >> *( ',' >> trip_pair )
00679         ;
00680
00681       trip_pair =
00682         trip_code[storeTripCode(self._demand)]
00683         >> ':' >> trip_share
00684         ;
00685
00686       trip_code =
00687         bsc::chseq_p("RO") | bsc::chseq_p("RI") | bsc::chseq_p("OW")
00688         ;
00689
00690       trip_share =
00691         (bsc::ureal_p)[storeTripProbMass(self._demand)]
00692         ;
00693
00694       stay_dist =
00695         stay_pair >> *( ',' >> stay_pair )
00696         ;
00697
00698       stay_pair =
00699         (stay_duration_p)[storeStayCode(self.
_demand)]
00700         >> ':' >> stay_share
00701         ;
00702
```

```
00703       stay_share =
00704         (bsc::ureal_p)[storeStayProbMass(self._demand)]
00705         ;
00706
00707       ff_dist =
00708         ff_pair >> *( ',' >> ff_pair )
00709         ;
00710
00711       ff_pair =
00712         ff_code[storeFFCode(self._demand)]
00713         >> ':' >> ff_share
00714         ;
00715
00716       ff_code = ff_type_p;
00717
00718       ff_share =
00719         (bsc::ureal_p)[storeFFProbMass(self._demand)]
00720         ;
00721
00722       change_fees =
00723         (bsc::ureal_p)[storeDemandChangeFeeProb(self.
    _demand)]
00724         >> ';' >> (bsc::ureal_p)[storeDemandChangeFeeDisutility
    (self._demand)]
00725         ;
00726
00727       non_refundable =
00728         (bsc::ureal_p)[storeDemandNonRefundableProb
    (self._demand)]
00729         >> ';' >> (bsc::ureal_p)[storeDemandNonRefundableDisutility
    (self._demand)]
00730         ;
00731
00732       pref_dep_time_dist =
00733         pref_dep_time_pair >> *( ',' >> pref_dep_time_pair )
00734         ;
00735
00736       pref_dep_time_pair =
00737         (time)[storePrefDepTime(self._demand)]
00738         >> ':' >> pref_dep_time_share
00739         ;
00740
00741       pref_dep_time_share =
00742         (bsc::ureal_p)[storePrefDepTimeProbMass(self.
    _demand)]
00743         ;
00744
00745       time =
00746         bsc::lexeme_d[
00747        (hours_p)[bsc::assign_a(self._demand._itHours)]
00748        >> !('.' >> (minutes_p)[bsc::assign_a(self._demand._itMinutes)]
    )
00749        >> !('.' >> (seconds_p)[bsc::assign_a(self._demand._itSeconds)]
    )
00750        ]
00751         ;
00752
00753       wtp =
00754         (bsc::ureal_p)[storeWTP(self._demand)]
00755         ;
00756
00757       time_value_dist =
00758         time_value_pair >> *( ',' >> time_value_pair )
00759         ;
00760
00761       time_value_pair =
00762         (bsc::ureal_p)[storeTimeValue(self._demand)]
00763         >> ':' >> time_value_share
00764         ;
00765
00766       time_value_share =
00767         (bsc::ureal_p)[storeTimeValueProbMass(self.
    _demand)]
00768         ;
00769
00770       dtd_dist =
00771         dtd_pair >> *( ',' >> dtd_pair )
00772         ;
00773
00774       dtd_pair =
00775         (bsc::ureal_p)[storeDTD(self._demand)]
00776         >> ':' >> dtd_share
00777         ;
00778
00779       dtd_share =
00780         (bsc::ureal_p)[storeDTDProbMass(self._demand)]
00781         ;
```

```
00782
00783       demand_params =
00784         bsc::ch_p('N')
00785         >> ','
00786         >> (bsc::ureal_p)[storeDemandMean(self._demand)]
00787         >> ','
00788         >> (bsc::ureal_p)[storeDemandStdDev(self._demand)]
00789         ;
00790
00791       // BOOST_SPIRIT_DEBUG_NODE (DemandParser);
00792       BOOST_SPIRIT_DEBUG_NODE (demand_list);
00793       BOOST_SPIRIT_DEBUG_NODE (not_to_be_parsed);
00794       BOOST_SPIRIT_DEBUG_NODE (demand);
00795       BOOST_SPIRIT_DEBUG_NODE (demand_end);
00796       BOOST_SPIRIT_DEBUG_NODE (pref_dep_date);
00797       BOOST_SPIRIT_DEBUG_NODE (date);
00798       BOOST_SPIRIT_DEBUG_NODE (origin);
00799       BOOST_SPIRIT_DEBUG_NODE (destination);
00800       BOOST_SPIRIT_DEBUG_NODE (pref_cabin);
00801       BOOST_SPIRIT_DEBUG_NODE (pos_dist);
00802       BOOST_SPIRIT_DEBUG_NODE (pos_pair);
00803       BOOST_SPIRIT_DEBUG_NODE (pos_code);
00804       BOOST_SPIRIT_DEBUG_NODE (pos_share);
00805       BOOST_SPIRIT_DEBUG_NODE (channel_dist);
00806       BOOST_SPIRIT_DEBUG_NODE (channel_pair);
00807       BOOST_SPIRIT_DEBUG_NODE (channel_code);
00808       BOOST_SPIRIT_DEBUG_NODE (channel_share);
00809       BOOST_SPIRIT_DEBUG_NODE (trip_dist);
00810       BOOST_SPIRIT_DEBUG_NODE (trip_pair);
00811       BOOST_SPIRIT_DEBUG_NODE (trip_code);
00812       BOOST_SPIRIT_DEBUG_NODE (trip_share);
00813       BOOST_SPIRIT_DEBUG_NODE (stay_dist);
00814       BOOST_SPIRIT_DEBUG_NODE (stay_pair);
00815       BOOST_SPIRIT_DEBUG_NODE (stay_share);
00816       BOOST_SPIRIT_DEBUG_NODE (ff_dist);
00817       BOOST_SPIRIT_DEBUG_NODE (ff_pair);
00818       BOOST_SPIRIT_DEBUG_NODE (ff_code);
00819       BOOST_SPIRIT_DEBUG_NODE (ff_share);
00820       BOOST_SPIRIT_DEBUG_NODE (change_fees);
00821       BOOST_SPIRIT_DEBUG_NODE (non_refundable);
00822       BOOST_SPIRIT_DEBUG_NODE (pref_dep_time_dist);
00823       BOOST_SPIRIT_DEBUG_NODE (pref_dep_time_pair);
00824       BOOST_SPIRIT_DEBUG_NODE (pref_dep_time_share);
00825       BOOST_SPIRIT_DEBUG_NODE (time);
00826       BOOST_SPIRIT_DEBUG_NODE (wtp);
00827       BOOST_SPIRIT_DEBUG_NODE (time_value_dist);
00828       BOOST_SPIRIT_DEBUG_NODE (time_value_pair);
00829       BOOST_SPIRIT_DEBUG_NODE (time_value_share);
00830       BOOST_SPIRIT_DEBUG_NODE (dtd_dist);
00831       BOOST_SPIRIT_DEBUG_NODE (dtd_pair);
00832       BOOST_SPIRIT_DEBUG_NODE (dtd_share);
00833       BOOST_SPIRIT_DEBUG_NODE (demand_params);
00834     }
00835
00836     // ////////////////////////////////////////////////////////////////
00837     template<typename ScannerT>
00838     bsc::rule<ScannerT> const&
00839     DemandParser::definition<ScannerT>::start
     () const {
00840       return demand_list;
00841     }
00842
00843   }
00844
00845
00847   //
00848   //  Entry class for the file parser
00849   //
00851
00852   // ////////////////////////////////////////////////////////////////////
00853   DemandFileParser::
00854   DemandFileParser (SEVMGR::SEVMGR_ServicePtr_T
     ioSEVMGR_ServicePtr,
00855                     stdair::RandomGeneration& ioSharedGenerator,
00856                     const POSProbabilityMass_T&
     iPOSProbMass,
00857                     const std::string& iFilename)
00858     : _filename (iFilename),
00859       _sevmgrServicePtr (ioSEVMGR_ServicePtr),
00860       _uniformGenerator (ioSharedGenerator),
00861       _posProbabilityMass (iPOSProbMass) {
00862     init();
00863   }
00864
00865   // ////////////////////////////////////////////////////////////////////
00866   void DemandFileParser::init() {
00867     // Check that the file exists and is readable
```

```
00868     const bool doesExistAndIsReadable =
00869       stdair::BasFileMgr::doesExistAndIsReadable (_filename);
00870
00871     if (doesExistAndIsReadable == false) {
00872       STDAIR_LOG_ERROR ("The demand file " << _filename
00873                         << " does not exist or can not be read.");
00874
00875       throw DemandInputFileNotFoundException ("
      The demand file " + _filename
00876                                               + " does not exist or can not "
00877                                               + "be read");
00878     }
00879
00880     // Open the file
00881     _startIterator = iterator_t (_filename);
00882
00883     // Check the filename exists and can be open
00884     if (!_startIterator) {
00885       STDAIR_LOG_ERROR ("The demand file " << _filename << " can not be open.")
      ;
00886
00887       throw DemandInputFileNotFoundException ("The demand file " + _filename
00888                                               + " does not exist or can not "
00889                                               + "be read");
00890     }
00891
00892     // Create an EOF iterator
00893     _endIterator = _startIterator.make_end();
00894   }
00895
00896   // ////////////////////////////////////////////////////////////////////
00897   bool DemandFileParser::generateDemand () {
00898     bool oResult = false;
00899
00900     STDAIR_LOG_DEBUG ("Parsing demand input file: " << _filename);
00901
00902     // Initialise the parser (grammar) with the helper/staging structure.
00903     DemandParserHelper::DemandParser
      lDemandParser (_sevmgrServicePtr,
00904                                                 _uniformGenerator,
00905                                                 _posProbabilityMass,
00906                                                 _demand);
00907
00908     // Launch the parsing of the file and, thanks to the doEndDemand
00909     // call-back structure, the building of the whole EventQueue BOM
00910     // (i.e., including Inventory, FlightDate, LegDate, SegmentDate, etc.)
00911     bsc::parse_info<iterator_t> info =
00912       bsc::parse (_startIterator, _endIterator, lDemandParser,
00913                   bsc::space_p - bsc::eol_p);
00914
00915     // Retrieves whether or not the parsing was successful
00916     oResult = info.hit;
00917
00918     const std::string hasBeenFullyReadStr = (info.full == true)?"":"not ";
00919     if (oResult == true) {
00920       STDAIR_LOG_DEBUG ("Parsing of demand input file: " << _filename
00921                         << " succeeded: read " << info.length
00922                         << " characters. The input file has "
00923                         << hasBeenFullyReadStr
00924                         << "been fully read. Stop point: " << info.stop);
00925
00926     } else {
00927       std::ostringstream oStr;
00928       oStr << "Parsing of demand input file: " << _filename << " failed: read "
00929            << info.length << " characters. The input file has "
00930            << hasBeenFullyReadStr << "been fully read. Stop point: "
00931            << info.stop;
00932       STDAIR_LOG_ERROR (oStr.str());
00933       throw stdair::ParserException (oStr.str());
00934     }
00935
00936     return oResult;
00937   }
00938
00939 }
```

23.91 trademgen/command/DemandParserHelper.hpp File Reference

```
#include <string>
```

```
#include <stdair/command/CmdAbstract.hpp>
#include <sevmgr/SEVMGR_Types.hpp>
#include <trademgen/TRADEMGEN_Types.hpp>
#include <trademgen/basic/BasParserTypes.hpp>
#include <trademgen/bom/DemandStruct.hpp>
```

Classes

- struct TRADEMGEN::DemandParserHelper::ParserSemanticAction
- struct TRADEMGEN::DemandParserHelper::storePrefDepDateRangeStart
- struct TRADEMGEN::DemandParserHelper::storePrefDepDateRangeEnd
- struct TRADEMGEN::DemandParserHelper::storeDow
- struct TRADEMGEN::DemandParserHelper::storeOrigin
- struct TRADEMGEN::DemandParserHelper::storeDestination
- struct TRADEMGEN::DemandParserHelper::storePrefCabin
- struct TRADEMGEN::DemandParserHelper::storeDemandMean
- struct TRADEMGEN::DemandParserHelper::storeDemandStdDev
- struct TRADEMGEN::DemandParserHelper::storeDemandChangeFeeProb
- struct TRADEMGEN::DemandParserHelper::storeDemandChangeFeeDisutility
- struct TRADEMGEN::DemandParserHelper::storeDemandNonRefundableProb
- struct TRADEMGEN::DemandParserHelper::storeDemandNonRefundableDisutility
- struct TRADEMGEN::DemandParserHelper::storePosCode
- struct TRADEMGEN::DemandParserHelper::storePosProbMass
- struct TRADEMGEN::DemandParserHelper::storeChannelCode
- struct TRADEMGEN::DemandParserHelper::storeChannelProbMass
- struct TRADEMGEN::DemandParserHelper::storeTripCode
- struct TRADEMGEN::DemandParserHelper::storeTripProbMass
- struct TRADEMGEN::DemandParserHelper::storeStayCode
- struct TRADEMGEN::DemandParserHelper::storeStayProbMass
- struct TRADEMGEN::DemandParserHelper::storeFFCode
- struct TRADEMGEN::DemandParserHelper::storeFFProbMass
- struct TRADEMGEN::DemandParserHelper::storePrefDepTime
- struct TRADEMGEN::DemandParserHelper::storePrefDepTimeProbMass
- struct TRADEMGEN::DemandParserHelper::storeWTP
- struct TRADEMGEN::DemandParserHelper::storeTimeValue
- struct TRADEMGEN::DemandParserHelper::storeTimeValueProbMass
- struct TRADEMGEN::DemandParserHelper::storeDTD
- struct TRADEMGEN::DemandParserHelper::storeDTDProbMass
- struct TRADEMGEN::DemandParserHelper::doEndDemand
- struct TRADEMGEN::DemandParserHelper::DemandParser
- struct TRADEMGEN::DemandParserHelper::DemandParser::definition< ScannerT >
- class TRADEMGEN::DemandFileParser

Namespaces

- namespace stdair

  Forward declarations.
- namespace TRADEMGEN
- namespace TRADEMGEN::DemandParserHelper

23.92 DemandParserHelper.hpp

```
00001 #ifndef __TRADEMGEN_CMD_DEMANDPARSERHELPER_HPP
00002 #define __TRADEMGEN_CMD_DEMANDPARSERHELPER_HPP
00003
00004 // //////////////////////////////////////////////////////////////////
00005 // Import section
00006 // //////////////////////////////////////////////////////////////////
00007 // STL
00008 #include <string>
00009 // STDAIR
00010 #include <stdair/command/CmdAbstract.hpp>
00011 // SEvMgr
00012 #include <sevmgr/SEVMGR_Types.hpp>
00013 // TRADEMGEN
00014 #include <trademgen/TRADEMGEN_Types.hpp>
00015 #include <trademgen/basic/BasParserTypes.hpp>
00016 #include <trademgen/bom/DemandStruct.hpp>
00017
00018 // Forward declarations
00019 namespace stdair {
00020   struct RandomGeneration;
00021 }
00022
00023 namespace TRADEMGEN {
00024
00025   namespace DemandParserHelper {
00026
00027     // //////////////////////////////////////////////////////////////////
00028     //  Semantic actions
00029     // //////////////////////////////////////////////////////////////////
00031     struct ParserSemanticAction {
00033       ParserSemanticAction (DemandStruct&);
00035       DemandStruct& _demand;
00036     };
00037
00039     struct storePrefDepDateRangeStart : public
      ParserSemanticAction {
00041       storePrefDepDateRangeStart (DemandStruct
      &);
00043       void operator() (iterator_t iStr, iterator_t
       iStrEnd) const;
00044     };
00045
00047     struct storePrefDepDateRangeEnd : public
      ParserSemanticAction {
00049       storePrefDepDateRangeEnd (DemandStruct
      &);
00051       void operator() (iterator_t iStr, iterator_t
       iStrEnd) const;
00052     };
00053
00055     struct storeDow : public ParserSemanticAction {
00057       storeDow (DemandStruct&);
00059       void operator() (iterator_t iStr, iterator_t
       iStrEnd) const;
00060     };
00061
00063     struct storeOrigin : public ParserSemanticAction
      {
00065       storeOrigin (DemandStruct&);
00067       void operator() (iterator_t iStr, iterator_t
       iStrEnd) const;
00068     };
00069
00071     struct storeDestination : public ParserSemanticAction
      {
00073       storeDestination (DemandStruct&);
00075       void operator() (iterator_t iStr, iterator_t
       iStrEnd) const;
00076     };
00077
00079     struct storePrefCabin : public ParserSemanticAction
      {
00081       storePrefCabin (DemandStruct&);
00083       void operator() (iterator_t iStr, iterator_t
       iStrEnd) const;
00084     };
00085
00087     struct storeDemandMean : public ParserSemanticAction
      {
00089       storeDemandMean (DemandStruct&);
00091       void operator() (double iReal) const;
00092     };
00093
00095     struct storeDemandStdDev : public ParserSemanticAction
      {
```

```
00097       storeDemandStdDev (DemandStruct&);
00099       void operator() (double iReal) const;
00100     };
00101
00103     struct storeDemandChangeFeeProb : public
      ParserSemanticAction {
00105       storeDemandChangeFeeProb (DemandStruct
      &);
00107       void operator() (double iReal) const;
00108     };
00109
00111     struct storeDemandChangeFeeDisutility :
      public ParserSemanticAction {
00113       storeDemandChangeFeeDisutility (
      DemandStruct&);
00115       void operator() (double iReal) const;
00116     };
00117
00119     struct storeDemandNonRefundableProb : public
      ParserSemanticAction {
00121       storeDemandNonRefundableProb (DemandStruct
      &);
00123       void operator() (double iReal) const;
00124     };
00125
00127     struct storeDemandNonRefundableDisutility
       : public ParserSemanticAction {
00129       storeDemandNonRefundableDisutility (
      DemandStruct&);
00131       void operator() (double iReal) const;
00132     };
00133
00135     struct storePosCode : public ParserSemanticAction
      {
00137       storePosCode (DemandStruct&);
00139       void operator() (iterator_t iStr, iterator_t
       iStrEnd) const;
00140     };
00141
00143     struct storePosProbMass : public ParserSemanticAction
      {
00145       storePosProbMass (DemandStruct&);
00147       void operator() (double iReal) const;
00148     };
00149
00151     struct storeChannelCode : public ParserSemanticAction
      {
00153       storeChannelCode (DemandStruct&);
00155       void operator() (iterator_t iStr, iterator_t
       iStrEnd) const;
00156     };
00157
00159     struct storeChannelProbMass : public
      ParserSemanticAction {
00161       storeChannelProbMass (DemandStruct&);
00163       void operator() (double iReal) const;
00164     };
00165
00167     struct storeTripCode : public ParserSemanticAction
      {
00169       storeTripCode (DemandStruct&);
00171       void operator() (iterator_t iStr, iterator_t
       iStrEnd) const;
00172     };
00173
00175     struct storeTripProbMass : public ParserSemanticAction
      {
00177       storeTripProbMass (DemandStruct&);
00179       void operator() (double iReal) const;
00180     };
00181
00183     struct storeStayCode : public ParserSemanticAction
      {
00185       storeStayCode (DemandStruct&);
00187       void operator() (unsigned int iInteger) const;
00188     };
00189
00191     struct storeStayProbMass : public ParserSemanticAction
      {
00193       storeStayProbMass (DemandStruct&);
00195       void operator() (double iReal) const;
00196     };
00197
00199     struct storeFFCode : public ParserSemanticAction
      {
00201       storeFFCode (DemandStruct&);
00203       void operator() (iterator_t iStr, iterator_t
```

```
      iStrEnd) const;
00204     };
00205
00207     struct storeFFProbMass : public ParserSemanticAction
      {
00209       storeFFProbMass (DemandStruct&);
00211       void operator() (double iReal) const;
00212     };
00213
00216     struct storePrefDepTime : public ParserSemanticAction
      {
00218       storePrefDepTime (DemandStruct&);
00220       void operator() (iterator_t iStr, iterator_t
      iStrEnd) const;
00221     };
00222
00225     struct storePrefDepTimeProbMass : public
      ParserSemanticAction {
00227       storePrefDepTimeProbMass (DemandStruct
      &);
00229       void operator() (double iReal) const;
00230     };
00231
00233     struct storeWTP : public ParserSemanticAction {
00235       storeWTP (DemandStruct&);
00237       void operator() (double iReal) const;
00238     };
00239
00241     struct storeTimeValue : public ParserSemanticAction
      {
00243       storeTimeValue (DemandStruct&);
00245       void operator() (double iReal) const;
00246     };
00247
00249     struct storeTimeValueProbMass : public
      ParserSemanticAction {
00251       storeTimeValueProbMass (DemandStruct&);
00253       void operator() (double iReal) const;
00254     };
00255
00258     struct storeDTD : public ParserSemanticAction {
00260       storeDTD (DemandStruct&);
00262       void operator() (unsigned int iInteger) const;
00263     };
00264
00267     struct storeDTDProbMass : public ParserSemanticAction
      {
00269       storeDTDProbMass (DemandStruct&);
00271       void operator() (double iReal) const;
00272     };
00273
00275     struct doEndDemand : public ParserSemanticAction
      {
00277       doEndDemand (SEVMGR::SEVMGR_ServicePtr_T,
      stdair::RandomGeneration&,
00278                    const POSProbabilityMass_T&,
      DemandStruct&);
00280       void operator() (iterator_t iStr, iterator_t
      iStrEnd) const;
00282       SEVMGR::SEVMGR_ServicePtr_T _sevmgrServicePtr;
00283       stdair::RandomGeneration& _uniformGenerator;
00284       const POSProbabilityMass_T& _posProbabilityMass
      ;
00285     };
00286
00287
00289     //
00290     //  (Boost Spirit) Grammar Definition
00291     //
00293
00384     struct DemandParser :
00385       public boost::spirit::classic::grammar<DemandParser> {
00386
00387       DemandParser (SEVMGR::SEVMGR_ServicePtr_T,
      stdair::RandomGeneration&,
00388                     const POSProbabilityMass_T&,
      DemandStruct&);
00389
00390       template <typename ScannerT>
00391       struct definition {
00392         definition (DemandParser const& self);
00393
00394         // Instantiation of rules
00395         boost::spirit::classic::rule<ScannerT> demand_list,
00396           not_to_be_parsed, demand, demand_end,
       pref_dep_date_range,
00397           date, dow, origin, destination, pref_cabin
```

```
      , demand_params,
00398           pos_dist, pos_pair, pos_code, pos_share
      ,
00399           channel_dist, channel_pair, channel_code
      , channel_share,
00400           trip_dist, trip_pair, trip_code,
      trip_share,
00401           stay_dist, stay_pair, stay_share,
00402           ff_dist, ff_pair, ff_code, ff_share,
00403           change_fees,
00404           non_refundable,
00405           pref_dep_time_dist, pref_dep_time_pair
      , pref_dep_time_share, time,
00406           wtp,
00407           time_value_dist, time_value_pair,
      time_value_share,
00408           dtd_dist, dtd_pair, dtd_share;
00409
00411         boost::spirit::classic::rule<ScannerT> const& start() const;
00412       };
00413
00414       // Parser Context
00415       SEVMGR::SEVMGR_ServicePtr_T _sevmgrServicePtr;
00416       stdair::RandomGeneration& _uniformGenerator;
00417       const POSProbabilityMass_T& _posProbabilityMass
      ;
00418       DemandStruct& _demand;
00419     };
00420
00421   }
00422
00423
00425   //
00426   //  Entry class for the file parser
00427   //
00429
00434   class DemandFileParser : public stdair::CmdAbstract {
00435   public:
00437     DemandFileParser (SEVMGR::SEVMGR_ServicePtr_T,
      stdair::RandomGeneration&,
00438                       const POSProbabilityMass_T&,
00439                       const stdair::Filename_T& iDemandInputFilename);
00440
00442     bool generateDemand ();
00443
00444   private:
00446     void init();
00447
00448   private:
00449     // Attributes
00451     stdair::Filename_T _filename;
00452
00454     iterator_t _startIterator;
00455
00457     iterator_t _endIterator;
00458
00460     SEVMGR::SEVMGR_ServicePtr_T _sevmgrServicePtr;
00461
00463     stdair::RandomGeneration& _uniformGenerator;
00464
00466     const POSProbabilityMass_T& _posProbabilityMass;
00467
00469     DemandStruct _demand;
00470   };
00471
00472 }
00473 #endif // __TRADEMGEN_CMD_DEMANDPARSERHELPER_HPP
```

23.93 trademgen/config/trademgen-paths.hpp File Reference

Macros

- #define PACKAGE "trademgen"
- #define PACKAGE_NAME "TRADEMGEN"
- #define PACKAGE_VERSION "1.00.0"
- #define PREFIXDIR "/usr"
- #define EXEC_PREFIX "/usr"
- #define BINDIR "/usr/bin"
- #define LIBDIR "/usr/lib"

- #define LIBEXECDIR "/usr/libexec"
- #define SBINDIR "/usr/sbin"
- #define SYSCONFDIR "/usr/etc"
- #define INCLUDEDIR "/usr/include"
- #define DATAROOTDIR "/usr/share"
- #define DATADIR "/usr/share"
- #define DOCDIR "/usr/share/doc/trademgen-1.00.0"
- #define MANDIR "/usr/share/man"
- #define INFODIR "/usr/share/info"
- #define HTMLDIR "/usr/share/doc/trademgen-1.00.0/html"
- #define PDFDIR "/usr/share/doc/trademgen-1.00.0/html"
- #define STDAIR_SAMPLE_DIR "/usr/share/stdair/samples"

23.93.1 Macro Definition Documentation

23.93.1.1 #define PACKAGE "trademgen"

Definition at line 4 of file trademgen-paths.hpp.

23.93.1.2 #define PACKAGE_NAME "TRADEMGEN"

Definition at line 5 of file trademgen-paths.hpp.

Referenced by readConfiguration().

23.93.1.3 #define PACKAGE_VERSION "1.00.0"

Definition at line 6 of file trademgen-paths.hpp.

Referenced by readConfiguration().

23.93.1.4 #define PREFIXDIR "/usr"

Definition at line 7 of file trademgen-paths.hpp.

Referenced by readConfiguration().

23.93.1.5 #define EXEC_PREFIX "/usr"

Definition at line 8 of file trademgen-paths.hpp.

23.93.1.6 #define BINDIR "/usr/bin"

Definition at line 9 of file trademgen-paths.hpp.

23.93.1.7 #define LIBDIR "/usr/lib"

Definition at line 10 of file trademgen-paths.hpp.

23.93.1.8 #define LIBEXECDIR "/usr/libexec"

Definition at line 11 of file trademgen-paths.hpp.

23.93.1.9 #define SBINDIR "/usr/sbin"

Definition at line 12 of file trademgen-paths.hpp.

23.93.1.10 #define SYSCONFDIR "/usr/etc"

Definition at line 13 of file trademgen-paths.hpp.

23.93.1.11 #define INCLUDEDIR "/usr/include"

Definition at line 14 of file trademgen-paths.hpp.

23.93.1.12 #define DATAROOTDIR "/usr/share"

Definition at line 15 of file trademgen-paths.hpp.

23.93.1.13 #define DATADIR "/usr/share"

Definition at line 16 of file trademgen-paths.hpp.

23.93.1.14 #define DOCDIR "/usr/share/doc/trademgen-1.00.0"

Definition at line 17 of file trademgen-paths.hpp.

23.93.1.15 #define MANDIR "/usr/share/man"

Definition at line 18 of file trademgen-paths.hpp.

23.93.1.16 #define INFODIR "/usr/share/info"

Definition at line 19 of file trademgen-paths.hpp.

23.93.1.17 #define HTMLDIR "/usr/share/doc/trademgen-1.00.0/html"

Definition at line 20 of file trademgen-paths.hpp.

23.93.1.18 #define PDFDIR "/usr/share/doc/trademgen-1.00.0/html"

Definition at line 21 of file trademgen-paths.hpp.

23.93.1.19 #define STDAIR_SAMPLE_DIR "/usr/share/stdair/samples"

Definition at line 22 of file trademgen-paths.hpp.

23.94 trademgen-paths.hpp

```
00001 #ifndef __TRADEMGEN_PATHS_HPP__
00002 #define __TRADEMGEN_PATHS_HPP__
00003
00004 #define PACKAGE "trademgen"
00005 #define PACKAGE_NAME "TRADEMGEN"
00006 #define PACKAGE_VERSION "1.00.0"
00007 #define PREFIXDIR "/usr"
00008 #define EXEC_PREFIX "/usr"
00009 #define BINDIR "/usr/bin"
00010 #define LIBDIR "/usr/lib"
00011 #define LIBEXECDIR "/usr/libexec"
00012 #define SBINDIR "/usr/sbin"
00013 #define SYSCONFDIR "/usr/etc"
00014 #define INCLUDEDIR "/usr/include"
00015 #define DATAROOTDIR "/usr/share"
00016 #define DATADIR "/usr/share"
00017 #define DOCDIR "/usr/share/doc/trademgen-1.00.0"
00018 #define MANDIR "/usr/share/man"
00019 #define INFODIR "/usr/share/info"
00020 #define HTMLDIR "/usr/share/doc/trademgen-1.00.0/html"
00021 #define PDFDIR "/usr/share/doc/trademgen-1.00.0/html"
00022 #define STDAIR_SAMPLE_DIR "/usr/share/stdair/samples"
00023
00024 #endif // __TRADEMGEN_PATHS_HPP__
```

23.95 trademgen/DBParams.hpp File Reference

```
#include <iosfwd>
#include <string>
#include <trademgen/TRADEMGEN_Types.hpp>
#include <trademgen/TRADEMGEN_Abstract.hpp>
```

Classes

- struct TRADEMGEN::DBParams

Namespaces

- namespace TRADEMGEN

Typedefs

- typedef std::list< std::string > TRADEMGEN::DBParamsNameList_T

23.96 DBParams.hpp

```
00001 #ifndef __TRADEMGEN_DBPARAMS_HPP
00002 #define __TRADEMGEN_DBPARAMS_HPP
00003
00004 // //////////////////////////////////////////////////////////////////
00005 // Import section
00006 // //////////////////////////////////////////////////////////////////
00007 // STL
00008 #include <iosfwd>
00009 #include <string>
00010 // Trademgen
00011 #include <trademgen/TRADEMGEN_Types.hpp>
00012 #include <trademgen/TRADEMGEN_Abstract.hpp>
00013
00014 namespace TRADEMGEN {
00015
00017   typedef std::list<std::string> DBParamsNameList_T;
00018
00019
00021   struct DBParams : public TRADEMGEN_Abstract {
00022   public:
00023     // ///////// Getters ////////
00025     std::string getUser() const {
00026       return _user;
00027     }
00028
00030     std::string getPassword() const {
00031       return _passwd;
00032     }
00033
00035     std::string getHost() const {
00036       return _host;
00037     }
00038
00040     std::string getPort() const {
00041       return _port;
00042     }
00043
00045     std::string getDBName() const {
00046       return _dbname;
00047     }
00048
00049
00050     // ///////// Setters //////////
00052     void setUser (const std::string& iUser) {
00053       _user = iUser;
00054     }
00055
00057     void setPassword (const std::string& iPasswd) {
00058       _passwd = iPasswd;
00059     }
```

```
00060
00062     void setHost (const std::string& iHost) {
00063       _host = iHost;
00064     }
00065
00067     void setPort (const std::string& iPort) {
00068       _port = iPort;
00069     }
00070
00072     void setDBName (const std::string& iDBName) {
00073       _dbname = iDBName;
00074     }
00075
00076
00077   public:
00078     // ///////// Busines methods ////////
00080     bool check () const {
00081       if (_user.empty() == true || _passwd.empty() == true
00082           || _host.empty() == true || _port.empty()
00083           || _dbname.empty() == true) {
00084         return false;
00085       }
00086       return true;
00087     }
00088
00089   public:
00090     // ///////// Display methods ////////
00093     void toStream (std::ostream& ioOut) const {
00094       ioOut << toString();
00095     }
00096
00099     void fromStream (std::istream&) {
00100     }
00101
00103     std::string toShortString() const {
00104       std::ostringstream oStr;
00105       oStr << _dbname << "." << _user << "@" << _host << ":" << _port;
00106       return oStr.str();
00107     }
00108
00110     std::string toString() const {
00111       std::ostringstream oStr;
00112       oStr << _dbname << "." << _user << "@" << _host << ":" << _port;
00113       return oStr.str();
00114     }
00115
00116
00117   public:
00119     DBParams (const std::string& iDBUser, const std::string& iDBPasswd,
00120               const std::string& iDBHost, const std::string& iDBPort,
00121               const std::string& iDBName)
00122       : _user (iDBUser), _passwd (iDBPasswd), _host (iDBHost), _port (iDBPort),
00123         _dbname (iDBName) {
00124     }
00125
00127     // DBParams ();
00129     // DBParams (const DBParams&);
00130
00132     virtual ~DBParams() {}
00133
00134
00135   private:
00136     // /////// Attributes /////////
00138     std::string _user;
00140     std::string _passwd;
00142     std::string _host;
00144     std::string _port;
00146     std::string _dbname;
00147   };
00148
00149 }
00150 #endif // __TRADEMGEN_DBPARAMS_HPP
```

23.97 trademgen/factory/FacTRADEMGENServiceContext.cpp File Reference

```
#include <cassert>
#include <stdair/service/FacSupervisor.hpp>
#include <trademgen/factory/FacTRADEMGENServiceContext.hpp>
#include <trademgen/service/TRADEMGEN_ServiceContext.hpp>
```

Namespaces

- namespace TRADEMGEN

23.98 FacTRADEMGENServiceContext.cpp

```
00001 // ////////////////////////////////////////////////////////////////////
00002 // Import section
00003 // ////////////////////////////////////////////////////////////////////
00004 // STL
00005 #include <cassert>
00006 // StdAir
00007 #include <stdair/service/FacSupervisor.hpp>
00008 // TraDemGen
00009 #include <trademgen/factory/FacTRADEMGENServiceContext.hpp
      >
00010 #include <trademgen/service/TRADEMGEN_ServiceContext.hpp
      >
00011
00012 namespace TRADEMGEN {
00013
00014   FacTRADEMGENServiceContext* FacTRADEMGENServiceContext::_instance = NULL;
00015
00016   // ////////////////////////////////////////////////////////////////////
00017   FacTRADEMGENServiceContext::~FacTRADEMGENServiceContext
      () {
00018     _instance = NULL;
00019   }
00020
00021   // ////////////////////////////////////////////////////////////////////
00022   FacTRADEMGENServiceContext&
      FacTRADEMGENServiceContext::instance() {
00023
00024     if (_instance == NULL) {
00025       _instance = new FacTRADEMGENServiceContext();
00026       assert (_instance != NULL);
00027
00028       stdair::FacSupervisor::instance().
      registerServiceFactory (_instance);
00029     }
00030     return *_instance;
00031   }
00032
00033   // ////////////////////////////////////////////////////////////////////
00034   TRADEMGEN_ServiceContext&
      FacTRADEMGENServiceContext::
00035   create (const stdair::RandomSeed_T& iRandomSeed) {
00036     TRADEMGEN_ServiceContext* aServiceContext_ptr =
      NULL;
00037
00038     aServiceContext_ptr = new TRADEMGEN_ServiceContext
      (iRandomSeed);
00039     assert (aServiceContext_ptr != NULL);
00040
00041     // The new object is added to the Bom pool
00042     _pool.push_back (aServiceContext_ptr);
00043
00044     return *aServiceContext_ptr;
00045   }
00046
00047 }
```

23.99 trademgen/factory/FacTRADEMGENServiceContext.hpp File Reference

```
#include <stdair/stdair_maths_types.hpp>
#include <stdair/service/FacServiceAbstract.hpp>
#include <trademgen/TRADEMGEN_Types.hpp>
```

Classes

- class TRADEMGEN::FacTRADEMGENServiceContext

  Factory for creating the TraDemGen service context instance.

Namespaces

- namespace TRADEMGEN

23.100 FacTRADEMGENServiceContext.hpp

```
00001 #ifndef __TRADEMGEN_FAC_FACTRADEMGENSERVICECONTEXT_HPP
00002 #define __TRADEMGEN_FAC_FACTRADEMGENSERVICECONTEXT_HPP
00003
00004 // //////////////////////////////////////////////////////////////////////
00005 // Import section
00006 // //////////////////////////////////////////////////////////////////////
00007 // StdAir
00008 #include <stdair/stdair_maths_types.hpp>
00009 #include <stdair/service/FacServiceAbstract.hpp>
00010 // TraDemGen
00011 #include <trademgen/TRADEMGEN_Types.hpp>
00012
00013 namespace TRADEMGEN {
00014
00016   class TRADEMGEN_ServiceContext;
00017
00021   class FacTRADEMGENServiceContext : public
      stdair::FacServiceAbstract {
00022   public:
00030     static FacTRADEMGENServiceContext& instance
      ();
00031
00038     ~FacTRADEMGENServiceContext();
00039
00048     TRADEMGEN_ServiceContext& create (const
      stdair::RandomSeed_T&);
00049
00050
00051   protected:
00057     FacTRADEMGENServiceContext () {}
00058
00059   private:
00063     static FacTRADEMGENServiceContext* _instance;
00064   };
00065
00066 }
00067 #endif // __TRADEMGEN_FAC_FACTRADEMGENSERVICECONTEXT_HPP
```

23.101 trademgen/python/pytrademgen.cpp File Reference

```
#include <cassert>
#include <stdexcept>
#include <fstream>
#include <sstream>
#include <string>
#include <list>
#include <vector>
#include <boost/python.hpp>
#include <boost/accumulators/accumulators.hpp>
#include <boost/accumulators/statistics.hpp>
#include <stdair/stdair_basic_types.hpp>
#include <stdair/basic/BasConst_General.hpp>
#include <stdair/basic/ProgressStatusSet.hpp>
#include <stdair/basic/DemandGenerationMethod.hpp>
#include <stdair/bom/EventStruct.hpp>
#include <stdair/bom/BookingRequestStruct.hpp>
#include <stdair/bom/BomDisplay.hpp>
#include <stdair/service/Logger.hpp>
#include <trademgen/TRADEMGEN_Service.hpp>
#include <trademgen/config/trademgen-paths.hpp>
```

Classes

- struct TRADEMGEN::Trademgener

  Wrapper structure around the C++ API, so as to expose a Python API.

Namespaces

- namespace TRADEMGEN

Typedefs

- typedef unsigned int NbOfRuns_T
- typedef ba::accumulator_set
  < double, ba::stats
  < ba::tag::min, ba::tag::max,
  ba::tag::mean(ba::immediate),
  ba::tag::sum,
  ba::tag::variance > > stat_acc_type

Functions

- void TRADEMGEN::stat_display (std::ostream &oStream, const stat_acc_type &iStatAcc)
- BOOST_PYTHON_MODULE (libpytrademgen)

23.101.1 Typedef Documentation

23.101.1.1 typedef unsigned int NbOfRuns_T

Definition at line 31 of file pytrademgen.cpp.

23.101.1.2 typedef ba::accumulator_set<double, ba::stats<ba::tag::min, ba::tag::max, ba::tag::mean (ba::immediate), ba::tag::sum, ba::tag::variance> > stat_acc_type

Type definition to gather statistics.

Definition at line 40 of file pytrademgen.cpp.

23.101.2 Function Documentation

23.101.2.1 BOOST_PYTHON_MODULE (libpytrademgen)

Definition at line 355 of file pytrademgen.cpp.

References TRADEMGEN::Trademgener::init(), and TRADEMGEN::Trademgener::trademgen().

23.102 pytrademgen.cpp

```
00001 // STL
00002 #include <cassert>
00003 #include <stdexcept>
00004 #include <fstream>
00005 #include <sstream>
00006 #include <string>
00007 #include <list>
00008 #include <vector>
00009 // Boost Python
00010 #include <boost/python.hpp>
00011 // Boost Accumulators
00012 #include <boost/accumulators/accumulators.hpp>
```

```
00013 #include <boost/accumulators/statistics.hpp>
00014 // StdAir
00015 #include <stdair/stdair_basic_types.hpp>
00016 #include <stdair/basic/BasConst_General.hpp>
00017 #include <stdair/basic/ProgressStatusSet.hpp>
00018 #include <stdair/basic/DemandGenerationMethod.hpp>
00019 #include <stdair/bom/EventStruct.hpp>
00020 #include <stdair/bom/BookingRequestStruct.hpp>
00021 #include <stdair/bom/BomDisplay.hpp>
00022 #include <stdair/service/Logger.hpp>
00023 // TraDemGen
00024 #include <trademgen/TRADEMGEN_Service.hpp>
00025 #include <trademgen/config/trademgen-paths.hpp
      >
00026
00027 // Aliases for namespaces
00028 namespace ba = boost::accumulators;
00029
00030 // //////// Specific type definitions ///////
00031 typedef unsigned int NbOfRuns_T;
00032
00036 typedef ba::accumulator_set<double,
00037                             ba::stats<ba::tag::min, ba::tag::max,
00038                                       ba::tag::mean (ba::immediate),
00039                                       ba::tag::sum,
00040                                       ba::tag::variance> > stat_acc_type
      ;
00041
00042 namespace TRADEMGEN {
00043
00047   void stat_display (std::ostream& oStream, const stat_acc_type
      & iStatAcc) {
00048
00049     // Store current formatting flags of the output stream
00050     std::ios::fmtflags oldFlags = oStream.flags();
00051
00052     //
00053     oStream.setf (std::ios::fixed);
00054
00055     //
00056     oStream << "Statistics for the demand generation runs: " << std::endl;
00057     oStream << "  minimum   = " << ba::min (iStatAcc) << std::endl;
00058     oStream << "  mean      = " << ba::mean (iStatAcc) << std::endl;
00059     oStream << "  maximum   = " << ba::max (iStatAcc) << std::endl;
00060     oStream << "  count     = " << ba::count (iStatAcc) << std::endl;
00061     oStream << "  variance  = " << ba::variance (iStatAcc) << std::endl;
00062
00063     // Reset formatting flags of output stream
00064     oStream.flags (oldFlags);
00065   }
00066
00070   struct Trademgener {
00071   public:
00075     std::string
00076     trademgen (const NbOfRuns_T& iNbOfRuns,
00077                const std::string& iDemandGenerationMethodString) {
00078       std::ostringstream oStream;
00079
00080       // Convert the input string into a demand generation method enumeration
00081       const stdair::DemandGenerationMethod
00082         iDemandGenerationMethod (iDemandGenerationMethodString);
00083
00084       // Sanity check
00085       if (_logOutputStream == NULL) {
00086         oStream << "The log filepath is not valid." << std::endl;
00087         return oStream.str();
00088       }
00089       assert (_logOutputStream != NULL);
00090
00091       try {
00092
00093         // DEBUG
00094         *_logOutputStream << "Demand generation for " << iNbOfRuns << " runs, "
00095                           << "with the following method: "
00096                           << iDemandGenerationMethod << std::endl;
00097
00098         if (_trademgenService == NULL) {
00099           oStream << "The TraDemGen service has not been initialised, "
00100                   << "i.e., the init() method has not been called "
00101                   << "correctly on the Trademgener object. Please "
00102                   << "check that all the parameters are not empty and "
00103                   << "point to actual files.";
00104           *_logOutputStream << oStream.str();
00105           return oStream.str();
00106         }
00107         assert (_trademgenService != NULL);
00108
```

```
00109         // Initialise the statistics collector/accumulator
00110         stat_acc_type lStatAccumulator;
00111
00112         // Retrieve the expected (mean value of the) number of events to be
00113         // generated
00114         const stdair::Count_T& lExpectedNbOfEventsToBeGenerated =
00115           _trademgenService->getExpectedTotalNumberOfRequestsToBeGenerated
      ();
00116
00117         // Initialise the (Boost) progress display object
00118         boost::progress_display
00119           lProgressDisplay (lExpectedNbOfEventsToBeGenerated * iNbOfRuns);
00120
00121         for (NbOfRuns_T runIdx = 1; runIdx <= iNbOfRuns; ++runIdx) {
00122           // ////////////////////////////////////////////////////
00123           *_logOutputStream << "Run number: " << runIdx << std::endl;
00124
00129           const stdair::Count_T& lActualNbOfEventsToBeGenerated =
00130             _trademgenService->generateFirstRequests (
      iDemandGenerationMethod);
00131
00132           // DEBUG
00133           *_logOutputStream << "[" << runIdx << "] Expected: "
00134                             << lExpectedNbOfEventsToBeGenerated << ", actual: "
00135                             << lActualNbOfEventsToBeGenerated << std::endl;
00136
00144           while (_trademgenService->isQueueDone() == false) {
00145
00146             // Extract the next event from the event queue
00147             stdair::EventStruct lEventStruct;
00148             stdair::ProgressStatusSet lProgressStatusSet =
00149               _trademgenService->popEvent (lEventStruct);
00150
00151             // DEBUG
00152             // STDAIR_LOG_DEBUG ("[" << runIdx << "] Poped event: '"
00153             //                   << lEventStruct.describe() << "'.");
00154
00155             // Extract the corresponding demand/booking request
00156             const stdair::BookingRequestStruct& lPoppedRequest =
00157               lEventStruct.getBookingRequest();
00158
00159             // DEBUG
00160             *_logOutputStream << "[" << runIdx << "] Poped booking request: '"
00161                               << lPoppedRequest.describe() << "'." << std::endl
      ;
00162
00163             // Dump the request into the dedicated CSV file
00164             // stdair::BomDisplay::csvDisplay (output, lPoppedRequest);
00165
00166             // Retrieve the corresponding demand stream key
00167             const stdair::DemandGeneratorKey_T& lDemandStreamKey =
00168               lPoppedRequest.getDemandGeneratorKey();
00169
00170             // Assess whether more events should be generated for that
00171             // demand stream
00172             const bool stillHavingRequestsToBeGenerated = _trademgenService->
00173               stillHavingRequestsToBeGenerated (lDemandStreamKey,
00174                                                 lProgressStatusSet,
00175                                                 iDemandGenerationMethod);
00176
00177             // DEBUG
00178             *_logOutputStream << lProgressStatusSet.describe() << std::endl;
00179             *_logOutputStream << "=> [" << lDemandStreamKey
00180                               << "] is now processed. Still generate events "
00181                               << "for that demand stream? "
00182                               << stillHavingRequestsToBeGenerated << std::endl;
00183
00184             // If there are still events to be generated for that demand
00185             // stream, generate and add them to the event queue
00186             if (stillHavingRequestsToBeGenerated == true) {
00187
00188               stdair::BookingRequestPtr_T lNextRequest_ptr =
00189                 _trademgenService->generateNextRequest(
      lDemandStreamKey,
00190                                                        iDemandGenerationMethod)
      ;
00191
00192               assert (lNextRequest_ptr != NULL);
00193
00194               // Sanity check
00195               const stdair::Duration_T lDuration =
00196                 lNextRequest_ptr->getRequestDateTime()
00197                 - lPoppedRequest.getRequestDateTime();
00198               if (lDuration.total_milliseconds() < 0) {
00199                 *_logOutputStream << "[" << lDemandStreamKey
00200                                   << "] The date-time of the generated event ("
00201                                   << lNextRequest_ptr->getRequestDateTime()
```

```
00202                                 << ") is lower than the date-time "
00203                                 << "of the current event ("
00204                                 << lPoppedRequest.getRequestDateTime()
00205                                 << ")" << std::endl;
00206               assert (false);
00207             }
00208
00209             // DEBUG
00210             *_logOutputStream << "[" << lDemandStreamKey
00211                               << "] Added request: '"
00212                               << lNextRequest_ptr->describe()
00213                               << "'. Is queue done? "
00214                               << _trademgenService->isQueueDone()
00215                               << std::endl;
00216           }
00217           // DEBUG
00218           *_logOutputStream << std::endl;
00219
00220           // Update the progress display
00221           ++lProgressDisplay;
00222         }
00223
00224         // Add the number of events to the statistics accumulator
00225         lStatAccumulator (lActualNbOfEventsToBeGenerated);
00226
00227         // Reset the service (including the event queue) for the next run
00228         _trademgenService->reset();
00229       }
00230
00231       // DEBUG
00232       *_logOutputStream << "End of the demand generation. Following are some
    "
00233                         << "statistics for the " << iNbOfRuns << " runs."
00234                         << std::endl;
00235       std::ostringstream oStatStr;
00236       stat_display (oStatStr, lStatAccumulator);
00237       *_logOutputStream << oStatStr.str() << std::endl;
00238
00239       // DEBUG
00240       const std::string& lBOMStr = _trademgenService->csvDisplay();
00241       *_logOutputStream << lBOMStr << std::endl;
00242
00243       // DEBUG
00244       *_logOutputStream << "TraDemGen output: "
00245                         << oStream.str() << std::endl;
00246
00247     } catch (const stdair::RootException& eTrademgenError) {
00248       oStream << "TraDemGen error: "  << eTrademgenError.what() << std::endl;
00249
00250     } catch (const std::exception& eStdError) {
00251       oStream << "Error: "  << eStdError.what() << std::endl;
00252
00253     } catch (...) {
00254       oStream << "Unknown error" << std::endl;
00255     }
00256
00257     //
00258     oStream << "TraDemGen has completed the generation of the booking "
00259             << "requests. See the log file for more details." << std::endl;
00260
00261     return oStream.str();
00262   }
00263
00264   public:
00266     Trademgener() : _trademgenService (NULL), _logOutputStream (NULL
    ) {
00267     }
00268
00270     Trademgener (const Trademgener& iTrademgener)
00271       : _trademgenService (iTrademgener._trademgenService),
00272         _logOutputStream (iTrademgener._logOutputStream) {
00273     }
00274
00276     ~Trademgener() {
00277       _trademgenService = NULL;
00278       _logOutputStream = NULL;
00279     }
00280
00284     bool init (const std::string& iLogFilepath,
00285                const stdair::RandomSeed_T& iRandomSeed, const bool isBuiltin,
00286                const stdair::Filename_T& iDemandInputFilename) {
00287       bool isEverythingOK = true;
00288
00289       try {
00290
00291         // Check that the file path given as input corresponds to an actual
    file
```

```
00292         const bool isWriteable = (iLogFilepath.empty() == false);
00293         // stdair::BasFileMgr::isWriteable (iLogFilepath);
00294         if (isWriteable == false) {
00295           isEverythingOK = false;
00296           return isEverythingOK;
00297         }
00298
00299         // Set the log parameters
00300         _logOutputStream = new std::ofstream;
00301         assert (_logOutputStream != NULL);
00302
00303         // Open and clean the log outputfile
00304         _logOutputStream->open (iLogFilepath.c_str());
00305         _logOutputStream->clear();
00306
00307         // DEBUG
00308         *_logOutputStream << "Python wrapper initialisation" << std::endl;
00309         const stdair::BasLogParams lLogParams (stdair::LOG::DEBUG,
00310                                                *_logOutputStream);
00311
00312         // Initialise the context
00313         _trademgenService = new TRADEMGEN_Service (lLogParams,
      iRandomSeed);
00314         assert (_trademgenService != NULL);
00315
00316         // Check wether or not a (CSV) input file should be read
00317         if (isBuiltin == true) {
00318           // Create a sample DemandStream object, and insert it within
00319           // the BOM tree
00320           _trademgenService->buildSampleBom();
00321
00322         } else {
00323           // Create the DemandStream objects, and insert them within
00324           // the BOM tree
00325           const DemandFilePath lDemandFilePath (
      iDemandInputFilename);
00326           _trademgenService->parseAndLoad (lDemandFilePath);
00327         }
00328
00329         // DEBUG
00330         *_logOutputStream << "Python wrapper initialised" << std::endl;
00331
00332       } catch (const stdair::RootException& eTrademgenError) {
00333         *_logOutputStream << "Trademgen error: "  << eTrademgenError.what()
00334                           << std::endl;
00335
00336       } catch (const std::exception& eStdError) {
00337         *_logOutputStream << "Error: "  << eStdError.what() << std::endl;
00338
00339       } catch (...) {
00340         *_logOutputStream << "Unknown error" << std::endl;
00341       }
00342
00343       return isEverythingOK;
00344     }
00345
00346   private:
00348     TRADEMGEN_Service* _trademgenService;
00349     std::ofstream* _logOutputStream;
00350   };
00351
00352 }
00353
00354 // ////////////////////////////////////////////////////////////
00355 BOOST_PYTHON_MODULE(libpytrademgen) {
00356   boost::python::class_<TRADEMGEN::Trademgener> ("Trademgener")
00357     .def ("trademgen", &TRADEMGEN::Trademgener::trademgen
      )
00358     .def ("init", &TRADEMGEN::Trademgener::init);
00359 }
```

23.103 trademgen/service/TRADEMGEN_Service.cpp File Reference

```
#include <cassert>
```

```
#include <sstream>
#include <boost/make_shared.hpp>
#include <soci/soci.h>
#include <stdair/basic/BasChronometer.hpp>
#include <stdair/basic/BasConst_General.hpp>
#include <stdair/basic/ProgressStatusSet.hpp>
#include <stdair/bom/BomRoot.hpp>
#include <stdair/bom/BookingRequestStruct.hpp>
#include <stdair/bom/AirlineStruct.hpp>
#include <stdair/bom/EventStruct.hpp>
#include <stdair/command/DBManagerForAirlines.hpp>
#include <stdair/service/Logger.hpp>
#include <stdair/service/DBSessionManager.hpp>
#include <stdair/STDAIR_Service.hpp>
#include <stdair/factory/FacBomManager.hpp>
#include <sevmgr/SEVMGR_Service.hpp>
#include <trademgen/basic/BasConst_TRADEMGEN_Service.hpp>
#include <trademgen/bom/BomDisplay.hpp>
#include <trademgen/bom/DemandStream.hpp>
#include <trademgen/bom/DemandStreamTypes.hpp>
#include <trademgen/factory/FacTRADEMGENServiceContext.hpp>
#include <trademgen/command/DemandParser.hpp>
#include <trademgen/command/DemandManager.hpp>
#include <trademgen/service/TRADEMGEN_ServiceContext.hpp>
#include <trademgen/TRADEMGEN_Service.hpp>
```

Namespaces

- namespace TRADEMGEN
- namespace SEVMGR

Functions

- template void SEVMGR::SEVMGR_Service::addEventGenerator< TRADEMGEN::DemandStream > (TRADEMGEN::DemandStream &) const
- template TRADEMGEN::DemandStream & SEVMGR::SEVMGR_Service::getEventGenerator< TRADEMGEN::DemandStream, stdair::DemandStreamKeyStr_T > (const stdair::DemandStreamKeyStr_T &) const
- template bool SEVMGR::SEVMGR_Service::hasEventGenerator< TRADEMGEN::DemandStream, stdair::DemandStreamKeyStr_T > (const stdair::DemandStreamKeyStr_T &) const
- template const TRADEMGEN::DemandStreamList_T SEVMGR::SEVMGR_Service::getEventGeneratorList< TRADEMGEN::DemandStream > () const
- template bool SEVMGR::SEVMGR_Service::hasEventGeneratorList< TRADEMGEN::DemandStream > () const

23.104 TRADEMGEN_Service.cpp

```
00001 // //////////////////////////////////////////////////////////////////
00002 // Import section
00003 // //////////////////////////////////////////////////////////////////
00004 // STL
00005 #include <cassert>
00006 #include <sstream>
00007 // Boost
00008 #include <boost/make_shared.hpp>
00009 #if defined(SOCI_HEADERS_BURIED)
00010 #include <soci/core/soci.h>
00011 #else // SOCI_HEADERS_BURIED
00012 #include <soci/soci.h>
```

```
00013 #endif // SOCI_HEADERS_BURIED
00014 // StdAir
00015 #include <stdair/basic/BasChronometer.hpp>
00016 #include <stdair/basic/BasConst_General.hpp>
00017 #include <stdair/basic/ProgressStatusSet.hpp>
00018 #include <stdair/bom/BomRoot.hpp>
00019 #include <stdair/bom/BookingRequestStruct.hpp>
00020 #include <stdair/bom/AirlineStruct.hpp>
00021 #include <stdair/bom/EventStruct.hpp>
00022 #include <stdair/command/DBManagerForAirlines.hpp>
00023 #include <stdair/service/Logger.hpp>
00024 #include <stdair/service/DBSessionManager.hpp>
00025 #include <stdair/STDAIR_Service.hpp>
00026 #include <stdair/factory/FacBomManager.hpp>
00027 // SEvMgr
00028 #include <sevmgr/SEVMGR_Service.hpp>
00029 // TraDemGen
00030 #include <trademgen/basic/BasConst_TRADEMGEN_Service.hpp
     >
00031 #include <trademgen/bom/BomDisplay.hpp>
00032 #include <trademgen/bom/DemandStream.hpp>
00033 #include <trademgen/bom/DemandStreamTypes.hpp
     >
00034 #include <trademgen/factory/FacTRADEMGENServiceContext.hpp
     >
00035 #include <trademgen/command/DemandParser.hpp>
00036 #include <trademgen/command/DemandManager.hpp
     >
00037 #include <trademgen/service/TRADEMGEN_ServiceContext.hpp
     >
00038 #include <trademgen/TRADEMGEN_Service.hpp>
00039
00040 namespace TRADEMGEN {
00041
00042   // ////////////////////////////////////////////////////////////////////
00043   TRADEMGEN_Service::TRADEMGEN_Service() : _trademgenServiceContext (NULL) {
00044     assert (false);
00045   }
00046
00047   // ////////////////////////////////////////////////////////////////////
00048   TRADEMGEN_Service::TRADEMGEN_Service (const TRADEMGEN_Service& iService)
00049     : _trademgenServiceContext (NULL) {
00050     assert (false);
00051   }
00052
00053   // ////////////////////////////////////////////////////////////////////
00054   TRADEMGEN_Service::TRADEMGEN_Service (const stdair::BasLogParams& iLogParams,
00055                                         const stdair::RandomSeed_T& iRandomSeed
     )
00056     : _trademgenServiceContext (NULL) {
00057
00058     // Initialise the STDAIR service handler
00059     stdair::STDAIR_ServicePtr_T lSTDAIR_Service_ptr =
00060       initStdAirService (iLogParams);
00061
00062     // Initialise the service context
00063     initServiceContext (iRandomSeed);
00064
00065     // Add the StdAir service context to the TRADEMGEN service context
00066     // \note TRADEMGEN owns the STDAIR service resources here.
00067     const bool ownStdairService = true;
00068     addStdAirService (lSTDAIR_Service_ptr, ownStdairService);
00069
00070     // Initalise the SEvMgr service.
00071     initSEVMGRService();
00072
00073     // Initialise the (remaining of the) context
00074     initTrademgenService();
00075   }
00076
00077   // ////////////////////////////////////////////////////////////////////
00078   TRADEMGEN_Service::TRADEMGEN_Service (const stdair::BasLogParams& iLogParams,
00079                                         const stdair::BasDBParams& iDBParams,
00080                                         const stdair::RandomSeed_T& iRandomSeed
     )
00081     : _trademgenServiceContext (NULL) {
00082
00083     // Initialise the STDAIR service handler
00084     stdair::STDAIR_ServicePtr_T lSTDAIR_Service_ptr =
00085       initStdAirService (iLogParams, iDBParams);
00086
00087     // Initialise the service context
00088     initServiceContext (iRandomSeed);
00089
00090     // Add the StdAir service context to the TRADEMGEN service context
00091     // \note TRADEMGEN owns the STDAIR service resources here.
00092     const bool ownStdairService = true;
```

```
00093     addStdAirService (lSTDAIR_Service_ptr, ownStdairService);
00094
00095     // Initalise the SEvMgr service.
00096     initSEVMGRService();
00097
00098     // Initialise the (remaining of the) context
00099     initTrademgenService();
00100   }
00101
00102   // ////////////////////////////////////////////////////////////////////
00103   TRADEMGEN_Service::
00104   TRADEMGEN_Service (stdair::STDAIR_ServicePtr_T ioSTDAIR_Service_ptr,
00105                      SEVMGR::SEVMGR_ServicePtr_T ioSEVMGR_Service_ptr,
00106                      const stdair::RandomSeed_T& iRandomSeed)
00107     : _trademgenServiceContext (NULL) {
00108
00109     // Initialise the service context
00110     initServiceContext (iRandomSeed);
00111
00112     // Add the StdAir service context to the TRADEMGEN service context
00113     // \note TraDemGen does not own the STDAIR service resources here.
00114     const bool doesNotOwnStdairService = false;
00115     addStdAirService (ioSTDAIR_Service_ptr, doesNotOwnStdairService);
00116
00117     //Add the SEvMgr service to the TRADEMGEN service context.
00118     addSEVMGRService (ioSEVMGR_Service_ptr);
00119
00120     // Initialise the context
00121     initTrademgenService();
00122   }
00123
00124   // ////////////////////////////////////////////////////////////////////
00125   TRADEMGEN_Service::~TRADEMGEN_Service()
    {
00126     // Delete/Clean all the objects from memory
00127     finalise();
00128   }
00129
00130   // ////////////////////////////////////////////////////////////////////
00131   void TRADEMGEN_Service::finalise() {
00132     assert (_trademgenServiceContext != NULL);
00133     // Reset the (Boost.)Smart pointer pointing on the STDAIR_Service object.
00134     _trademgenServiceContext->reset();
00135   }
00136
00137   // ////////////////////////////////////////////////////////////////////
00138   void TRADEMGEN_Service::
00139   initServiceContext (const stdair::RandomSeed_T& iRandomSeed) {
00140     // Initialise the service context
00141     TRADEMGEN_ServiceContext& lTRADEMGEN_ServiceContext =
00142       FacTRADEMGENServiceContext::instance(
    ).create (iRandomSeed);
00143     _trademgenServiceContext = &lTRADEMGEN_ServiceContext;
00144   }
00145
00146   // ////////////////////////////////////////////////////////////////////
00147   void TRADEMGEN_Service::
00148   addStdAirService (stdair::STDAIR_ServicePtr_T ioSTDAIR_Service_ptr,
00149                     const bool iOwnStdairService) {
00150     // Retrieve the TraDemGen service context
00151     assert (_trademgenServiceContext != NULL);
00152     TRADEMGEN_ServiceContext& lTRADEMGEN_ServiceContext =
00153       *_trademgenServiceContext;
00154
00155     // Store the STDAIR service object within the (TRADEMGEN) service context
00156     lTRADEMGEN_ServiceContext.setSTDAIR_Service (ioSTDAIR_Service_ptr,
00157                                                  iOwnStdairService);
00158   }
00159
00160   // ////////////////////////////////////////////////////////////////////
00161   void TRADEMGEN_Service::
00162   addSEVMGRService (SEVMGR::SEVMGR_ServicePtr_T ioSEVMGR_Service_ptr) {
00163
00164     // Retrieve the TraDemGen service context
00165     assert (_trademgenServiceContext != NULL);
00166     TRADEMGEN_ServiceContext& lTRADEMGEN_ServiceContext =
00167       *_trademgenServiceContext;
00168
00169     // Store the STDAIR service object within the (TRADEMGEN) service context
00170     lTRADEMGEN_ServiceContext.setSEVMGR_Service (ioSEVMGR_Service_ptr);
00171   }
00172
00173   // ////////////////////////////////////////////////////////////////////
00174   stdair::STDAIR_ServicePtr_T TRADEMGEN_Service::
00175   initStdAirService (const stdair::BasLogParams& iLogParams,
00176                      const stdair::BasDBParams& iDBParams) {
00177
```

```
00183     stdair::STDAIR_ServicePtr_T lSTDAIR_Service_ptr =
00184       boost::make_shared<stdair::STDAIR_Service> (iLogParams, iDBParams);
00185     assert (lSTDAIR_Service_ptr != NULL);
00186
00187     return lSTDAIR_Service_ptr;
00188   }
00189
00190   // ////////////////////////////////////////////////////////////////////
00191   stdair::STDAIR_ServicePtr_T TRADEMGEN_Service::
00192   initStdAirService (const stdair::BasLogParams& iLogParams) {
00193
00199     stdair::STDAIR_ServicePtr_T lSTDAIR_Service_ptr =
00200       boost::make_shared<stdair::STDAIR_Service> (iLogParams);
00201     assert (lSTDAIR_Service_ptr != NULL);
00202
00203     return lSTDAIR_Service_ptr;
00204   }
00205
00206   // ////////////////////////////////////////////////////////////////////
00207   void TRADEMGEN_Service::initSEVMGRService() {
00208
00209     // Retrieve the TraDemGen service context
00210     assert (_trademgenServiceContext != NULL);
00211     TRADEMGEN_ServiceContext& lTRADEMGEN_ServiceContext =
00212       *_trademgenServiceContext;
00213
00214     // Retrieve the StdAir service context
00215     stdair::STDAIR_ServicePtr_T lSTDAIR_Service_ptr =
00216       lTRADEMGEN_ServiceContext.getSTDAIR_ServicePtr();
00217
00225     SEVMGR::SEVMGR_ServicePtr_T lSEVMGR_Service_ptr =
00226       boost::make_shared<SEVMGR::SEVMGR_Service> (lSTDAIR_Service_ptr);
00227
00228     // Store the SEvMgr service object within the (TraDemGen) service context
00229     lTRADEMGEN_ServiceContext.setSEVMGR_Service (lSEVMGR_Service_ptr);
00230   }
00231
00232
00233   // ////////////////////////////////////////////////////////////////////
00234   void TRADEMGEN_Service::initTrademgenService() {
00235     // Do nothing at this stage. A sample BOM tree may be built by
00236     // calling the buildSampleBom() method
00237   }
00238
00239   // ////////////////////////////////////////////////////////////////////
00240   void TRADEMGEN_Service::
00241   parseAndLoad (const DemandFilePath&
      iDemandFilePath) {
00242
00243     // Retrieve the TraDemGen service context
00244     if (_trademgenServiceContext == NULL) {
00245       throw stdair::NonInitialisedServiceException ("The TraDemGen service has
      "
00246                                                     "not been initialised");
00247     }
00248     assert (_trademgenServiceContext != NULL);
00249
00250     // Retrieve the TraDemGen service context and whether it owns the Stdair
00251     // service
00252     TRADEMGEN_ServiceContext& lTRADEMGEN_ServiceContext
       =
00253       *_trademgenServiceContext;
00254     const bool doesOwnStdairService =
00255       lTRADEMGEN_ServiceContext.getOwnStdairServiceFlag();
00256
00257     // Retrieve the StdAir service object from the (TRADEMGEN) service context
00258     stdair::STDAIR_Service& lSTDAIR_Service =
00259       lTRADEMGEN_ServiceContext.getSTDAIR_Service();
00260
00261     // Retrieve the persistent BOM root object.
00262     stdair::BomRoot& lPersistentBomRoot =
00263       lSTDAIR_Service.getPersistentBomRoot();
00264
00265     // Retrieve the pointer on the SEvMgr service handler.
00266     SEVMGR::SEVMGR_ServicePtr_T lSEVMGR_Service_ptr =
00267       lTRADEMGEN_ServiceContext.getSEVMGR_ServicePtr();
00268
00269     // Retrieve the shared generator
00270     stdair::RandomGeneration& lSharedGenerator =
00271       lTRADEMGEN_ServiceContext.getUniformGenerator();
00272
00273     // Retrieve the default POS distribution
00274     const POSProbabilityMass_T& lDefaultPOSProbabilityMass
       =
00275       lTRADEMGEN_ServiceContext.getPOSProbabilityMass();
00276
00280     stdair::BasChronometer lDemandGeneration; lDemandGeneration.start();
```

```
00281     DemandParser::generateDemand (iDemandFilePath,
      lSEVMGR_Service_ptr,
00282                                   lSharedGenerator, lDefaultPOSProbabilityMass)
      ;
00283     const double lGenerationMeasure = lDemandGeneration.elapsed();
00284
00294     buildComplementaryLinks (lPersistentBomRoot);
00295
00296     // DEBUG
00297     STDAIR_LOG_DEBUG ("Demand generation time: " << lGenerationMeasure);
00298
00303     if (doesOwnStdairService == true) {
00304       //
00305       clonePersistentBom ();
00306     }
00307   }
00308
00309   // ////////////////////////////////////////////////////////////////////
00310   void TRADEMGEN_Service::buildSampleBom() {
00311
00312     // Retrieve the TraDemGen service context
00313     if (_trademgenServiceContext == NULL) {
00314       throw stdair::NonInitialisedServiceException ("The TraDemGen service has
      "
00315                                                     "not been initialised");
00316     }
00317     assert (_trademgenServiceContext != NULL);
00318
00319     // Retrieve the TraDemGen service context and whether it owns the Stdair
00320     // service
00321     TRADEMGEN_ServiceContext& lTRADEMGEN_ServiceContext
       =
00322       *_trademgenServiceContext;
00323     const bool doesOwnStdairService =
00324       lTRADEMGEN_ServiceContext.getOwnStdairServiceFlag();
00325
00326     // Retrieve the StdAir service object from the (TraDemGen) service context
00327     stdair::STDAIR_Service& lSTDAIR_Service =
00328       lTRADEMGEN_ServiceContext.getSTDAIR_Service();
00329
00330     // Retrieve the persistent BOM root object.
00331     stdair::BomRoot& lPersistentBomRoot =
00332       lSTDAIR_Service.getPersistentBomRoot();
00333
00338     if (doesOwnStdairService == true) {
00339       //
00340       lSTDAIR_Service.buildSampleBom();
00341     }
00342
00353     // Retrieve the shared generator
00354     stdair::RandomGeneration& lSharedGenerator =
00355       lTRADEMGEN_ServiceContext.getUniformGenerator();
00356
00357     // Retrieve the default POS distribution
00358     const POSProbabilityMass_T& lDefaultPOSProbabilityMass
      =
00359       lTRADEMGEN_ServiceContext.getPOSProbabilityMass();
00360
00361     // Retrieve the pointer on the SEvMgr service handler.
00362     SEVMGR::SEVMGR_ServicePtr_T lSEVMGR_Service_ptr =
00363       lTRADEMGEN_ServiceContext.getSEVMGR_ServicePtr();
00364
00365     // Delegate the BOM building to the dedicated service
00366     DemandManager::buildSampleBom (
      lSEVMGR_Service_ptr, lSharedGenerator,
00367                                    lDefaultPOSProbabilityMass);
00368     // Build the complementary links
00369     buildComplementaryLinks (lPersistentBomRoot);
00370
00375     if (doesOwnStdairService == true) {
00376       //
00377       clonePersistentBom ();
00378     }
00379   }
00380
00381   // ////////////////////////////////////////////////////////////////////
00382   void TRADEMGEN_Service::clonePersistentBom
       () {
00383
00384     // Retrieve the TraDemGen service context
00385     if (_trademgenServiceContext == NULL) {
00386       throw stdair::NonInitialisedServiceException ("The TraDemGen service has
      "
00387                                                     "not been initialised");
00388     }
00389     assert (_trademgenServiceContext != NULL);
00390
```

```
00391     // Retrieve the TraDemGen service context and whether it owns the Stdair
00392     // service
00393     TRADEMGEN_ServiceContext& lTRADEMGEN_ServiceContext
      =
00394       *_trademgenServiceContext;
00395     const bool doesOwnStdairService =
00396       lTRADEMGEN_ServiceContext.getOwnStdairServiceFlag();
00397
00398     // Retrieve the StdAir service object from the (TraDemGen) service context
00399     stdair::STDAIR_Service& lSTDAIR_Service =
00400       lTRADEMGEN_ServiceContext.getSTDAIR_Service();
00401
00406     if (doesOwnStdairService == true) {
00407       //
00408       lSTDAIR_Service.clonePersistentBom ();
00409     }
00410
00414     stdair::BomRoot& lBomRoot = lSTDAIR_Service.getBomRoot();
00415     buildComplementaryLinks (lBomRoot);
00416   }
00417
00418   // ////////////////////////////////////////////////////////////////////
00419   void TRADEMGEN_Service::buildComplementaryLinks
     (stdair::BomRoot& ioBomRoot) {
00420     // Currently, no more things to do by TRADEMGEN at that stage.
00421   }
00422
00423   // ////////////////////////////////////////////////////////////////////
00424   stdair::BookingRequestStruct TRADEMGEN_Service::
00425   buildSampleBookingRequest (const bool isForCRS) {
00426
00427     // Retrieve the TraDemGen service context
00428     if (_trademgenServiceContext == NULL) {
00429       throw stdair::NonInitialisedServiceException ("The TraDemGen service has
      "
00430                                                     "not been initialised");
00431     }
00432     assert (_trademgenServiceContext != NULL);
00433
00434     TRADEMGEN_ServiceContext& lTRADEMGEN_ServiceContext
      =
00435       *_trademgenServiceContext;
00436
00437     // Retrieve the STDAIR service object from the (TraDemGen) service context
00438     stdair::STDAIR_Service& lSTDAIR_Service =
00439       lTRADEMGEN_ServiceContext.getSTDAIR_Service();
00440
00441     // Delegate the BOM building to the dedicated service
00442     return lSTDAIR_Service.buildSampleBookingRequest (isForCRS);
00443   }
00444
00445   // ////////////////////////////////////////////////////////////////////
00446   std::string TRADEMGEN_Service::
00447   jsonHandler (const stdair::JSONString& iJSONString) const {
00448
00449     // Retrieve the TraDemGen service context
00450     if (_trademgenServiceContext == NULL) {
00451       throw stdair::NonInitialisedServiceException ("The TraDemGen service has
      "
00452                                                     "not been initialised");
00453     }
00454     assert (_trademgenServiceContext != NULL);
00455
00456     TRADEMGEN_ServiceContext& lTRADEMGEN_ServiceContext
      =
00457       *_trademgenServiceContext;
00458
00459     // Retrieve the pointer on the SEvMgr service handler.
00460     SEVMGR::SEVMGR_ServicePtr_T lSEVMGR_Service_ptr =
00461       lTRADEMGEN_ServiceContext.getSEVMGR_ServicePtr();
00462
00463     return lSEVMGR_Service_ptr->jsonHandler (iJSONString);
00464
00465   }
00466
00467   // ////////////////////////////////////////////////////////////////////
00468   std::string TRADEMGEN_Service::csvDisplay()
     const {
00469
00470     // Retrieve the TraDemGen service context
00471     if (_trademgenServiceContext == NULL) {
00472       throw stdair::NonInitialisedServiceException ("The TraDemGen service has
      "
00473                                                     "not been initialised");
00474     }
00475     assert (_trademgenServiceContext != NULL);
00476
```

```
00477     TRADEMGEN_ServiceContext& lTRADEMGEN_ServiceContext
      =
00478       *_trademgenServiceContext;
00479
00480     // Retrieve the pointer on the SEvMgr service handler.
00481     SEVMGR::SEVMGR_ServicePtr_T lSEVMGR_Service_ptr =
00482       lTRADEMGEN_ServiceContext.getSEVMGR_ServicePtr();
00483
00484     // Delegate the BOM building to the dedicated service
00485     return BomDisplay::csvDisplay (lSEVMGR_Service_ptr);
00486
00487   }
00488
00489   // ////////////////////////////////////////////////////////////////////
00490   std::string TRADEMGEN_Service::list() const {
00491
00492     // Retrieve the TraDemGen service context
00493     if (_trademgenServiceContext == NULL) {
00494       throw stdair::NonInitialisedServiceException ("The TraDemGen service has
      "
00495                                                     "not been initialised");
00496     }
00497     assert (_trademgenServiceContext != NULL);
00498
00499     TRADEMGEN_ServiceContext& lTRADEMGEN_ServiceContext
      =
00500       *_trademgenServiceContext;
00501
00502     // Retrieve the pointer on the SEvMgr service handler.
00503     SEVMGR::SEVMGR_ServicePtr_T lSEVMGR_Service_ptr =
00504       lTRADEMGEN_ServiceContext.getSEVMGR_ServicePtr();
00505
00506     // Delegate the BOM building to the dedicated service
00507     return lSEVMGR_Service_ptr->list ();
00508
00509   }
00510
00511   // ////////////////////////////////////////////////////////////////////
00512   std::string TRADEMGEN_Service::
00513   list(const stdair::EventType::EN_EventType& iEventType) const {
00514
00515     // Retrieve the TraDemGen service context
00516     if (_trademgenServiceContext == NULL) {
00517       throw stdair::NonInitialisedServiceException ("The TraDemGen service has
      "
00518                                                     "not been initialised");
00519     }
00520     assert (_trademgenServiceContext != NULL);
00521
00522     TRADEMGEN_ServiceContext& lTRADEMGEN_ServiceContext
      =
00523       *_trademgenServiceContext;
00524
00525     // Retrieve the pointer on the SEvMgr service handler.
00526     SEVMGR::SEVMGR_ServicePtr_T lSEVMGR_Service_ptr =
00527       lTRADEMGEN_ServiceContext.getSEVMGR_ServicePtr();
00528
00529     // Delegate the BOM building to the dedicated service
00530     return lSEVMGR_Service_ptr->list (iEventType);
00531
00532   }
00533
00534   // ////////////////////////////////////////////////////////////////////
00535   void TRADEMGEN_Service::displayAirlineListFromDB
      () const {
00536
00537     // Retrieve the TraDemGen service context
00538     if (_trademgenServiceContext == NULL) {
00539       throw stdair::NonInitialisedServiceException ("The TraDemGen service has
      "
00540                                                     "not been initialised");
00541     }
00542     assert (_trademgenServiceContext != NULL);
00543     // TRADEMGEN_ServiceContext& lTRADEMGEN_ServiceContext =
00544     //  *_trademgenServiceContext;
00545
00546     // Get the date-time for the present time
00547     boost::posix_time::ptime lNowDateTime =
00548       boost::posix_time::second_clock::local_time();
00549     //boost::gregorian::date lNowDate = lNowDateTime.date();
00550
00551     // DEBUG
00552     STDAIR_LOG_DEBUG (std::endl
00553                       << "================================================="
00554                       << std::endl
00555                       << lNowDateTime);
00556
```

```
00557     // Delegate the query execution to the dedicated command
00558     stdair::BasChronometer lAirListChronometer;
00559     lAirListChronometer.start();
00560
00561     // Retrieve the database session handler
00562     stdair::DBSession_T& lDBSession =
00563       stdair::DBSessionManager::instance().getDBSession();
00564
00565     // Prepare and execute the select statement
00566     stdair::AirlineStruct lAirline;
00567     stdair::DBRequestStatement_T lSelectStatement (lDBSession);
00568     stdair::DBManagerForAirlines::prepareSelectStatement (lDBSession,
00569                                                           lSelectStatement,
00570                                                           lAirline);
00571
00572     // Prepare the SQL request corresponding to the select statement
00573     bool hasStillData = true;
00574     unsigned int idx = 0;
00575     while (hasStillData == true) {
00576       hasStillData =
00577         stdair::DBManagerForAirlines::iterateOnStatement (lSelectStatement,
00578                                                           lAirline);
00579
00580       // DEBUG
00581       STDAIR_LOG_DEBUG ("[" << idx << "]: " << lAirline);
00582
00583       // Iteration
00584       ++idx;
00585     }
00586
00587     const double lAirListMeasure = lAirListChronometer.elapsed();
00588
00589     // DEBUG
00590     STDAIR_LOG_DEBUG ("Sample service for airline list retrieval: "
00591                       << lAirListMeasure);
00592   }
00593
00594   // ////////////////////////////////////////////////////////////////////
00595   const stdair::Count_T& TRADEMGEN_Service::
00596   getExpectedTotalNumberOfRequestsToBeGenerated
      () const {
00597
00598     // Retrieve the TraDemGen service context
00599     assert (_trademgenServiceContext != NULL);
00600     TRADEMGEN_ServiceContext& lTRADEMGEN_ServiceContext
       =
00601       *_trademgenServiceContext;
00602
00603     // Retrieve the SEvMgr service context
00604     SEVMGR::SEVMGR_Service& lSEVMGR_Service =
00605       lTRADEMGEN_ServiceContext.getSEVMGR_Service();
00606
00607     // Delegate the call to the dedicated command
00608     const stdair::Count_T& oExpectedTotalNumberOfRequestsToBeGenerated =
00609       lSEVMGR_Service.getExpectedTotalNumberOfEventsToBeGenerated (
      stdair::EventType::BKG_REQ);
00610
00611     //
00612     return oExpectedTotalNumberOfRequestsToBeGenerated;
00613   }
00614
00615   // ////////////////////////////////////////////////////////////////////
00616   const stdair::Count_T& TRADEMGEN_Service::
00617   getActualTotalNumberOfRequestsToBeGenerated
      () const {
00618
00619     // Retrieve the TraDemGen service context
00620     assert (_trademgenServiceContext != NULL);
00621     TRADEMGEN_ServiceContext& lTRADEMGEN_ServiceContext
       =
00622       *_trademgenServiceContext;
00623
00624     // Retrieve the SEvMgr service context
00625     SEVMGR::SEVMGR_Service& lSEVMGR_Service =
00626       lTRADEMGEN_ServiceContext.getSEVMGR_Service();
00627
00628     // Delegate the call to the dedicated command
00629     const stdair::Count_T& oActualTotalNumberOfRequestsToBeGenerated =
00630       lSEVMGR_Service.getActualTotalNumberOfEventsToBeGenerated (
      stdair::EventType::BKG_REQ);
00631
00632     //
00633     return oActualTotalNumberOfRequestsToBeGenerated;
00634   }
00635
00636   // ////////////////////////////////////////////////////////////////////
00637   const bool TRADEMGEN_Service::
```

```
00638   stillHavingRequestsToBeGenerated (const
      stdair::DemandStreamKeyStr_T& iKey,
00639                                     stdair::ProgressStatusSet& ioPSS,
00640                                     const stdair::DemandGenerationMethod&
      iDemandGenerationMethod) const {
00641
00642     // Retrieve the TraDemGen service context
00643     assert (_trademgenServiceContext != NULL);
00644     TRADEMGEN_ServiceContext& lTRADEMGEN_ServiceContext
       =
00645       *_trademgenServiceContext;
00646
00647     // Retrieve the pointer on the SEvMgr service handler.
00648     SEVMGR::SEVMGR_ServicePtr_T lSEVMGR_Service_ptr =
00649       lTRADEMGEN_ServiceContext.getSEVMGR_ServicePtr();
00650
00651     // Delegate the call to the dedicated command
00652     const bool oStillHavingRequestsToBeGenerated =
00653       DemandManager::stillHavingRequestsToBeGenerated
       (lSEVMGR_Service_ptr,
00654                                                       iKey, ioPSS,
00655                                                       iDemandGenerationMethod)
      ;
00656
00657     //
00658     return oStillHavingRequestsToBeGenerated;
00659   }
00660
00661   // ////////////////////////////////////////////////////////////////////
00662   stdair::Count_T TRADEMGEN_Service::
00663   generateFirstRequests (const
      stdair::DemandGenerationMethod& iDemandGenerationMethod) const {
00664
00665     // Retrieve the TraDemGen service context
00666     assert (_trademgenServiceContext != NULL);
00667     TRADEMGEN_ServiceContext& lTRADEMGEN_ServiceContext
       =
00668       *_trademgenServiceContext;
00669
00670     // Retrieve the pointer on the SEvMgr service handler.
00671     SEVMGR::SEVMGR_ServicePtr_T lSEVMGR_Service_ptr =
00672       lTRADEMGEN_ServiceContext.getSEVMGR_ServicePtr();
00673
00674     // Retrieve the random generator
00675     stdair::RandomGeneration& lGenerator =
00676       lTRADEMGEN_ServiceContext.getUniformGenerator();
00677
00678     // Delegate the call to the dedicated command
00679     const stdair::Count_T& oActualTotalNbOfEvents =
00680       DemandManager::generateFirstRequests
       (lSEVMGR_Service_ptr, lGenerator,
00681                                             iDemandGenerationMethod);
00682
00683     //
00684     return oActualTotalNbOfEvents;
00685   }
00686
00687   // ////////////////////////////////////////////////////////////////////
00688   stdair::BookingRequestPtr_T TRADEMGEN_Service::
00689   generateNextRequest (const stdair::DemandStreamKeyStr_T&
       iKey,
00690                        const stdair::DemandGenerationMethod&
      iDemandGenerationMethod) const {
00691
00692     // Retrieve the TraDemGen service context
00693     assert (_trademgenServiceContext != NULL);
00694     TRADEMGEN_ServiceContext& lTRADEMGEN_ServiceContext
       =
00695       *_trademgenServiceContext;
00696
00697     // Retrieve the pointer on the SEvMgr service handler.
00698     SEVMGR::SEVMGR_ServicePtr_T lSEVMGR_Service_ptr =
00699       lTRADEMGEN_ServiceContext.getSEVMGR_ServicePtr();
00700
00701     // Retrieve the random generator
00702     stdair::RandomGeneration& lGenerator =
00703       lTRADEMGEN_ServiceContext.getUniformGenerator();
00704
00705     // Delegate the call to the dedicated command
00706     return DemandManager::generateNextRequest
       (lSEVMGR_Service_ptr,
00707                                               lGenerator, iKey,
00708                                               iDemandGenerationMethod);
00709   }
00710
00711   // ////////////////////////////////////////////////////////////////////
00712   stdair::ProgressStatusSet TRADEMGEN_Service::
```

```
00713   popEvent (stdair::EventStruct& ioEventStruct) const {
00714
00715     // Retrieve the TraDemGen service context
00716     assert (_trademgenServiceContext != NULL);
00717     TRADEMGEN_ServiceContext& lTRADEMGEN_ServiceContext
      =
00718       *_trademgenServiceContext;
00719
00720     // Retrieve the SEvMgr service context
00721     SEVMGR::SEVMGR_Service& lSEVMGR_Service =
00722       lTRADEMGEN_ServiceContext.getSEVMGR_Service();
00723
00724     // Extract the next event from the queue
00725     return lSEVMGR_Service.popEvent (ioEventStruct);
00726   }
00727
00728   // ////////////////////////////////////////////////////////////////////
00729   bool TRADEMGEN_Service::isQueueDone() const {
00730
00731     // Retrieve the TraDemGen service context
00732     assert (_trademgenServiceContext != NULL);
00733     TRADEMGEN_ServiceContext& lTRADEMGEN_ServiceContext
      =
00734       *_trademgenServiceContext;
00735
00736     // Retrieve the SEvMgr service context
00737     SEVMGR::SEVMGR_Service& lSEVMGR_Service =
00738       lTRADEMGEN_ServiceContext.getSEVMGR_Service();
00739
00740     // Calculates whether the event queue has been fully emptied
00741     const bool isQueueDone = lSEVMGR_Service.isQueueDone();
00742
00743     //
00744     return isQueueDone;
00745   }
00746
00747   // ////////////////////////////////////////////////////////////////////
00748   bool TRADEMGEN_Service::
00749   generateCancellation (const
      stdair::TravelSolutionStruct& iTravelSolution,
00750                         const stdair::PartySize_T& iPartySize,
00751                         const stdair::DateTime_T& iRequestTime,
00752                         const stdair::Date_T& iDepartureDate) const {
00753
00754     // Retrieve the TraDemGen service context
00755     assert (_trademgenServiceContext != NULL);
00756     TRADEMGEN_ServiceContext& lTRADEMGEN_ServiceContext
      =
00757       *_trademgenServiceContext;
00758
00759     // Retrieve the random generator
00760     stdair::RandomGeneration& lGenerator =
00761       lTRADEMGEN_ServiceContext.getUniformGenerator();
00762
00763     // Build an event structure with the default constructor.
00764     stdair::EventStruct lEventStruct;
00765     stdair::EventStruct& lRefEventStruct = lEventStruct;
00766
00767     // Generate the cancellation event
00768     const bool hasCancellationBeenGenerated =
00769       DemandManager::generateCancellation (
      lGenerator, iTravelSolution,
00770                                            iPartySize, iRequestTime,
00771                                            iDepartureDate, lRefEventStruct);
00772
00773     // If the cancellation has been not sucessfully gerenerated, return.
00774     if (hasCancellationBeenGenerated == false) {
00775       return  hasCancellationBeenGenerated;
00776     }
00777     assert (hasCancellationBeenGenerated == true);
00778
00779     // Retrieve the SEvMgr service context
00780     SEVMGR::SEVMGR_Service& lSEVMGR_Service =
00781       lTRADEMGEN_ServiceContext.getSEVMGR_Service();
00782
00790     // Add the gerenerated cancellation event into the queue
00791     lSEVMGR_Service.addEvent (lRefEventStruct);
00792
00793     // Update the status of cancellation events within the event queue.
00794     const bool hasProgressStatus =
00795       lSEVMGR_Service.hasProgressStatus(stdair::EventType::CX);
00796     if (hasProgressStatus == false) {
00797       const stdair::Count_T lCancellationNumber = 1;
00798       lSEVMGR_Service.addStatus (stdair::EventType::CX, lCancellationNumber);
00799     } else {
00800       stdair::Count_T lCurrentCancellationNumber =
00801         lSEVMGR_Service.getActualTotalNumberOfEventsToBeGenerated (
```

```
      stdair::EventType::CX);
00802       lCurrentCancellationNumber++;
00803       lSEVMGR_Service.updateStatus (stdair::EventType::CX,
      lCurrentCancellationNumber);
00804     }
00805
00806     return hasCancellationBeenGenerated;
00807
00808   }
00809
00810   // ////////////////////////////////////////////////////////////////////
00811   void TRADEMGEN_Service::reset() const {
00812
00813     // Retrieve the TraDemGen service context
00814     assert (_trademgenServiceContext != NULL);
00815     TRADEMGEN_ServiceContext& lTRADEMGEN_ServiceContext
       =
00816       *_trademgenServiceContext;
00817
00818     // Retrieve the pointer on the SEvMgr service handler.
00819     SEVMGR::SEVMGR_ServicePtr_T lSEVMGR_Service_ptr =
00820       lTRADEMGEN_ServiceContext.getSEVMGR_ServicePtr();
00821
00822     // Retrieve the shared generator
00823     stdair::RandomGeneration& lSharedGenerator =
00824       lTRADEMGEN_ServiceContext.getUniformGenerator();
00825
00826     // Delegate the call to the dedicated command
00827     DemandManager::reset (lSEVMGR_Service_ptr,
00828                           lSharedGenerator.getBaseGenerator());
00829   }
00830
00832   const stdair::ProgressStatus& TRADEMGEN_Service::getProgressStatus
      () const {
00833
00834     // Retrieve the TraDemGen service context
00835     assert (_trademgenServiceContext != NULL);
00836     TRADEMGEN_ServiceContext& lTRADEMGEN_ServiceContext
       =
00837       *_trademgenServiceContext;
00838
00839     // Retrieve the pointer on the SEvMgr service handler.
00840     SEVMGR::SEVMGR_ServicePtr_T lSEVMGR_Service_ptr =
00841       lTRADEMGEN_ServiceContext.getSEVMGR_ServicePtr();
00842
00843     // Delegate the call to the dedicated service
00844     return lSEVMGR_Service_ptr->getStatus();
00845
00846   }
00847
00849   const stdair::ProgressStatus& TRADEMGEN_Service::
00850   getProgressStatus (const stdair::EventType::EN_EventType&
      iEventType) const {
00851
00852     // Retrieve the TraDemGen service context
00853     assert (_trademgenServiceContext != NULL);
00854     TRADEMGEN_ServiceContext& lTRADEMGEN_ServiceContext
       =
00855       *_trademgenServiceContext;
00856
00857     // Retrieve the pointer on the SEvMgr service handler.
00858     SEVMGR::SEVMGR_ServicePtr_T lSEVMGR_Service_ptr =
00859       lTRADEMGEN_ServiceContext.getSEVMGR_ServicePtr();
00860
00861     // Delegate the call to the dedicated service
00862     return lSEVMGR_Service_ptr->getStatus(iEventType);
00863
00864   }
00865
00867   bool TRADEMGEN_Service::
00868   hasDemandStream (const stdair::DemandStreamKeyStr_T&
      iDemandStreamKey) const {
00869
00870     // Retrieve the TraDemGen service context
00871     assert (_trademgenServiceContext != NULL);
00872     TRADEMGEN_ServiceContext& lTRADEMGEN_ServiceContext
       =
00873       *_trademgenServiceContext;
00874
00875     // Retrieve the pointer on the SEvMgr service handler.
00876     SEVMGR::SEVMGR_ServicePtr_T lSEVMGR_Service_ptr =
00877       lTRADEMGEN_ServiceContext.getSEVMGR_ServicePtr();
00878
00879     // Delegate the call to the dedicated service
00880     return lSEVMGR_Service_ptr->hasEventGenerator<DemandStream,
00881                                                   stdair::DemandStreamKeyStr_T>
      (iDemandStreamKey);
```

```
00882   }
00883
00885   std::string TRADEMGEN_Service::displayDemandStream
       () const {
00886
00887     // Retrieve the TraDemGen service context
00888     assert (_trademgenServiceContext != NULL);
00889     TRADEMGEN_ServiceContext& lTRADEMGEN_ServiceContext
      =
00890       *_trademgenServiceContext;
00891
00892     // Retrieve the pointer on the SEvMgr service handler.
00893     SEVMGR::SEVMGR_ServicePtr_T lSEVMGR_Service_ptr =
00894       lTRADEMGEN_ServiceContext.getSEVMGR_ServicePtr();
00895
00896     // Delegate the call to the dedicated service
00897     const DemandStreamList_T lDemandStreamList =
00898       lSEVMGR_Service_ptr->getEventGeneratorList<DemandStream>();
00899
00900     // Output stream to store the display of demand streams.
00901     std::ostringstream  oStream;
00902
00903     for (DemandStreamList_T::const_iterator itDemandStream =
00904           lDemandStreamList.begin(); itDemandStream !=
00905           lDemandStreamList.end(); itDemandStream++) {
00906       DemandStream* lDemandStream_ptr = *itDemandStream;
00907       assert (lDemandStream_ptr != NULL);
00908       oStream << lDemandStream_ptr->describeKey() << std::endl;
00909
00910     }
00911     return oStream.str();
00912   }
00913
00914 }
00915
00916 namespace SEVMGR {
00917
00926   // ////////////////////////////////////////////////////////////////////
00927   template<class EventGenerator>
00928   void SEVMGR_Service::addEventGenerator (EventGenerator& iEventGenerator)
       const {
00929     // Retrieve the StdAir service
00930     const stdair::STDAIR_Service& lSTDAIR_Service =
00931       this->getSTDAIR_Service();
00932
00933     // Retrieve the BOM root object instance
00934     stdair::BomRoot& lPersistentBomRoot =
00935       lSTDAIR_Service.getPersistentBomRoot();
00936
00937     // Link the DemandStream to its parent (EventQueue)
00938     stdair::FacBomManager::linkWithParent (lPersistentBomRoot, iEventGenerator)
      ;
00939
00940     // Add the DemandStream to the dedicated list and map
00941     stdair::FacBomManager::addToListAndMap (lPersistentBomRoot,
00942                                             iEventGenerator);
00943
00944   }
00945
00946   // ////////////////////////////////////////////////////////////////////
00947   template<class EventGenerator, class Key>
00948   EventGenerator& SEVMGR_Service::getEventGenerator(const Key& iKey) const {
00949
00950     // Retrieve the StdAir service
00951     const stdair::STDAIR_Service& lSTDAIR_Service =
00952       this->getSTDAIR_Service();
00953
00954     // Retrieve the BOM root object instance
00955     stdair::BomRoot& lPersistentBomRoot =
00956       lSTDAIR_Service.getPersistentBomRoot();
00957
00958     // Retrieve the DemandStream which corresponds to the given key.
00959     EventGenerator& lEventGenerator =
00960       stdair::BomManager::getObject<EventGenerator> (lPersistentBomRoot,
00961                                                      iKey);
00962
00963     return lEventGenerator;
00964
00965   }
00966
00967   // ////////////////////////////////////////////////////////////////////
00968   template<class EventGenerator, class Key>
00969   bool SEVMGR_Service::hasEventGenerator(const Key& iKey) const {
00970
00971     bool hasEventGenerator = true;
00972
00973     // Retrieve the StdAir service
```

```
00974     const stdair::STDAIR_Service& lSTDAIR_Service =
00975       this->getSTDAIR_Service();
00976
00977     // Retrieve the BOM root object instance
00978     stdair::BomRoot& lPersistentBomRoot =
00979       lSTDAIR_Service.getPersistentBomRoot();
00980
00981     // Retrieve the DemandStream which corresponds to the given key.
00982     EventGenerator* lEventGenerator_ptr =
00983       stdair::BomManager::getObjectPtr<EventGenerator> (lPersistentBomRoot,
00984                                                         iKey);
00985     if (lEventGenerator_ptr == NULL) {
00986       hasEventGenerator = false;
00987     }
00988
00989     return hasEventGenerator;
00990
00991   }
00992
00993   // ////////////////////////////////////////////////////////////////////
00994   template<class EventGenerator>
00995   const std::list<EventGenerator*> SEVMGR_Service::getEventGeneratorList()
       const {
00996
00997     // Retrieve the StdAir service
00998     const stdair::STDAIR_Service& lSTDAIR_Service =
00999       this->getSTDAIR_Service();
01000
01001     // Retrieve the BOM root object instance
01002     stdair::BomRoot& lPersistentBomRoot =
01003       lSTDAIR_Service.getPersistentBomRoot();
01004
01005     // Retrieve the DemandStream list
01006     const std::list<EventGenerator*> lEventGeneratorList =
01007       stdair::BomManager::getList<EventGenerator> (lPersistentBomRoot);
01008
01009     return lEventGeneratorList;
01010   }
01011
01012   // ////////////////////////////////////////////////////////////////////
01013   template<class EventGenerator>
01014   bool SEVMGR_Service::hasEventGeneratorList() const {
01015
01016     // Retrieve the StdAir service
01017     const stdair::STDAIR_Service& lSTDAIR_Service =
01018       this->getSTDAIR_Service();
01019
01020     // Retrieve the BOM root object instance
01021     stdair::BomRoot& lPersistentBomRoot =
01022       lSTDAIR_Service.getPersistentBomRoot();
01023
01024     const bool hasListEventGenerator =
01025       stdair::BomManager::hasList<EventGenerator> (lPersistentBomRoot);
01026
01027     return hasListEventGenerator;
01028   }
01029
01030   // ////////////////////////////////////////////////////////////////////
01035   template void SEVMGR_Service::
01036   addEventGenerator<TRADEMGEN::DemandStream> (TRADEMGEN::DemandStream
      &) const;
01037
01038   template TRADEMGEN::DemandStream& SEVMGR_Service::
01039   getEventGenerator<TRADEMGEN::DemandStream, stdair::DemandStreamKeyStr_T> (
      const stdair::DemandStreamKeyStr_T&) const;
01040
01041   template bool SEVMGR_Service::
01042   hasEventGenerator<TRADEMGEN::DemandStream, stdair::DemandStreamKeyStr_T> (
      const stdair::DemandStreamKeyStr_T&) const;
01043
01044   template const TRADEMGEN::DemandStreamList_T
      SEVMGR_Service::
01045   getEventGeneratorList<TRADEMGEN::DemandStream> () const;
01046
01047   template bool SEVMGR_Service::hasEventGeneratorList<TRADEMGEN::DemandStream>(
      ) const;
01048   // ////////////////////////////////////////////////////////////////////
01049
01050 }
```

23.105 trademgen/service/TRADEMGEN_ServiceContext.cpp File Reference

```
#include <cassert>
```

```
#include <sstream>
#include <stdair/STDAIR_Service.hpp>
#include <stdair/basic/BasConst_General.hpp>
#include <trademgen/basic/BasConst_DemandGeneration.hpp>
#include <trademgen/service/TRADEMGEN_ServiceContext.hpp>
```

Namespaces

- namespace TRADEMGEN

23.106 TRADEMGEN_ServiceContext.cpp

```
00001 // ////////////////////////////////////////////////////////////////////
00002 // Import section
00003 // ////////////////////////////////////////////////////////////////////
00004 // STL
00005 #include <cassert>
00006 #include <sstream>
00007 // StdAir
00008 #include <stdair/STDAIR_Service.hpp>
00009 #include <stdair/basic/BasConst_General.hpp>
00010 // TraDemGen
00011 #include <trademgen/basic/BasConst_DemandGeneration.hpp
      >
00012 #include <trademgen/service/TRADEMGEN_ServiceContext.hpp
      >
00013
00014 namespace TRADEMGEN {
00015
00016   // ////////////////////////////////////////////////////////////////////
00017   TRADEMGEN_ServiceContext::TRADEMGEN_ServiceContext ()
00018     : _ownStdairService (false), _uniformGenerator (stdair::DEFAULT_RANDOM_SEED
      ),
00019       _posProbabilityMass (DEFAULT_POS_PROBALILITY_MASS
      ) {
00020   }
00021
00022   // ////////////////////////////////////////////////////////////////////
00023   TRADEMGEN_ServiceContext::
00024   TRADEMGEN_ServiceContext (const TRADEMGEN_ServiceContext& iServiceContext)
00025     : _ownStdairService (false), _uniformGenerator (stdair::DEFAULT_RANDOM_SEED
      ),
00026       _posProbabilityMass (DEFAULT_POS_PROBALILITY_MASS
      ) {
00027   }
00028
00029   // ////////////////////////////////////////////////////////////////////
00030   TRADEMGEN_ServiceContext::
00031   TRADEMGEN_ServiceContext (const stdair::RandomSeed_T& iRandomSeed)
00032     : _ownStdairService (false), _uniformGenerator (iRandomSeed),
00033       _posProbabilityMass (DEFAULT_POS_PROBALILITY_MASS
      ) {
00034   }
00035
00036   // ////////////////////////////////////////////////////////////////////
00037   TRADEMGEN_ServiceContext::~TRADEMGEN_ServiceContext() {
00038   }
00039
00040   // ////////////////////////////////////////////////////////////////////
00041   const std::string TRADEMGEN_ServiceContext::shortDisplay() const {
00042     std::ostringstream oStr;
00043     oStr << "TRADEMGEN_ServiceContext -- Owns StdAir service: "
00044          << _ownStdairService << " -- Generator: " << _uniformGenerator;
00045     return oStr.str();
00046   }
00047
00048   // ////////////////////////////////////////////////////////////////////
00049   const std::string TRADEMGEN_ServiceContext::display() const {
00050     std::ostringstream oStr;
00051     oStr << shortDisplay();
00052     return oStr.str();
00053   }
00054
00055   // ////////////////////////////////////////////////////////////////////
00056   const std::string TRADEMGEN_ServiceContext::describe() const {
00057     return shortDisplay();
00058   }
00059
```

```
00060   // ////////////////////////////////////////////////////////////////////
00061   void TRADEMGEN_ServiceContext::reset() {
00062
00063     // The shared_ptr<>::reset() method drops the refcount by one.
00064     // If the count result is dropping to zero, the resource pointed to
00065     // by the shared_ptr<> will be freed.
00066
00067     // Reset the stdair shared pointer
00068     _stdairService.reset();
00069
00070     // Reset the sevmgr shared pointer
00071     _sevmgrService.reset();
00072   }
00073
00074 }
```

23.107 trademgen/service/TRADEMGEN_ServiceContext.hpp File Reference

```
#include <string>
#include <boost/shared_ptr.hpp>
#include <stdair/stdair_basic_types.hpp>
#include <stdair/stdair_service_types.hpp>
#include <stdair/basic/RandomGeneration.hpp>
#include <stdair/bom/BookingRequestTypes.hpp>
#include <stdair/service/ServiceAbstract.hpp>
#include <sevmgr/SEVMGR_Types.hpp>
#include <trademgen/TRADEMGEN_Types.hpp>
#include <trademgen/basic/DemandCharacteristicsTypes.hpp>
```

Classes

- class TRADEMGEN::TRADEMGEN_ServiceContext

  Class holding the context of the Trademgen services.

Namespaces

- namespace stdair

  Forward declarations.
- namespace TRADEMGEN

23.108 TRADEMGEN_ServiceContext.hpp

```
00001 #ifndef __TRADEMGEN_SVC_TRADEMGENSERVICECONTEXT_HPP
00002 #define __TRADEMGEN_SVC_TRADEMGENSERVICECONTEXT_HPP
00003
00004 // ////////////////////////////////////////////////////////////////////
00005 // Import section
00006 // ////////////////////////////////////////////////////////////////////
00007 // STL
00008 #include <string>
00009 // Boost
00010 #include <boost/shared_ptr.hpp>
00011 // StdAir
00012 #include <stdair/stdair_basic_types.hpp>
00013 #include <stdair/stdair_service_types.hpp>
00014 #include <stdair/basic/RandomGeneration.hpp>
00015 #include <stdair/bom/BookingRequestTypes.hpp>
00016 #include <stdair/service/ServiceAbstract.hpp>
00017 // SEvMgr
00018 #include <sevmgr/SEVMGR_Types.hpp>
00019 // TraDemGen
00020 #include <trademgen/TRADEMGEN_Types.hpp>
00021 #include <trademgen/basic/DemandCharacteristicsTypes.hpp
     >
00022
00023 // Forward declarations
00024 namespace stdair {
```

```
00025   struct DemandCharacteristics;
00026   struct DemandDistribution;
00027 }
00028
00029 namespace TRADEMGEN {
00030
00034   class TRADEMGEN_ServiceContext : public
      stdair::ServiceAbstract {
00040     friend class TRADEMGEN_Service;
00041     friend class FacTRADEMGENServiceContext;
00042
00043   private:
00044     // ///////// Getters //////////
00048     stdair::STDAIR_ServicePtr_T getSTDAIR_ServicePtr() const {
00049       return _stdairService;
00050     }
00051
00055     stdair::STDAIR_Service& getSTDAIR_Service() const {
00056       assert (_stdairService != NULL);
00057       return *_stdairService;
00058     }
00059
00063     const bool getOwnStdairServiceFlag() const {
00064       return _ownStdairService;
00065     }
00066
00070     stdair::RandomGeneration& getUniformGenerator() {
00071       return _uniformGenerator;
00072     }
00073
00077     const POSProbabilityMass_T& getPOSProbabilityMass()
       const {
00078       return _posProbabilityMass;
00079     }
00080
00084     SEVMGR::SEVMGR_ServicePtr_T getSEVMGR_ServicePtr() const {
00085       return _sevmgrService;
00086     }
00087
00091     SEVMGR::SEVMGR_Service& getSEVMGR_Service() const {
00092       assert (_sevmgrService != NULL);
00093       return *_sevmgrService;
00094     }
00095
00096
00097   private:
00098     // ///////// Setters //////////
00102     void setSTDAIR_Service (stdair::STDAIR_ServicePtr_T ioSTDAIR_ServicePtr,
00103                             const bool iOwnStdairService) {
00104       _stdairService = ioSTDAIR_ServicePtr;
00105       _ownStdairService = iOwnStdairService;
00106     }
00107
00111     void setSEVMGR_Service (SEVMGR::SEVMGR_ServicePtr_T ioSEVMGR_ServicePtr) {
00112       _sevmgrService = ioSEVMGR_ServicePtr;
00113     }
00114
00115
00116   private:
00117     // ///////// Display Methods //////////
00121     const std::string shortDisplay() const;
00122
00126     const std::string display() const;
00127
00131     const std::string describe() const;
00132
00133
00134   private:
00136
00139     TRADEMGEN_ServiceContext (const stdair::RandomSeed_T&);
00143     TRADEMGEN_ServiceContext();
00147     TRADEMGEN_ServiceContext (const TRADEMGEN_ServiceContext&);
00148
00152     ~TRADEMGEN_ServiceContext();
00153
00157     void reset();
00158
00159
00160   private:
00161     // /////////////// Children ///////////////
00165     stdair::STDAIR_ServicePtr_T _stdairService;
00166
00170     SEVMGR::SEVMGR_ServicePtr_T _sevmgrService;
00171
00175     bool _ownStdairService;
00176
00177
```

```
00178   private:
00179     // ///////////////// Attributes /////////////////
00186     stdair::RandomGeneration _uniformGenerator;
00187
00191     const POSProbabilityMass_T _posProbabilityMass;
00192   };
00193
00194 }
00195 #endif // __TRADEMGEN_SVC_TRADEMGENSERVICECONTEXT_HPP
```

23.109 trademgen/TRADEMGEN_Abstract.hpp File Reference

```
#include <istream>
#include <ostream>
#include <sstream>
#include <string>
```

Classes

- struct TRADEMGEN::TRADEMGEN_Abstract

Namespaces

- namespace TRADEMGEN

Functions

- template<class charT , class traits >
  std::basic_ostream< charT,
  traits > & operator<< (std::basic_ostream< charT, traits > &ioOut, const TRADEMGEN::TRADEMGEN_-Abstract &iStructure)
- template<class charT , class traits >
  std::basic_istream< charT,
  traits > & operator>> (std::basic_istream< charT, traits > &ioIn, TRADEMGEN::TRADEMGEN_Abstract &ioStucture)

23.109.1 Function Documentation

23.109.1.1 template<class charT , class traits > std::basic_ostream<charT, traits>& operator<< (std::basic_ostream< charT, traits > & *ioOut,* const TRADEMGEN::TRADEMGEN_Abstract & *iStructure*) [inline]

Piece of code given by Nicolai M. Josuttis, Section 13.12.1 "Implementing Output Operators" (p653) of his book "The C++ Standard Library: A Tutorial and Reference", published by Addison-Wesley.

Definition at line 49 of file TRADEMGEN_Abstract.hpp.

23.109.1.2 template<class charT , class traits > std::basic_istream<charT, traits>& operator>> (std::basic_istream< charT, traits > & *ioIn,* TRADEMGEN::TRADEMGEN_Abstract & *ioStucture*) [inline]

Piece of code given by Nicolai M. Josuttis, Section 13.12.1 "Implementing Output Operators" (pp655-657) of his book "The C++ Standard Library: A Tutorial and Reference", published by Addison-Wesley.

Definition at line 77 of file TRADEMGEN_Abstract.hpp.

References TRADEMGEN::TRADEMGEN_Abstract::fromStream().

23.110 TRADEMGEN_Abstract.hpp

```
00001 #ifndef __TRADEMGEN_TRADEMGEN_ABSTRACT_HPP
00002 #define __TRADEMGEN_TRADEMGEN_ABSTRACT_HPP
00003
00004 // //////////////////////////////////////////////////////////////////
00005 // Import section
00006 // //////////////////////////////////////////////////////////////////
00007 // STL
00008 #include <istream>
00009 #include <ostream>
00010 #include <sstream>
00011 #include <string>
00012
00013 namespace TRADEMGEN {
00014
00016   struct TRADEMGEN_Abstract {
00017   public:
00018     // ////////// Display support methods /////////
00021     virtual void toStream (std::ostream& ioOut) const = 0;
00022
00025     virtual void fromStream (std::istream& ioIn) = 0;
00026
00028     virtual std::string toString() const = 0;
00029
00030
00031   protected:
00033     TRADEMGEN_Abstract () {}
00034     TRADEMGEN_Abstract (const TRADEMGEN_Abstract
    &) {}
00035
00037     virtual ~TRADEMGEN_Abstract() {}
00038   };
00039 }
00040
00046 template <class charT, class traits>
00047 inline
00048 std::basic_ostream<charT, traits>&
00049 operator<< (std::basic_ostream<charT, traits>& ioOut,
00050             const TRADEMGEN::TRADEMGEN_Abstract&
    iStructure) {
00056   std::basic_ostringstream<charT,traits> ostr;
00057   ostr.copyfmt (ioOut);
00058   ostr.width (0);
00059
00060   // Fill string stream
00061   iStructure.toStream (ostr);
00062
00063   // Print string stream
00064   ioOut << ostr.str();
00065
00066   return ioOut;
00067 }
00068
00074 template <class charT, class traits>
00075 inline
00076 std::basic_istream<charT, traits>&
00077 operator>> (std::basic_istream<charT, traits>& ioIn,
00078             TRADEMGEN::TRADEMGEN_Abstract&
    ioStucture) {
00079   // Fill Bom object with input stream
00080   ioStucture.fromStream (ioIn);
00081   return ioIn;
00082 }
00083
00084 #endif // __TRADEMGEN_TRADEMGEN_ABSTRACT_HPP
```

23.111 trademgen/TRADEMGEN_Exceptions.hpp File Reference

```
#include <exception>
#include <stdair/stdair_exceptions.hpp>
```

Classes

- class TRADEMGEN::TrademgenGenerationException
- class TRADEMGEN::DemandInputFileNotFoundException
- class TRADEMGEN::IndexOutOfRangeException

Namespaces

- namespace TRADEMGEN

23.112 TRADEMGEN_Exceptions.hpp

```
00001 #ifndef __TRADEMGEN_TRADEMGEN_EXCEPTIONS_HPP
00002 #define __TRADEMGEN_TRADEMGEN_EXCEPTIONS_HPP
00003
00004 // //////////////////////////////////////////////////////////////////
00005 // Import section
00006 // //////////////////////////////////////////////////////////////////
00007 // STL
00008 #include <exception>
00009 // StdAir
00010 #include <stdair/stdair_exceptions.hpp>
00011
00012 namespace TRADEMGEN {
00013
00014   // ///////// Exceptions //////////
00018   class TrademgenGenerationException : public
      stdair::RootException {
00019   public:
00023     TrademgenGenerationException (const std::string
      & iWhat)
00024       : stdair::RootException (iWhat) {}
00025   };
00026
00030   class DemandInputFileNotFoundException
00031     : public stdair::FileNotFoundException {
00032   public:
00036     DemandInputFileNotFoundException (const
      std::string& iWhat)
00037       : stdair::FileNotFoundException (iWhat) {}
00038   };
00039
00043   class IndexOutOfRangeException : public
      TrademgenGenerationException {
00044   public:
00048     IndexOutOfRangeException (const std::string& iWhat)
00049       : TrademgenGenerationException (iWhat) {}
00050   };
00051
00052 }
00053 #endif // __TRADEMGEN_TRADEMGEN_EXCEPTIONS_HPP
00054
```

23.113 trademgen/TRADEMGEN_Service.hpp File Reference

```
#include <stdair/stdair_basic_types.hpp>
#include <stdair/stdair_demand_types.hpp>
#include <stdair/stdair_maths_types.hpp>
#include <stdair/stdair_json.hpp>
#include <stdair/stdair_service_types.hpp>
#include <stdair/basic/DemandGenerationMethod.hpp>
#include <stdair/bom/BookingRequestTypes.hpp>
#include <stdair/bom/EventTypes.hpp>
#include <stdair/bom/EventStruct.hpp>
#include <sevmgr/SEVMGR_Types.hpp>
#include <trademgen/TRADEMGEN_Types.hpp>
```

Classes

- class TRADEMGEN::TRADEMGEN_Service

  class holding the services related to Travel Demand Generation.

Namespaces

- namespace stdair

  Forward declarations.
- namespace TRADEMGEN

23.114 TRADEMGEN_Service.hpp

```
00001 #ifndef __TRADEMGEN_TRADEMGEN_SERVICE_HPP
00002 #define __TRADEMGEN_TRADEMGEN_SERVICE_HPP
00003
00004 // //////////////////////////////////////////////////////////////////
00005 // Import section
00006 // //////////////////////////////////////////////////////////////////
00007 // StdAir
00008 #include <stdair/stdair_basic_types.hpp>
00009 #include <stdair/stdair_demand_types.hpp>
00010 #include <stdair/stdair_maths_types.hpp>
00011 #include <stdair/stdair_json.hpp>
00012 #include <stdair/stdair_service_types.hpp>
00013 #include <stdair/basic/DemandGenerationMethod.hpp>
00014 #include <stdair/bom/BookingRequestTypes.hpp>
00015 #include <stdair/bom/EventTypes.hpp>
00016 #include <stdair/bom/EventStruct.hpp>
00017 // SEvMgr
00018 #include <sevmgr/SEVMGR_Types.hpp>
00019 // TraDemGen
00020 #include <trademgen/TRADEMGEN_Types.hpp>
00021
00022 // Forward declarations
00023 namespace stdair {
00024   class BomRoot;
00025   struct ProgressStatusSet;
00026   struct BasLogParams;
00027   struct BasDBParams;
00028   struct BookingRequestStruct;
00029   struct DemandCharacteristics;
00030   struct DemandDistribution;
00031   struct EventStruct;
00032   struct TravelSolutionStruct;
00033 }
00034
00035 namespace TRADEMGEN {
00036
00038   class TRADEMGEN_ServiceContext;
00039   struct DemandStreamKey;
00040
00044   class TRADEMGEN_Service {
00045   public:
00046     // ////////////////// Constructors and Destructors /////////////////
00063     TRADEMGEN_Service (const stdair::BasLogParams&, const
      stdair::BasDBParams&,
00064                        const stdair::RandomSeed_T&);
00065
00078     TRADEMGEN_Service (const stdair::BasLogParams&, const
      stdair::RandomSeed_T&);
00079
00097     TRADEMGEN_Service (stdair::STDAIR_ServicePtr_T,
00098                        SEVMGR::SEVMGR_ServicePtr_T,
00099                        const stdair::RandomSeed_T&);
00100
00109     void parseAndLoad (const DemandFilePath&);
00110
00114     ~TRADEMGEN_Service();
00115
00116
00117   public:
00118     // ////////////////// Business support methods /////////////////
00198     void buildSampleBom();
00199
00203     void clonePersistentBom ();
00204
00209     void buildComplementaryLinks (stdair::BomRoot&);
00210
00241     stdair::BookingRequestStruct
00242     buildSampleBookingRequest (const bool isForCRS =
      false);
00243
00247     void displayAirlineListFromDB() const;
00248
00264     const stdair::Count_T& getExpectedTotalNumberOfRequestsToBeGenerated
      () const;
```

```
00265
00280     const stdair::Count_T& getActualTotalNumberOfRequestsToBeGenerated
      () const;
00281
00296     const bool
00297     stillHavingRequestsToBeGenerated (const
      stdair::DemandStreamKeyStr_T&,
00298                                       stdair::ProgressStatusSet&,
00299                                       const stdair::DemandGenerationMethod&)
      const;
00300
00313     stdair::Count_T
00314     generateFirstRequests (const
      stdair::DemandGenerationMethod&) const;
00315
00330     stdair::BookingRequestPtr_T
00331     generateNextRequest (const stdair::DemandStreamKeyStr_T&
      ,
00332                          const stdair::DemandGenerationMethod&) const;
00333
00341     bool hasDemandStream (const stdair::DemandStreamKeyStr_T&)
      const;
00342
00359     stdair::ProgressStatusSet popEvent (stdair::EventStruct&) const;
00360
00369     bool isQueueDone() const;
00370
00374     bool generateCancellation (const
      stdair::TravelSolutionStruct&,
00375                                const stdair::PartySize_T&,
00376                                const stdair::DateTime_T&,
00377                                const stdair::Date_T&) const;
00378
00383     void reset() const;
00384
00388     const stdair::ProgressStatus& getProgressStatus () const;
00389
00394     const stdair::ProgressStatus& getProgressStatus (const
      stdair::EventType::EN_EventType&) const;
00395
00396   public:
00397     // ///////////////// Export support methods /////////////////
00407     std::string jsonHandler (const stdair::JSONString&) const;
00408
00409   public:
00410     // ///////////////// Display support methods /////////////////
00418     std::string csvDisplay() const;
00419
00426     std::string list () const;
00427
00434     std::string list (const stdair::EventType::EN_EventType&) const;
00435
00442     std::string displayDemandStream () const;
00443
00444
00445   private:
00446     // ////////////////// Constructors and Destructors /////////////////
00450     TRADEMGEN_Service();
00451
00455     TRADEMGEN_Service (const TRADEMGEN_Service
      &);
00456
00468     stdair::STDAIR_ServicePtr_T initStdAirService (const stdair::BasLogParams&,
00469                                                    const stdair::BasDBParams&);
00470
00480     stdair::STDAIR_ServicePtr_T initStdAirService (const stdair::BasLogParams&)
      ;
00481
00485     void initSEVMGRService();
00486
00495     void addStdAirService (stdair::STDAIR_ServicePtr_T ioSTDAIR_ServicePtr,
00496                            const bool iOwnStdairService);
00497
00503     void addSEVMGRService (SEVMGR::SEVMGR_ServicePtr_T ioSEVMGR_ServicePtr);
00504
00511     void initServiceContext (const stdair::RandomSeed_T&);
00512
00519     void initTrademgenService();
00520
00524     void finalise();
00525
00526
00527   private:
00528     // ///////// Service Context /////////
00532     TRADEMGEN_ServiceContext* _trademgenServiceContext;
00533   };
00534
```

```
00535 }
00536 #endif // __TRADEMGEN_TRADEMGEN_SERVICE_HPP
```

23.115 trademgen/TRADEMGEN_Types.hpp File Reference

```
#include <boost/shared_ptr.hpp>
#include <stdair/stdair_file.hpp>
#include <trademgen/TRADEMGEN_Exceptions.hpp>
```

Classes

- class TRADEMGEN::DemandFilePath

Namespaces

- namespace TRADEMGEN

Typedefs

- typedef boost::shared_ptr
  < TRADEMGEN_Service > TRADEMGEN::TRADEMGEN_ServicePtr_T

23.116 TRADEMGEN_Types.hpp

```
00001 #ifndef __TRADEMGEN_TRADEMGEN_TYPES_HPP
00002 #define __TRADEMGEN_TRADEMGEN_TYPES_HPP
00003
00004 // //////////////////////////////////////////////////////////////////
00005 // Import section
00006 // //////////////////////////////////////////////////////////////////
00007 // Boost
00008 #include <boost/shared_ptr.hpp>
00009 // StdAir
00010 #include <stdair/stdair_file.hpp>
00011 // TraDemGen
00012 #include <trademgen/TRADEMGEN_Exceptions.hpp>
00013
00014 namespace TRADEMGEN {
00015
00016   // Forward declarations
00017   class TRADEMGEN_Service;
00018
00019
00020   // //////// Type definitions specific to DSim /////////
00024   typedef boost::shared_ptr<TRADEMGEN_Service> TRADEMGEN_ServicePtr_T
      ;
00025
00026   // ///////// Files ///////////
00030   class DemandFilePath : public stdair::InputFilePath {
00031   public:
00035     explicit DemandFilePath (const stdair::Filename_T& iFilename)
00036       : stdair::InputFilePath (iFilename) {}
00037   };
00038
00039 }
00040 #endif // __TRADEMGEN_TRADEMGEN_TYPES_HPP
00041
```

23.117 trademgen/ui/cmdline/trademgen.cpp File Reference

23.118 trademgen.cpp

```
00001
00005 // STL
00006 #include <cassert>
```

```
00007 #include <iostream>
00008 #include <sstream>
00009 #include <fstream>
00010 #include <string>
00011 // Boost (Extended STL)
00012 #include <boost/program_options.hpp>
00013 #include <boost/tokenizer.hpp>
00014 #include <boost/regex.hpp>
00015 #include <boost/swap.hpp>
00016 #include <boost/algorithm/string/case_conv.hpp>
00017 // GNU Readline Wrapper
00018 #include <stdair/ui/cmdline/SReadline.hpp>
00019 // StdAir
00020 #include <stdair/stdair_basic_types.hpp>
00021 #include <stdair/stdair_json.hpp>
00022 #include <stdair/basic/BasConst_General.hpp>
00023 #include <stdair/basic/ProgressStatusSet.hpp>
00024 #include <stdair/basic/DemandGenerationMethod.hpp>
00025 #include <stdair/bom/EventStruct.hpp>
00026 #include <stdair/bom/BookingRequestStruct.hpp>
00027 #include <stdair/bom/BomDisplay.hpp>
00028 #include <stdair/service/Logger.hpp>
00029 // TraDemGen
00030 #include <trademgen/TRADEMGEN_Service.hpp>
00031 #include <trademgen/config/trademgen-paths.hpp
      >
00032
00033
00034 // //////// Type definitions ///////
00038 typedef std::vector<std::string> WordList_T;
00039
00040 // //////// Specific type definitions ///////
00041 typedef unsigned int NbOfRuns_T;
00042
00043 // //////// Constants //////
00047 const stdair::Filename_T K_TRADEMGEN_DEFAULT_LOG_FILENAME
       ("trademgen.log");
00048
00052 const stdair::Filename_T K_TRADEMGEN_DEFAULT_INPUT_FILENAME
       (STDAIR_SAMPLE_DIR
00053                                                              "
      /rds01/demand05.csv");
00054
00058 const stdair::DemandGenerationMethod
00059 K_TRADEMGEN_DEFAULT_DEMAND_GENERATION_METHOD
       =
00060   stdair::DemandGenerationMethod::POI_PRO;
00061
00065 const char K_TRADEMGEN_DEFAULT_DEMAND_GENERATION_METHOD_CHAR
       =
00066   K_TRADEMGEN_DEFAULT_DEMAND_GENERATION_METHOD
      .getMethodAsChar();
00067
00071 const stdair::RandomSeed_T K_TRADEMGEN_DEFAULT_RANDOM_SEED
       =
00072   stdair::DEFAULT_RANDOM_SEED;
00073
00077 const NbOfRuns_T K_TRADEMGEN_DEFAULT_RANDOM_DRAWS
       = 1;
00078
00083 const bool K_TRADEMGEN_DEFAULT_BUILT_IN_INPUT
       = false;
00084
00088 const int K_TRADEMGEN_EARLY_RETURN_STATUS = 99;
00089
00090 // ////////////////////////////////////////////////////////////////////
00095 typedef std::vector<std::string> TokenList_T;
00096
00100 struct Command_T {
00101   typedef enum {
00102     NOP = 0,
00103     QUIT,
00104     HELP,
00105     LIST_EVENT,
00106     LIST_DEMAND_STREAM,
00107     RESET,
00108     NEXT,
00109     GENERATE_NEXT_BR,
00110     GENERATE_FIRST_BR,
00111     GENERATE_ALL_BR,
00112     JSON_LIST,
00113     LAST_VALUE
00114   } Type_T;
00115 };
00116
00117 // ////////////////////////////////////////////////////////////////////
00118 void tokeniseStringIntoWordList (const std::string&
```

```
      iPhrase,
00119                                 WordList_T& ioWordList) {
00120   // Empty the word list
00121   ioWordList.clear();
00122
00123   // Boost Tokeniser
00124   typedef boost::tokenizer<boost::char_separator<char> > Tokeniser_T;
00125
00126   // Define the separators
00127   const boost::char_separator<char> lSepatorList("
       .,;:|+-*/_=!@#$%`~^&(){}[]?'<>\"");
00128
00129   // Initialise the phrase to be tokenised
00130   Tokeniser_T lTokens (iPhrase, lSepatorList);
00131   for (Tokeniser_T::const_iterator tok_iter = lTokens.begin();
00132        tok_iter != lTokens.end(); ++tok_iter) {
00133     const std::string& lTerm = *tok_iter;
00134     ioWordList.push_back (lTerm);
00135   }
00136
00137 }// ////////////////////////////////////////////////////////////////////
00138 std::string createStringFromWordList (const WordList_T
      & iWordList) {
00139   std::ostringstream oStr;
00140
00141   unsigned short idx = iWordList.size();
00142   for (WordList_T::const_iterator itWord = iWordList.begin();
00143        itWord != iWordList.end(); ++itWord, --idx) {
00144     const std::string& lWord = *itWord;
00145     oStr << lWord;
00146     if (idx > 1) {
00147       oStr << " ";
00148     }
00149   }
00150
00151   return oStr.str();
00152 }
00153
00154
00155 // ///////// Parsing of Options & Configuration /////////
00156 // A helper function to simplify the main part.
00157 template<class T> std::ostream& operator<< (std::ostream& os,
00158                                             const std::vector<T>& v) {
00159   std::copy (v.begin(), v.end(), std::ostream_iterator<T> (std::cout, " "));
00160   return os;
00161 }
00165 int readConfiguration (int argc, char* argv[], bool&
      ioIsBuiltin,
00166                        stdair::RandomSeed_T& ioRandomSeed,
00167                        stdair::Filename_T& ioInputFilename,
00168                        stdair::Filename_T& ioOutputFilename,
00169                        stdair::Filename_T& ioLogFilename,
00170                        stdair::DemandGenerationMethod& ioDemandGenerationMethod
      ) {
00171
00172   // Demand generation method as a single char (e.g., 'P' or 'S').
00173   char lDemandGenerationMethodChar;
00174
00175   // Default for the built-in input
00176   ioIsBuiltin = K_TRADEMGEN_DEFAULT_BUILT_IN_INPUT
      ;
00177
00178   // Declare a group of options that will be allowed only on command line
00179   boost::program_options::options_description generic ("Generic options");
00180   generic.add_options()
00181     ("prefix", "print installation prefix")
00182     ("version,v", "print version string")
00183     ("help,h", "produce help message");
00184
00185   // Declare a group of options that will be allowed both on command
00186   // line and in config file
00187   boost::program_options::options_description config ("Configuration");
00188   config.add_options()
00189     ("builtin,b",
00190      "The sample BOM tree can be either built-in or parsed from an input file.
       That latter must then be given with the -i/--input option")
00191     ("seed,s",
00192      boost::program_options::value<stdair::RandomSeed_T>(&ioRandomSeed)->
      default_value(K_TRADEMGEN_DEFAULT_RANDOM_SEED),
00193      "Seed for the random generation")
00194     ("demandgeneration,G",
00195      boost::program_options::value< char >(&lDemandGenerationMethodChar)->
      default_value(K_TRADEMGEN_DEFAULT_DEMAND_GENERATION_METHOD_CHAR
      ),
00196      "Method used to generate the demand (i.e., the booking requests): Poisson
       Process (P) or Order Statistics (S)")
00197     ("input,i",
```

```
00198      boost::program_options::value< std::string >(&ioInputFilename)->
       default_value(K_TRADEMGEN_DEFAULT_INPUT_FILENAME),
00199      "(CSV) input file for the demand distributions")
00200     ("log,l",
00201      boost::program_options::value< std::string >(&ioLogFilename)->
       default_value(K_TRADEMGEN_DEFAULT_LOG_FILENAME),
00202      "Filepath for the logs")
00203     ;
00204
00205   // Hidden options, will be allowed both on command line and
00206   // in config file, but will not be shown to the user.
00207   boost::program_options::options_description hidden ("Hidden options");
00208   hidden.add_options()
00209     ("copyright",
00210      boost::program_options::value< std::vector<std::string> >(),
00211      "Show the copyright (license)");
00212
00213   boost::program_options::options_description cmdline_options;
00214   cmdline_options.add(generic).add(config).add(hidden);
00215
00216   boost::program_options::options_description config_file_options;
00217   config_file_options.add(config).add(hidden);
00218
00219   boost::program_options::options_description visible ("Allowed options");
00220   visible.add(generic).add(config);
00221
00222   boost::program_options::positional_options_description p;
00223   p.add ("copyright", -1);
00224
00225   boost::program_options::variables_map vm;
00226   boost::program_options::
00227     store (boost::program_options::command_line_parser (argc, argv).
00228            options (cmdline_options).positional(p).run(), vm);
00229
00230   std::ifstream ifs ("trademgen.cfg");
00231   boost::program_options::store (parse_config_file (ifs, config_file_options),
00232                                  vm);
00233   boost::program_options::notify (vm);
00234
00235   if (vm.count ("help")) {
00236     std::cout << visible << std::endl;
00237     return K_TRADEMGEN_EARLY_RETURN_STATUS;
00238   }
00239
00240   if (vm.count ("version")) {
00241     std::cout << PACKAGE_NAME << ", version " << PACKAGE_VERSION
       << std::endl;
00242     return K_TRADEMGEN_EARLY_RETURN_STATUS;
00243   }
00244
00245   if (vm.count ("prefix")) {
00246     std::cout << "Installation prefix: " << PREFIXDIR << std::endl;
00247     return K_TRADEMGEN_EARLY_RETURN_STATUS;
00248   }
00249
00250   if (vm.count ("builtin")) {
00251     ioIsBuiltin = true;
00252   }
00253   const std::string isBuiltinStr = (ioIsBuiltin == true)?"yes":"no";
00254   std::cout << "The BOM should be built-in? " << isBuiltinStr << std::endl;
00255
00256   if (ioIsBuiltin == false) {
00257
00258     // The BOM tree should be built from parsing a demand input file
00259     if (vm.count ("input")) {
00260       ioInputFilename = vm["input"].as< std::string >();
00261       std::cout << "Input filename is: " << ioInputFilename << std::endl;
00262
00263     } else {
00264       // The built-in option is not selected. However, no demand input file
00265       // is specified
00266       std::cerr << "Either one among the -b/--builtin and -i/--input "
00267                 << "options must be specified" << std::endl;
00268     }
00269   }
00270
00271   if (vm.count ("output")) {
00272     ioOutputFilename = vm["output"].as< std::string >();
00273     std::cout << "Output filename is: " << ioOutputFilename << std::endl;
00274   }
00275
00276   if (vm.count ("log")) {
00277     ioLogFilename = vm["log"].as< std::string >();
00278     std::cout << "Log filename is: " << ioLogFilename << std::endl;
00279   }
00280
00281   if (vm.count ("demandgeneration")) {
```

```
00282     ioDemandGenerationMethod =
00283       stdair::DemandGenerationMethod (lDemandGenerationMethodChar);
00284     std::cout << "Date-time request generation method is: "
00285               << ioDemandGenerationMethod.describe() << std::endl;
00286   }
00287
00288   //
00289   std::cout << "The random generation seed is: " << ioRandomSeed << std::endl;
00290
00291   return 0;
00292 }
00293
00294 // ////////////////////////////////////////////////////////////////////
00295 void initReadline (swift::SReadline& ioInputReader) {
00296
00297   // Prepare the list of my own completers
00298   std::vector<std::string> Completers;
00299
00300   // The following is supported:
00301   // - "identifiers"
00302   // - special identifier %file - means to perform a file name completion
00303   Completers.push_back ("help");
00304   Completers.push_back ("list_event");
00305   Completers.push_back ("list_demand_stream");
00306   Completers.push_back ("reset");
00307   Completers.push_back ("generate_next_br");
00308   Completers.push_back ("generate_first_br");
00309   Completers.push_back ("generate_all_br");
00310   Completers.push_back ("next");
00311   Completers.push_back ("json_list");
00312   Completers.push_back ("quit");
00313
00314   // Now register the completers.
00315   // Actually it is possible to re-register another set at any time
00316   ioInputReader.RegisterCompletions (Completers);
00317 }
00318
00319 // ////////////////////////////////////////////////////////////////////
00320 Command_T::Type_T extractCommand (TokenList_T& ioTokenList) {
00321   Command_T::Type_T oCommandType = Command_T::LAST_VALUE;
00322
00323   // Interpret the user input
00324   if (ioTokenList.empty() == false) {
00325     TokenList_T::iterator itTok = ioTokenList.begin();
00326     std::string lCommand (*itTok);
00327     boost::algorithm::to_lower (lCommand);
00328
00329     if (lCommand == "help") {
00330       oCommandType = Command_T::HELP;
00331
00332     } else if (lCommand == "list_event") {
00333       oCommandType = Command_T::LIST_EVENT;
00334
00335     } else if (lCommand == "list_demand_stream") {
00336       oCommandType = Command_T::LIST_DEMAND_STREAM;
00337
00338     } else if (lCommand == "reset") {
00339       oCommandType = Command_T::RESET;
00340
00341     } else if (lCommand == "delete_first") {
00342       oCommandType = Command_T::NEXT;
00343
00344     } else if (lCommand == "generate_first_br") {
00345       oCommandType = Command_T::GENERATE_FIRST_BR;
00346
00347     } else if (lCommand == "generate_next_br") {
00348       oCommandType = Command_T::GENERATE_NEXT_BR;
00349
00350     } else if (lCommand == "generate_all_br") {
00351       oCommandType = Command_T::GENERATE_ALL_BR;
00352
00353     } else if (lCommand == "json_list") {
00354       oCommandType = Command_T::JSON_LIST;
00355
00356     } else if (lCommand == "quit") {
00357       oCommandType = Command_T::QUIT;
00358     }
00359
00360     // Remove the first token (the command), as the corresponding information
00361     // has been extracted in the form of the returned command type enumeration
00362     ioTokenList.erase (itTok);
00363
00364   } else {
00365     oCommandType = Command_T::NOP;
00366   }
00367
00368   return oCommandType;
```

```
00369 }
00370
00371 // ////////////////////////////////////////////////////
00372 std::string toString (const TokenList_T& iTokenList) {
00373   std::ostringstream oStr;
00374
00375   // Re-create the string with all the tokens, trimmed by read-line
00376   unsigned short idx = 0;
00377   for (TokenList_T::const_iterator itTok = iTokenList.begin();
00378        itTok != iTokenList.end(); ++itTok, ++idx) {
00379     if (idx != 0) {
00380       oStr << " ";
00381     }
00382     oStr << *itTok;
00383   }
00384
00385   return oStr.str();
00386 }
00387
00388 // ///////// M A I N ////////////
00389 int main (int argc, char* argv[]) {
00390
00391   // Readline history
00392   const unsigned int lHistorySize (100);
00393   const std::string lHistoryFilename ("trademgen.hist");
00394   const std::string lHistoryBackupFilename ("trademgen.hist.bak");
00395
00396   // Default parameters for the interactive session
00397   stdair::EventStruct lCurrentInteractiveEventStruct;
00398   stdair::DateTime_T lCurrentInteractiveDateTime;
00399   std::string lDefaultDemandStreamKey;
00400
00401   // State whether the BOM tree should be built-in or parsed from an input file
00402   bool isBuiltin;
00403
00404   // Random generation seed
00405   stdair::RandomSeed_T lRandomSeed;
00406
00407   // Input file name
00408   stdair::Filename_T lInputFilename;
00409
00410   // Output file name
00411   stdair::Filename_T lOutputFilename;
00412
00413   // Output log File
00414   stdair::Filename_T lLogFilename;
00415
00416   // Demand generation method.
00417   stdair::DemandGenerationMethod
00418     lDemandGenerationMethod (K_TRADEMGEN_DEFAULT_DEMAND_GENERATION_METHOD
     );
00419
00420   // Call the command-line option parser
00421   const int lOptionParserStatus =
00422     readConfiguration (argc, argv, isBuiltin, lRandomSeed,
00423                        lInputFilename, lOutputFilename, lLogFilename,
00424                        lDemandGenerationMethod);
00425
00426   if (lOptionParserStatus == K_TRADEMGEN_EARLY_RETURN_STATUS) {
00427     return 0;
00428   }
00429
00430   // Set the log parameters
00431   std::ofstream logOutputFile;
00432   // Open and clean the log outputfile
00433   logOutputFile.open (lLogFilename.c_str());
00434   logOutputFile.clear();
00435
00436   // Set up the log parameters
00437   const stdair::BasLogParams lLogParams (stdair::LOG::DEBUG, logOutputFile);
00438
00439   // Initialise the TraDemGen service object
00440   TRADEMGEN::TRADEMGEN_Service trademgenService (
      lLogParams, lRandomSeed);
00441
00442   // Check wether or not a (CSV) input file should be read
00443   if (isBuiltin == true) {
00444     // Create a sample DemandStream object, and insert it within the BOM tree
00445     trademgenService.buildSampleBom();
00446     lDefaultDemandStreamKey = "SIN-BKK 2010-Feb-08 Y";
00447
00448   } else {
00449     // Create the DemandStream objects, and insert them within the BOM tree
00450     const TRADEMGEN::DemandFilePath lDemandFilePath (
      lInputFilename);
00451     trademgenService.parseAndLoad (lDemandFilePath);
00452     lDefaultDemandStreamKey = "SIN-BKK 2009-Feb-09 Y";
```

```
00453   }
00454
00455   // DEBUG
00456   STDAIR_LOG_DEBUG ("=====================================================");
00457   STDAIR_LOG_DEBUG ("=       Beginning of the interactive session        =");
00458   STDAIR_LOG_DEBUG ("=====================================================");
00459
00460   // Initialise the GNU readline wrapper
00461   swift::SReadline lReader (lHistoryFilename, lHistorySize);
00462   initReadline (lReader);
00463
00464   // Now we can ask user for a line
00465   std::string lUserInput;
00466   bool EndOfInput (false);
00467   Command_T::Type_T lCommandType (Command_T::NOP);
00468
00469   while (lCommandType != Command_T::QUIT && EndOfInput == false) {
00470
00471     // Update the interactive parameters which have not been updated yet
00472     //lCurrentInteractiveDateTime = lCurrentInteractiveEventStruct.getEventTime
      ();
00473     //lCurrentInteractiveEventType =
      lCurrentInteractiveEventStruct.getEventType ();
00474
00475     // Prompt
00476     std::ostringstream oPromptStr;
00477     oPromptStr << "trademgen " << "> " ;
00478       // <<
      stdair::EventType::getTypeLabelAsString(lCurrentInteractiveEventType)
00479       //     << " / " << lCurrentInteractiveDateTime << "> " ;
00480     // Call read-line, which will fill the list of tokens
00481     TokenList_T lTokenListByReadline;
00482     lUserInput = lReader.GetLine (oPromptStr.str(), lTokenListByReadline,
00483                                   EndOfInput);
00484
00485     // The history can be saved to an arbitrary file at any time
00486     lReader.SaveHistory (lHistoryBackupFilename);
00487
00488     // The end-of-input typically corresponds to a CTRL-D typed by the user
00489     if (EndOfInput) {
00490       std::cout << std::endl;
00491       break;
00492     }
00493
00494     // Interpret the user input
00495     lCommandType = extractCommand (lTokenListByReadline);
00496
00497     switch (lCommandType) {
00498
00499       // ////////////////////////////// Help ////////////////////////
00500     case Command_T::HELP: {
00501       std::cout << std::endl;
00502       std::cout << "Commands: " << std::endl;
00503       std::cout << " help" << "\t\t\t" << "Display this help" << std::endl;
00504       std::cout << " quit" << "\t\t\t" << "Quit the application" << std::endl;
00505       std::cout << " list_event" << "\t\t"
00506                 << "List all the events in the queue" << std::endl;
00507       std::cout << " list_demand_stream" << "\t"
00508                 << "List the streams used to generate demand" << std::endl;
00509       std::cout << " reset" << "\t\t\t" << "Reset the service (including the "
00510                 << "event queue)" << std::endl;
00511       std::cout << " generate_first_br" << "\t" << "Generate the first booking
      "
00512                 << "request for each demand stream and add it to the event
      queue"
00513                 << std::endl;
00514       std::cout << " generate_next_br" << "\t" << "Generate the next event for
      "
00515                 << "the specified demand stream and add it to the event queue"
00516                 << "\n\t\t\tFor instance:"
00517                 << "\n\t\t\t  'generate_next_br " << lDefaultDemandStreamKey
00518                 << "'" << std::endl;
00519       std::cout << " generate_all_br" << "\t" << "Generate all the events for "
00520                 << "the specified demand stream and add it to the event queue"
00521                 << "\n\t\t\tFor instance:"
00522                 << "\n\t\t\t  'generate_all_br " << lDefaultDemandStreamKey
00523                 << "'" << std::endl;
00524       std::cout << " delete_first" << "\t\t"
00525                 << "Pop the next event from the queue"
00526                 << std::endl;
00527       std::cout << " \nDebug Commands" << std::endl;
00528       std::cout << " json_list" << "\t\t"
00529                 << "List events in the queue in a JSON format"
00530                 << std::endl;
00531       std::cout << std::endl;
00532       break;
00533     }
```

```
00534
00535       // ////////////////////////////// Quit ////////////////////////
00536     case Command_T::QUIT: {
00537       break;
00538     }
00539
00540       // ////////////////////////////// List ////////////////////////
00541     case Command_T::LIST_EVENT: {
00542       //
00543       std::cout << "List of events" << std::endl;
00544
00545       std::ostringstream oEventListStr;
00546       oEventListStr << trademgenService.list ();
00547       std::cout << oEventListStr.str() << std::endl;
00548       STDAIR_LOG_DEBUG (oEventListStr.str());
00549
00550       //
00551       break;
00552     }
00553
00554       // ////////////////////////////// List ////////////////////////
00555     case Command_T::LIST_DEMAND_STREAM: {
00556       //
00557       std::cout << "List of demand streams" << std::endl;
00558
00559       std::ostringstream oEventListStr;
00560       oEventListStr << trademgenService.displayDemandStream ();
00561       std::cout << oEventListStr.str() << std::endl;
00562       STDAIR_LOG_DEBUG (oEventListStr.str());
00563
00564       //
00565       break;
00566     }
00567
00568       // ////////////////////////////// Reset ////////////////////////
00569     case Command_T::RESET: {
00570
00571       std::cout << "Reset" << std::endl;
00572
00573       // Reset the service (including the event queue) for the next run
00574       trademgenService.reset();
00575
00576       break;
00577     }
00578
00579       // ////////////////////////////// Generate next request
      ////////////////////////
00580     case Command_T::GENERATE_NEXT_BR: {
00581
00582       // Retrieve the corresponding demand stream key
00583       const stdair::DemandGeneratorKey_T lDemandStreamKey =
00584         toString(lTokenListByReadline);
00585
00586       // Check that such demand stream exists
00587       const bool hasDemandStream =
00588         trademgenService.hasDemandStream(lDemandStreamKey);
00589
00590       if (hasDemandStream == false) {
00591         // DEBUG
00592         std::ostringstream oNoDemandStreamStr;
00593         oNoDemandStreamStr << "Wrong demand stream key: '"
00594                            << lDemandStreamKey << "'."
00595                            << "\nExisting demand streams are:\n"
00596                            << trademgenService.displayDemandStream();
00597         std::cout << oNoDemandStreamStr.str() << std::endl;
00598         STDAIR_LOG_DEBUG (oNoDemandStreamStr.str());
00599         break;
00600       }
00601       assert (hasDemandStream == true);
00602
00603       stdair::ProgressStatusSet lProgressStatusSet (stdair::EventType::BKG_REQ)
    ;
00604       const bool stillHavingRequestsToBeGenerated =
00605         trademgenService.stillHavingRequestsToBeGenerated (lDemandStreamKey,
00606                                                            lProgressStatusSet,
00607
      lDemandGenerationMethod);
00608       if (stillHavingRequestsToBeGenerated == false) {
00609         // DEBUG
00610         std::ostringstream oNoMoreEventToGenerateStr;
00611         oNoMoreEventToGenerateStr << "No more events to generate for the demand
      "
00612                                   << "stream: '" << lDemandStreamKey << "'.";
00613         std::cout << oNoMoreEventToGenerateStr.str() << std::endl;
00614         STDAIR_LOG_DEBUG (oNoMoreEventToGenerateStr.str());
00615         break;
00616       }
```

```
00617       assert (stillHavingRequestsToBeGenerated == true);
00618
00619       trademgenService.generateNextRequest (lDemandStreamKey,
    lDemandGenerationMethod);
00620
00621       // DEBUG
00622       std::ostringstream oOneMoreEventGeneratedStr;
00623       oOneMoreEventGeneratedStr << "One more event have been generated for the
     demand "
00624                                 << "stream: '" << lDemandStreamKey << "'.";
00625       std::cout << oOneMoreEventGeneratedStr.str() << std::endl;
00626       STDAIR_LOG_DEBUG (oOneMoreEventGeneratedStr.str());
00627
00628       break;
00629     }
00630
00631       // ////////////////////////////// Generate first requests
     ////////////////////////
00632     case Command_T::GENERATE_FIRST_BR: {
00633
00634       std::cout << "Generate first requests" << std::endl;
00635
00636       // Generate the first event for each demand stream.
00637       trademgenService.generateFirstRequests (lDemandGenerationMethod);
00638
00639       break;
00640     }
00641
00642       // ////////////////////////////// Generate all requests
     ////////////////////////
00643     case Command_T::GENERATE_ALL_BR: {
00644
00645       // Retrieve the corresponding demand stream key
00646       const stdair::DemandGeneratorKey_T lDemandStreamKey =
00647         toString(lTokenListByReadline);
00648
00649       // Check that such demand stream exists
00650       const bool hasDemandStream =
00651         trademgenService.hasDemandStream(lDemandStreamKey);
00652
00653       if (hasDemandStream == false) {
00654         // DEBUG
00655         std::ostringstream oNoDemandStreamStr;
00656         oNoDemandStreamStr << "Wrong demand stream key: '"
00657                            << lDemandStreamKey << "'."
00658                            << "\nExisting demand streams are:\n"
00659                            << trademgenService.displayDemandStream();
00660         std::cout << oNoDemandStreamStr.str() << std::endl;
00661         STDAIR_LOG_DEBUG (oNoDemandStreamStr.str());
00662         break;
00663       }
00664       assert (hasDemandStream == true);
00665
00666       stdair::ProgressStatusSet lProgressStatusSet (stdair::EventType::BKG_REQ)
    ;
00667       bool stillHavingRequestsToBeGenerated =
00668         trademgenService.stillHavingRequestsToBeGenerated (lDemandStreamKey,
00669                                                            lProgressStatusSet,
00670
    lDemandGenerationMethod);
00671
00672
00673       if (stillHavingRequestsToBeGenerated == false) {
00674         // DEBUG
00675         std::ostringstream oNoMoreEventToGenerateStr;
00676         oNoMoreEventToGenerateStr << "No more events to generate for the demand
     "
00677                                   << "stream: '" << lDemandStreamKey << "'.";
00678         std::cout << oNoMoreEventToGenerateStr.str() << std::endl;
00679         STDAIR_LOG_DEBUG (oNoMoreEventToGenerateStr.str());
00680         break;
00681       }
00682       assert (stillHavingRequestsToBeGenerated == true);
00683
00684       stdair::Count_T lNumberOfRequests = 0;
00685       while (stillHavingRequestsToBeGenerated == true) {
00686         lNumberOfRequests++;
00687         trademgenService.generateNextRequest (lDemandStreamKey,
    lDemandGenerationMethod);
00688         stillHavingRequestsToBeGenerated =
00689           trademgenService.stillHavingRequestsToBeGenerated (lDemandStreamKey,
00690                                                              lProgressStatusSet
    ,
00691
    lDemandGenerationMethod);
00692
00693
```

```
00694       }
00695       // DEBUG
00696       std::ostringstream oOneMoreEventGeneratedStr;
00697       oOneMoreEventGeneratedStr << lNumberOfRequests
00698                                 << " more event(s) have been generated for the
    demand "
00699                                 << "stream: '" << lDemandStreamKey << "'.";
00700       std::cout << oOneMoreEventGeneratedStr.str() << std::endl;
00701       STDAIR_LOG_DEBUG (oOneMoreEventGeneratedStr.str());
00702
00703       break;
00704     }
00705
00706       // ////////////////////////////// Next ////////////////////////
00707     case Command_T::NEXT: {
00708       //
00709       std::cout << "Next" << std::endl;
00710
00711       if (trademgenService.isQueueDone() == true) {
00712
00713         // DEBUG
00714         std::ostringstream oEmptyQueueStr;
00715         oEmptyQueueStr << "The event queue is empty: no event can be popped
    out.";
00716         std::cout << oEmptyQueueStr.str() << std::endl;
00717         STDAIR_LOG_DEBUG (oEmptyQueueStr.str());
00718
00719         //
00720         break;
00721
00722       }
00723
00724       // Get the next event from the event queue
00725       trademgenService.popEvent (lCurrentInteractiveEventStruct);
00726
00727       // DEBUG
00728       std::ostringstream oEventStr;
00729       oEventStr << "Poped event: '"
00730                 << lCurrentInteractiveEventStruct.describe() << "'.";
00731       std::cout << oEventStr.str() << std::endl;
00732       STDAIR_LOG_DEBUG (oEventStr.str());
00733
00734       //
00735       break;
00736     }
00737       // ////////////////////////////// JSon Event List
    ////////////////////////
00738
00739     case Command_T::JSON_LIST: {
00740       //
00741       std::cout << "JSON Event List" << std::endl;
00742
00743       std::ostringstream lMyCommandJSONstream;
00744       lMyCommandJSONstream << "{\"event_list\":"
00745                            << "{ \"event_type\":\"" << "all"
00746                            << "\"}}";
00747
00748       // Delegate the call to the dedicated service
00749       const stdair::JSONString lJSONCommandString (lMyCommandJSONstream.str());
00750       const std::string& lCSVEventListDump =
00751         trademgenService.jsonHandler (lJSONCommandString);
00752
00753       // DEBUG: Display the events queue JSON string
00754       std::cout << lCSVEventListDump << std::endl;
00755       STDAIR_LOG_DEBUG (lCSVEventListDump);
00756
00757       break;
00758     }
00759
00760       // ////////////////////////////// Default / No value ////////////////////////
00761     case Command_T::NOP: {
00762       break;
00763     }
00764
00765     case Command_T::LAST_VALUE:
00766     default: {
00767       // DEBUG
00768       std::ostringstream oStr;
00769       oStr << "That command is not yet understood: '" << lUserInput
00770            << "' => " << lTokenListByReadline;
00771       STDAIR_LOG_DEBUG (oStr.str());
00772       std::cout << oStr.str() << std::endl;
00773     }
00774     }
00775   }
00776
00777   // DEBUG
```

```
00778   STDAIR_LOG_DEBUG ("End of the session. Exiting.");
00779   std::cout << "End of the session. Exiting." << std::endl;
00780
00781   // Close the Log outputFile
00782   logOutputFile.close();
00783
00784   /*
00785     Note: as that program is not intended to be run on a server in
00786     production, it is better not to catch the exceptions. When it
00787     happens (that an exception is thrownded), that way we get the
00788     call stack.
00789   */
00790
00791   return 0;
00792 }
```

23.119 trademgen/ui/qt/trademgen/trademgen.cpp File Reference

```
#include "trademgen.h"
#include <QtGui/QLabel>
#include <QtGui/QMenu>
#include <QtGui/QMenuBar>
#include <QtGui/QAction>
#include "trademgen.moc"
```

23.120 trademgen.cpp

```
00001 #include "trademgen.h"
00002
00003 #include <QtGui/QLabel>
00004 #include <QtGui/QMenu>
00005 #include <QtGui/QMenuBar>
00006 #include <QtGui/QAction>
00007
00008 trademgen::trademgen()
00009 {
00010     QLabel* l = new QLabel( this );
00011     l->setText( "Hello World!" );
00012     setCentralWidget( l );
00013     QAction* a = new QAction(this);
00014     a->setText( "Quit" );
00015     connect(a, SIGNAL(triggered()), SLOT(close()) );
00016     menuBar()->addMenu( "File" )->addAction( a );
00017 }
00018
00019 trademgen::~trademgen()
00020 {}
00021
00022 #include "trademgen.moc"
```

23.121 trademgen/ui/qt/trademgen/main.cpp File Reference

```
#include <QtGui/QApplication>
#include "trademgen.h"
```

Functions

- int main (int argc, char **argv)

23.121.1 Function Documentation

23.121.1.1 int main (int *argc*, char ** *argv*)

Definition at line 5 of file main.cpp.

23.122 main.cpp

```
00001 #include <QtGui/QApplication>
00002 #include "trademgen.h"
00003
00004
00005 int main(int argc, char** argv)
00006 {
00007     QApplication app(argc, argv);
00008     trademgen foo;
00009     foo.show();
00010     return app.exec();
00011 }
```