

TraDemGen

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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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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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4.1.1 Version 2.1, February 1999

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We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

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To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

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

```
This library is free software; you can redistribute it and/or
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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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 known 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_AIRAC_PREFIX=${INSTALL_BASEDIR}/airsched-stable \
-DWITH_AIRAC_PREFIX=${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

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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``)
- [SOXI](#) - 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=PREFIX'` 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 output 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
--   - SOCI_MYSQL_INCLUDE_DIR ..... : /usr/include/soci
--   - SOCI_LIBRARIES ..... : /usr/lib64/libsoci_core.so
--   - SOCI_MYSQL_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;stdairuiclib
--   - 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

- [Introduction](#)
- [Using the pkg-config command](#)
- [Using the trademgen-config script](#)
- [M4 macro for the GNU Autotools](#)
- [Using TraDemGen with dynamic linking](#)

10.2 Introduction

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 the `'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

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- [TraDemGen 3.10.x](#)
 - [Linux Systems](#)
 - * [Fedora Core 4 with ATLAS](#)
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- [Unix Systems](#)
 - * [SunOS 5.9 with TraDemGen External](#)
- [TraDemGen 3.9.1](#)
- [TraDemGen 3.9.0](#)
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13.2 Introduction

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 successful. 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

15.1 Table of Contents

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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:

- [Instantiate the BOM Root Object](#)
- [Instantiate the \(Airline\) Inventory Object](#)
- [Link the Inventory Object with the BOM Root](#)

15.3.1 Instantiate 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::STD-AIR_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 Instantiate 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::ostream 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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17.1 Namespace List

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18 Class Index

18.1 Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:

```

std::basic_fstream< char >
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_istreamstream< char >
std::basic_istreamstream< 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 >	
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19.1 Class List

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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::DemandStreamKeyStr_T >](#) (const stdair::DemandStreamKeyStr_T &) const
- template const [TRADEMGEN::DemandStreamList_T](#) [SEVMGR_Service::getEventGeneratorList< TRADEMGEN::DemandStream >](#) () 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 [FacTRADEMGENSEerviceContext](#)
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 PreferredDepartureTime-
ContinuousDistribution_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 distribution 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 probability 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 probability 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 probability 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 probability 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 probability 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_PROBALITY_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 [TRADEMGENT::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 [TRADEMGENT::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 [TRADEMGENT::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 [TRADEMGENT::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 [TRADEMGENT::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 [TRADEMGENT::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 [TRADEMGENT::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 [TRADEMGENT::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 [TRADEMGENT::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 [TRADEMGENT::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 [TRADEMGENT::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

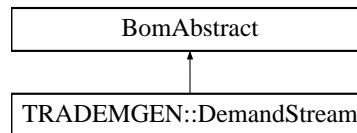
Family code parser

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

<i>std::ostream&</i>	Output stream in which the BOM tree should be logged/dumped.
<i>const</i>	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

<i>std::ostream&</i>	Output stream in which the BOM tree should be logged/dumped.
<i>const</i>	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 [TRADEMGENT::DemandStream::generateChannel\(\)](#), [TRADEMGENT::DemandStream::generateFrequentFlyer\(\)](#), [TRADEMGENT::DemandStream::generateStayDuration\(\)](#), [TRADEMGENT::DemandStream::generateTripType\(\)](#), and [TRADEMGENT::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 [TRADEMGENT::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 [TRADEMGENT::DemandCharacteristics::describe\(\)](#), [TRADEMGENT::DemandStream::display\(\)](#), and [TRADEMGENT::CategoricalAttributeLite< stdair::TripType_T >::getValue\(\)](#).

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

Copy operator.

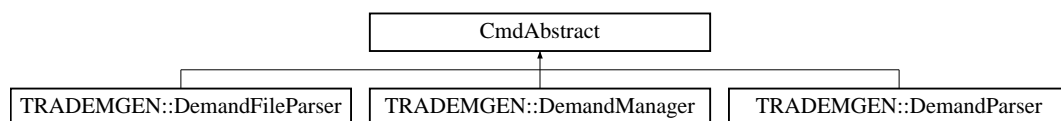
Definition at line 118 of file [CategoricalAttributeLite.hpp](#).

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 [TRADEMGEM::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 [TRADEMGEM::DictionaryManager::keyToValue\(\)](#), and [TRADEMGEM::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 [TRADEMGENT::DictionaryManager::keyToValue\(\)](#).

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

Display inverse cumulative distribution

Definition at line 99 of file [ContinuousAttribute.hpp](#).

References [TRADEMGENT::DictionaryManager::keyToValue\(\)](#).

22.6.4.4 `template<class T > void TRADEMGENT::ContinuousAttribute< T >::determineInverseCumulativeDistribution-FromCumulativeDistribution ()` `[inline]`

Determine inverse cumulative distribution from cumulative distribution (initialisation).

Definition at line 132 of file [ContinuousAttribute.hpp](#).

Referenced by [TRADEMGENT::ContinuousAttribute< T >::ContinuousAttribute\(\)](#).

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

- [trademgen/basic/ContinuousAttribute.hpp](#)

22.7 TRADEMGENT::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 TRADEMGENT::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 [TRADEMGENT::DemandStream::generateTimeOfRequestPoissonProcess\(\)](#), [TRADEMGENT::DemandStream::generateTimeOfRequestStatisticsOrder\(\)](#), [TRADEMGENT::DemandStream::generateValueOfTime\(\)](#), and [TRADEMGENT::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 [TRADEMGENT::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 [TRADEMGENT::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 [TRADEMGENT::DemandCharacteristics::describe\(\)](#).

22.7.4.5 `template<typename T> ContinuousAttributeLite& TRADEMGENT::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 TRADEMGENT::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 TRADEMGENT::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 TRADEMGENT::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\(\)](#).

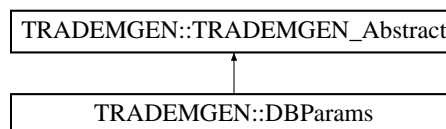
The documentation for this class was generated from the following files:

- [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 (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

<i>ostream&</i>	the output stream.
---------------------	--------------------

Implements [TRADEMGENTRADEMGENTAbstract](#).

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

<i>istream&</i>	the input stream.
---------------------	-------------------

Implements [TRADEMGENTRADEMGENTAbstract](#).

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 [TRADEMGENTRADEMGENTAbstract](#).

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 [TRADEMG-EN::DemandParserHelper::airport_p\(\)](#), [TRADEMG-EN::DemandParserHelper::cabin_code_p\(\)](#), [TRADEMG-EN::DemandParserHelper::day_p\(\)](#), [TRADEMG-EN::DemandParserHelper::dow_p\(\)](#), [TRADEMG-EN::DemandParserHelper::ff_type_p\(\)](#), [TRADEMG-EN::DemandParserHelper::hours_p\(\)](#), [TRADEMG-EN::DemandParserHelper::minutes_p\(\)](#), [TRADEMG-EN::DemandParserHelper::month_p\(\)](#), [TRADEMG-EN::DemandParserHelper::seconds_p\(\)](#), [TRADEMG-EN::DemandParserHelper::stay_duration_p\(\)](#), and [TRADEMG-EN::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:

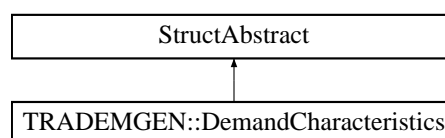
- [trademgen/command/DemandParserHelper.hpp](#)
- [trademgen/command/DemandParserHelper.cpp](#)

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 [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](#) &)
- [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 [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*)

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 [TRADEMGENT::CategoricalAttributeLite< T >::getValue\(\)](#).

Referenced by [TRADEMGENT::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 [TRADEMGENT::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](#), [TRADEMGENT::ContinuousAttributeLite< T >::displayCumulativeDistribution\(\)](#), and [TRADEMGENT::CategoricalAttributeLite< T >::displayProbabilityMass\(\)](#).

Referenced by [TRADEMGENT::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\(\)](#), [TRADEMGENT::DemandStream::generateTimeOfRequestPoissonProcess\(\)](#), and [TRADEMGENT::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 [TRADEMGENT::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 [TRADEMGENT::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 [TRADEMGENT::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 [TRADEMGENT::DemandStream::generateFrequentFlyer\(\)](#).

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

Change fee restriction acceptance probability.

Definition at line 117 of file [DemandCharacteristics.hpp](#).

Referenced by [describe\(\)](#), and [TRADEMGENT::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\(\)](#), [TRADEMGENT::DemandStream::generateNextRequest\(\)](#), and [TRADEMGENT::DemandStream::getChangeFeeDisutility\(\)](#).

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

Non refundable restriction acceptance probability.

Definition at line 127 of file [DemandCharacteristics.hpp](#).

Referenced by [describe\(\)](#), and [TRADEMGENT::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\(\)](#), [TRADEMGENT::DemandStream::generateNextRequest\(\)](#), and [TRADEMGENT::DemandStream::getNonRefundableDisutility\(\)](#).

22.12.4.11 PreferredDepartureTimeCumulativeDistribution_T TRADEMGEN::DemandCharacteristics::_preferred-DepartureTimeCumulativeDistribution

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::_valueOfTimeCumulative-Distribution

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:

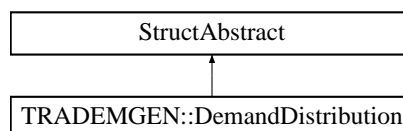
- trademgen/basic/[DemandCharacteristics.hpp](#)
- trademgen/basic/[DemandCharacteristics.cpp](#)

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 &ioln)
- 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

<i>istream&</i>	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\(\)](#), [TRADEMGENT::DemandStream::generateTimeOfRequestPoissonProcess\(\)](#), and [TRADEMGENT::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 [TRADEMGENT::DemandStream::getStdDevNumberOfRequests\(\)](#).

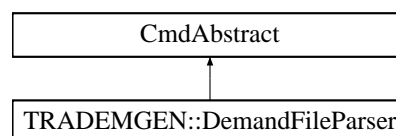
The documentation for this struct was generated from the following files:

- [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 [TRADEMGENT::DemandParser::generateDemand\(\)](#).

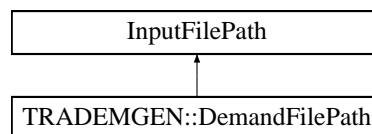
The documentation for this class was generated from the following files:

- [trademgen/command/DemandParserHelper.hpp](#)
- [trademgen/command/DemandParserHelper.cpp](#)

22.15 TRADEMGEN::DemandFilePath Class Reference

```
#include <trademgen/TRADEMGENTypes.hpp>
```

Inheritance diagram for TRADEMGENT::DemandFilePath:



Public Member Functions

- [DemandFilePath](#) (const stdair::Filename_T &iFilename)

22.15.1 Detailed Description

Demand input file.

Definition at line 30 of file [TRADEMGENTypes.hpp](#).

22.15.2 Constructor & Destructor Documentation

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

Constructor.

Definition at line 35 of file [TRADEMGENTypes.hpp](#).

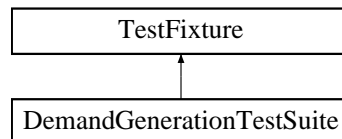
The documentation for this class was generated from the following file:

- [trademgen/TRADEMGENTypes.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](#).

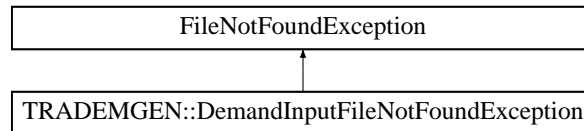
The documentation for this class was generated from the following file:

- 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:

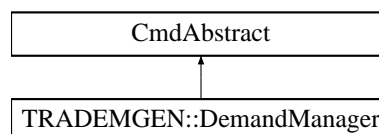
- [trademgen/TRADEMGEN_Exceptions.hpp](#)

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](#).

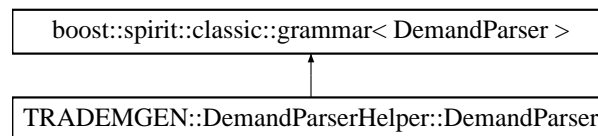
The documentation for this class was generated from the following files:

- [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: Preferred 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 customer choice model) Change fees disutility (for disutility customer choice model) Non refundable restriction. 'True' for accepting the restriction (for hard-restriction customer choice model) Non refundable disutility (for disutility customer choice model) Continuous cumulative distribution: Preferred departure time (hh:mm:ss) Preferred arrival date (equal to preferred departure date) Preferred arrival time (equal to preferred 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 $P(\text{random variable} \leq \text{value}) = \text{probability}$.

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:

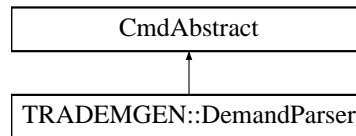
- trademgen/command/[DemandParserHelper.hpp](#)
- trademgen/command/[DemandParserHelper.cpp](#)

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

<i>const</i> DemandFilePath &	The file-name of the CSV-formatted demand input file.
<i>SEVMGR::SEVMGR_ServicePtr_T</i>	Pointer on the SEvMgr service handler to update the queue with the parsed information.
<i>stdair::Random-Generation&</i>	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:

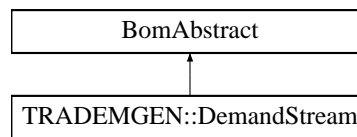
- trademgen/command/[DemandParser.hpp](#)
- trademgen/command/[DemandParser.cpp](#)

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 [TRADEMGENT::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 [TRADEMGENT::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 [TRADEMGENT::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 [TRADEMGENT::RandomGenerationContext::getNumberOfRequestsGeneratedSoFar\(\)](#).

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 [TRADEMGENT::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 [TRADEMGENT::DemandCharacteristics::_nonRefundableDisutility](#).

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

Get the default POS probability 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 [TRADEMGENT::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 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)` `[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 probability 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 & *iDefaultPOSProbabilityMass*)

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 [TRADEMGENT::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 [TRADEMGENT::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 [TRADEMGENT::DemandCharacteristics::_arrivalPattern](#), [_demandCharacteristics](#), [_demandDistribution](#), [_key](#), [TRADEMGENT::DemandDistribution::_meanNumberOfRequests](#), [_requestDateTimeRandomGenerator](#), [convertFloatIntoDuration\(\)](#), [TRADEMGENT::DEFAULT_LAST_LOWER_BOUND_ARRIVAL_PATTERN](#), [TRADEMGENT::ContinuousAttributeLite< T >::getDerivativeValue\(\)](#), [TRADEMGENT::DemandStreamKey::getPreferredDepartureDate\(\)](#), [TRADEMGENT::ContinuousAttributeLite< T >::getUpperBound\(\)](#), [TRADEMGENT::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 [TRADEMGENT::DemandCharacteristics::_arrivalPattern](#), [_demandCharacteristics](#), [_key](#), [_randomGenerationContext](#), [_requestDateTimeRandomGenerator](#), [_totalNumberOfRequestsToBeGenerated](#), [convertFloatIntoDuration\(\)](#), [TRADEMGENT::RandomGenerationContext::getCumulativeProbabilitySoFar\(\)](#), [TRADEMGENT::RandomGenerationContext::getNumberOfRequestsGeneratedSoFar\(\)](#), [TRADEMGENT::DemandStreamKey::getPreferredDepartureDate\(\)](#), [TRADEMGENT::ContinuousAttributeLite< T >::getValue\(\)](#), [incrementGeneratedRequestsCounter\(\)](#), and [TRADEMGENT::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 [TRADEMGENT::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 [TRADEMGENT::DemandCharacteristics::_channelProbabilityMass](#), [_demandCharacteristics](#), [_demandCharacteristicsRandomGenerator](#), and [TRADEMGENT::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](#), [TRADEMGENT::DemandCharacteristics::_tripTypeProbabilityMass](#), and [TRADEMGENT::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](#), [TRADEMGENT::DemandCharacteristics::_stayDurationProbabilityMass](#), and [TRADEMGENT::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](#), [TRADEMGENT::DemandCharacteristics::_frequentFlyerProbabilityMass](#), and [TRADEMGENT::CategoricalAttributeLite< T >::getValue\(\)](#).

Referenced by [generateNextRequest\(\)](#).

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

Generate the change fee acceptance.

Definition at line 476 of file [DemandStream.cpp](#).

References [TRADEMGENT::DemandCharacteristics::_changeFeeProb](#), [_demandCharacteristics](#), and [_demandCharacteristicsRandomGenerator](#).

Referenced by [generateNextRequest\(\)](#).

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

Generate the non refundable acceptance.

Definition at line 487 of file [DemandStream.cpp](#).

References [_demandCharacteristics](#), [_demandCharacteristicsRandomGenerator](#), and [TRADEMGENT::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](#), [TRADEMGENT::DemandCharacteristics::_frat5Pattern](#), [TRADEMGENT::DemandCharacteristics::_minWTP](#), and [TRADEMGENT::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](#), [TRADEMGENT::DemandCharacteristics::_valueOfTimeCumulativeDistribution](#), and [TRADEMGENT::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

<i>stdair::Random-Generation</i>	Random generator.
<i>const</i>	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 [TRADEMGENT::DemandCharacteristics::_changeFeeDisutility](#), [_demandCharacteristics](#), [_key](#), [TRADEMGENT::DemandCharacteristics::_nonRefundableDisutility](#), [describeKey\(\)](#), [generateChangeFees\(\)](#), [generateChannel\(\)](#), [generateFrequentFlyer\(\)](#), [generateNonRefundable\(\)](#), [generatePOS\(\)](#), [generatePreferredDepartureTime\(\)](#), [generateStayDuration\(\)](#), [generateTimeOfRequestPoissonProcess\(\)](#), [generateTimeOfRequestStatisticsOrder\(\)](#), [generateTripType\(\)](#), [generateValueOfTime\(\)](#), [generateWTP\(\)](#), [TRADEMGENT::DemandStreamKey::getDestination\(\)](#), [TRADEMGENT::DemandStreamKey::getOrigin\(\)](#), [TRADEMGENT::DemandStreamKey::getPreferredCabin\(\)](#), and [TRADEMGENT::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 [TRADEMGENT::RandomGenerationContext::reset\(\)](#).

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

Dump a Business Object into an output stream.

Parameters

<i>ostream&</i>	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

<i>istream&</i>	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 [TRADEMGENT::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 [TRADEMGENT::DemandStreamKey::toString\(\)](#).

Referenced by [TRADEMGENT::TRADEMGENT_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](#), [TRADEMGENT::DemandCharacteristics::describe\(\)](#), [TRADEMGENT::DemandDistribution::describe\(\)](#), [TRADEMGENT::CategoricalAttributeLite< T >::displayProbabilityMass\(\)](#), and [TRADEMGENT::DemandStreamKey::toString\(\)](#).

Referenced by [TRADEMGENT::BomDisplay::csvDisplay\(\)](#).

22.21.4.47 const std::duration< T > TRADEMGEN::DemandStream::convertFloatIntoDuration (const std::duration< 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 [stillHavingRequestsToBeGenerated\(\)](#).

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]

Default POS probability mass, used when "row" (rest of the world) is drawn.

Definition at line 392 of file [DemandStream.hpp](#).

Referenced by [display\(\)](#), [getPOSProbabilityMass\(\)](#), and [setPOSProbabilityMass\(\)](#).

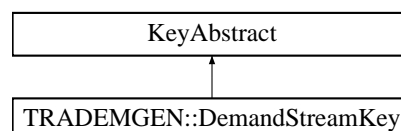
The documentation for this class was generated from the following files:

- [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 [TRADEMGENT::DemandStream::generateNextRequest\(\)](#), and [TRADEMGENT::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 [TRADEMGENT::DemandStream::generateNextRequest\(\)](#), and [TRADEMGENT::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 std::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

<i>ostream&</i>	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

<i>istream&</i>	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\(\)](#).

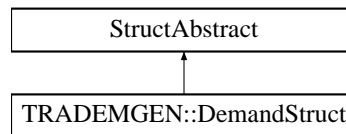
The documentation for this struct was generated from the following files:

- [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 std::date::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 [TRADEMG-EN::DemandParserHelper::storePrefDepDateRangeStart::operator\(\)](#), and [TRADEMG-EN::DemandParserHelper::storePrefDepDateRangeEnd::operator\(\)](#).

22.23.3.2 std::duration::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 [TRADEMG-EN::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 std::date::DatePeriod_T TRADEMGEN::DemandStruct::_dateRange

Definition at line 51 of file [DemandStruct.hpp](#).

Referenced by [describe\(\)](#), and [TRADEMG-EN::DemandParserHelper::storePrefDepDateRangeEnd::operator\(\)](#).

22.23.4.2 std::date::DoWStruct TRADEMGEN::DemandStruct::_dow

Definition at line 52 of file [DemandStruct.hpp](#).

Referenced by [describe\(\)](#), and [TRADEMG-EN::DemandParserHelper::storeDow::operator\(\)](#).

22.23.4.3 stdair::AirportCode_T TRADEMG-EN::DemandStruct::_origin

Definition at line 53 of file [DemandStruct.hpp](#).

Referenced by [describe\(\)](#), and [TRADEMG-EN::DemandParserHelper::storeOrigin::operator\(\)](#).

22.23.4.4 stdair::AirportCode_T TRADEMG-EN::DemandStruct::_destination

Definition at line 54 of file [DemandStruct.hpp](#).

Referenced by [describe\(\)](#), and [TRADEMG-EN::DemandParserHelper::storeDestination::operator\(\)](#).

22.23.4.5 stdair::CabinCode_T TRADEMG-EN::DemandStruct::_prefCabin

Definition at line 55 of file [DemandStruct.hpp](#).

Referenced by [describe\(\)](#), and [TRADEMG-EN::DemandParserHelper::storePrefCabin::operator\(\)](#).

22.23.4.6 stdair::MeanValue_T TRADEMG-EN::DemandStruct::_demandMean

Definition at line 56 of file [DemandStruct.hpp](#).

Referenced by [describe\(\)](#), and [TRADEMG-EN::DemandParserHelper::storeDemandMean::operator\(\)](#).

22.23.4.7 stdair::StdDevValue_T TRADEMG-EN::DemandStruct::_demandStdDev

Definition at line 57 of file [DemandStruct.hpp](#).

Referenced by [describe\(\)](#), and [TRADEMG-EN::DemandParserHelper::storeDemandStdDev::operator\(\)](#).

22.23.4.8 stdair::ChangeFeesRatio_T TRADEMG-EN::DemandStruct::_changeFeeProb

Definition at line 58 of file [DemandStruct.hpp](#).

Referenced by [describe\(\)](#), and [TRADEMG-EN::DemandParserHelper::storeDemandChangeFeeProb::operator\(\)](#).

22.23.4.9 stdair::Disutility_T TRADEMG-EN::DemandStruct::_changeFeeDisutility

Definition at line 59 of file [DemandStruct.hpp](#).

Referenced by [TRADEMG-EN::DemandParserHelper::storeDemandChangeFeeDisutility::operator\(\)](#).

22.23.4.10 stdair::NonRefundableRatio_T TRADEMG-EN::DemandStruct::_nonRefundableProb

Definition at line 60 of file [DemandStruct.hpp](#).

Referenced by [describe\(\)](#), and [TRADEMG-EN::DemandParserHelper::storeDemandNonRefundableProb::operator\(\)](#).

22.23.4.11 stdair::Disutility_T TRADEMG-EN::DemandStruct::_nonRefundableDisutility

Definition at line 61 of file [DemandStruct.hpp](#).

Referenced by [TRADEMG-EN::DemandParserHelper::storeDemandNonRefundableDisutility::operator\(\)](#).

22.23.4.12 POSProbabilityMassFunction_T TRADEMG-EN::DemandStruct::_posProbDist

Definition at line 62 of file [DemandStruct.hpp](#).

Referenced by [describe\(\)](#), [TRADEMG-EN::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\(\)](#), [TRADEMG-EN::DemandParserHelper::storeChannelProbMass::operator\(\)](#), and [TRADEMG-EN::DemandParserHelper::doEndDemand::operator\(\)](#).

22.23.4.14 TripTypeProbabilityMassFunction_T TRADEMGEN::DemandStruct::_tripProbDist

Definition at line 64 of file [DemandStruct.hpp](#).

Referenced by [describe\(\)](#), [TRADEMG-EN::DemandParserHelper::storeTripProbMass::operator\(\)](#), and [TRADEMG-EN::DemandParserHelper::doEndDemand::operator\(\)](#).

22.23.4.15 StayDurationProbabilityMassFunction_T TRADEMGEN::DemandStruct::_stayProbDist

Definition at line 65 of file [DemandStruct.hpp](#).

Referenced by [describe\(\)](#), [TRADEMG-EN::DemandParserHelper::storeStayProbMass::operator\(\)](#), and [TRADEMG-EN::DemandParserHelper::doEndDemand::operator\(\)](#).

22.23.4.16 FrequentFlyerProbabilityMassFunction_T TRADEMGEN::DemandStruct::_ffProbDist

Definition at line 66 of file [DemandStruct.hpp](#).

Referenced by [describe\(\)](#), [TRADEMG-EN::DemandParserHelper::storeFFProbMass::operator\(\)](#), and [TRADEMG-EN::DemandParserHelper::doEndDemand::operator\(\)](#).

22.23.4.17 PreferredDepartureTimeContinuousDistribution_T TRADEMGEN::DemandStruct::_prefDepTimeProbDist

Definition at line 67 of file [DemandStruct.hpp](#).

Referenced by [describe\(\)](#), [TRADEMG-EN::DemandParserHelper::storePrefDepTimeProbMass::operator\(\)](#), and [TRADEMG-EN::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 [TRADEMG-EN::DemandParserHelper::storeWTP::operator\(\)](#).

22.23.4.19 ValueOfTimeContinuousDistribution_T TRADEMGEN::DemandStruct::_timeValueProbDist

Definition at line 69 of file [DemandStruct.hpp](#).

Referenced by [describe\(\)](#), [TRADEMG-EN::DemandParserHelper::storeTimeValueProbMass::operator\(\)](#), and [TRADEMG-EN::DemandParserHelper::doEndDemand::operator\(\)](#).

22.23.4.20 ArrivalPatternCumulativeDistribution_T TRADEMGEN::DemandStruct::_dtdProbDist

Definition at line 70 of file [DemandStruct.hpp](#).

Referenced by [describe\(\)](#), [TRADEMG-EN::DemandParserHelper::storeDTDProbMass::operator\(\)](#), and [TRADEMG-EN::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 [TRADEMG-EN::DemandParserHelper::storePrefDepDateRangeStart::operator\(\)](#), and [TRADEMG-EN::DemandParserHelper::storePrefDepDateRangeEnd::operator\(\)](#).

22.23.4.22 `stdair::Date_T TRADEMGEN::DemandStruct::_prefDepDateEnd`

Definition at line 76 of file [DemandStruct.hpp](#).

Referenced by [TRADEMGENT::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 [TRADEMGENT::DemandParserHelper::storePrefDepTime::operator\(\)](#).

22.23.4.28 `long TRADEMGEN::DemandStruct::_itSeconds`

Definition at line 84 of file [DemandStruct.hpp](#).

Referenced by [getTime\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefDepDateRangeStart::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefDepDateRangeEnd::operator\(\)](#), and [TRADEMGENT::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 [TRADEMGENT::DemandParserHelper::storePosCode::operator\(\)](#), and [TRADEMGENT::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 [TRADEMGENT::DemandParserHelper::storeChannelCode::operator\(\)](#), and [TRADEMGENT::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 [TRADEMGENT::ContinuousAttribute< T >::displayCumulativeDistribution\(\)](#), [TRADEMGENT::ContinuousAttributeLite< stdair::FloatDuration_T >::displayCumulativeDistribution\(\)](#), [TRADEMGENT::ContinuousAttribute< T >::displayInverseCumulativeDistribution\(\)](#), [TRADEMGENT::CategoricalAttributeLite< stdair::TripType_T >::displayProbabilityMass\(\)](#), [TRADEMGENT::ContinuousAttributeLite< stdair::FloatDuration_T >::getDerivativeValue\(\)](#), [TRADEMGENT::ContinuousAttributeLite< stdair::FloatDuration_T >::getValue\(\)](#), and [TRADEMGENT::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 [TRADEMGENT::ContinuousAttributeLite< stdair::FloatDuration_T >::getValue\(\)](#), [TRADEMGENT::CategoricalAttributeLite< stdair::TripType_T >::getValue\(\)](#), and [TRADEMGENT::ContinuousAttribute< T >::getValue\(\)](#).

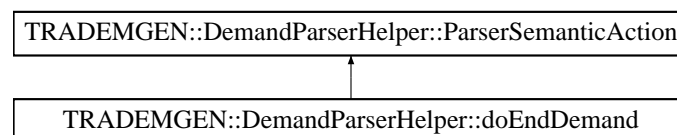
The documentation for this class was generated from the following files:

- [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 `TRADEMGEM::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 TRADEMGEM::DemandParserHelper::doEndDemand::operator() (iterator_t iStr, iterator_t iStrEnd) const`

Actor Function (functor).

Definition at line 469 of file [DemandParserHelper.cpp](#).

References [TRADEMGEM::DemandStruct::_channelProbDist](#), [TRADEMGEM::DemandParserHelper::ParserSemanticAction::_demand](#), [TRADEMGEM::DemandStruct::_dtdProbDist](#), [TRADEMGEM::DemandStruct::_ffProbDist](#), [TRADEMGEM::DemandStruct::_posProbDist](#), [TRADEMGEM::DemandStruct::_prefDepTimeProbDist](#), [TRADEMGEM::DemandStruct::_sevmgrServicePtr](#), [TRADEMGEM::DemandStruct::_stayProbDist](#), [TRADEMGEM::DemandStruct::_timeValueProbDist](#), [TRADEMGEM::DemandStruct::_tripProbDist](#), and [_uniformGenerator](#).

22.25.4 Member Data Documentation

22.25.4.1 `SEVMGR::SEVMGR_ServicePtr_T TRADEMGEM::DemandParserHelper::doEndDemand::_sevmgrServicePtr`

Actor Specific Context.

Definition at line 282 of file [DemandParserHelper.hpp](#).

Referenced by [operator\(\)\(\)](#).

22.25.4.2 `stdair::RandomGeneration& TRADEMGEM::DemandParserHelper::doEndDemand::_uniformGenerator`

Definition at line 283 of file [DemandParserHelper.hpp](#).

Referenced by [operator\(\)\(\)](#).

22.25.4.3 `const POSProbabilityMass_T& TRADEMGEM::DemandParserHelper::doEndDemand::_posProbabilityMass`

Definition at line 284 of file [DemandParserHelper.hpp](#).

Referenced by [operator\(\)\(\)](#).

22.25.4.4 `DemandStruct& TRADEMGEM::DemandParserHelper::ParserSemanticAction::_demand` `[inherited]`

Actor Context.

Definition at line 35 of file [DemandParserHelper.hpp](#).

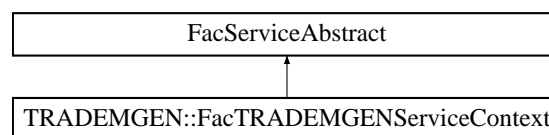
Referenced by [TRADEMGEN::DemandParserHelper::storePrefDepDateRangeStart::operator\(\)](#), [TRADEMGEN::DemandParserHelper::storePrefDepDateRangeEnd::operator\(\)](#), [TRADEMGEN::DemandParserHelper::storeDow::operator\(\)](#), [TRADEMGEN::DemandParserHelper::storeOrigin::operator\(\)](#), [TRADEMGEN::DemandParserHelper::storeDestination::operator\(\)](#), [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:

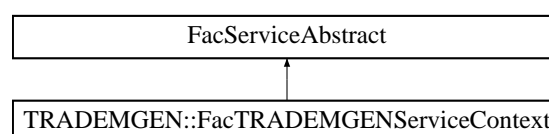
- [trademgen/factory/FacTRADEMGENServiceContext.hpp](#)

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

- [~FacTRADEMGENSEerviceContext](#) ()
- [TRADEMGEN_ServiceContext](#) & [create](#) (const stdair::RandomSeed_T &)

Static Public Member Functions

- static [FacTRADEMGENSEerviceContext](#) & [instance](#) ()

Protected Member Functions

- [FacTRADEMGENSEerviceContext](#) ()

22.27.1 Detailed Description

Factory for creating the TraDemGen service context instance.

Definition at line 21 of file [FacTRADEMGENSEerviceContext.hpp](#).

22.27.2 Constructor & Destructor Documentation

22.27.2.1 TRADEMGEN::FacTRADEMGENSEerviceContext::~~FacTRADEMGENSEerviceContext ()

Destructor.

The Destruction put the `_instance` to NULL in order to be clean for the next [FacTRADEMGENSEerviceContext::instance\(\)](#).

Definition at line 17 of file [FacTRADEMGENSEerviceContext.cpp](#).

22.27.2.2 TRADEMGEN::FacTRADEMGENSEerviceContext::FacTRADEMGENSEerviceContext () [inline], [protected]

Default Constructor.

This constructor is protected in order to ensure the singleton pattern.

Definition at line 57 of file [FacTRADEMGENSEerviceContext.hpp](#).

Referenced by [instance\(\)](#).

22.27.3 Member Function Documentation

22.27.3.1 FacTRADEMGENSEerviceContext & TRADEMGEN::FacTRADEMGENSEerviceContext::instance () [static]

Provide the unique instance.

The singleton is instantiated when first used.

Returns

[FacTRADEMGENSEerviceContext](#)&

Definition at line 22 of file [FacTRADEMGENSEerviceContext.cpp](#).

References [FacTRADEMGENSEerviceContext\(\)](#).

22.27.3.2 TRADEMGEN_ServiceContext & TRADEMGEN::FacTRADEMGENSEerviceContext::create (const stdair::RandomSeed_T & iRandomSeed)

Create a new [TRADEMGENSEerviceContext](#) object.

This new object is added to the list of instantiated objects.

Parameters

<i>const</i>	stdair::RandomSeed_T& Seed for the random generation.
--------------	---

Returns

[TRADEMGENSEerviceContext](#)& The newly created object.

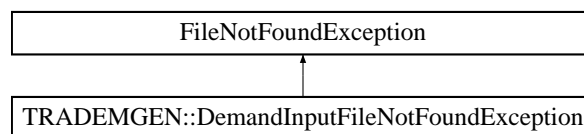
Definition at line 35 of file [FacTRADEMGENSEerviceContext.cpp](#).

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

- trademgen/factory/[FacTRADEMGENSEerviceContext.hpp](#)
- trademgen/factory/[FacTRADEMGENSEerviceContext.cpp](#)

22.28 FileNotFoundException Class Reference

Inheritance diagram for FileNotFoundException:



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

- trademgen/[TRADEMGENSE_Exceptions.hpp](#)

22.29 TRADEMGENSE::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 TRADEMGENSE::FlagSaver::FlagSaver (std::ostream & oStream) [inline]

Constructor.

Definition at line 27 of file [BomDisplay.cpp](#).

22.29.2.2 TRADEMGEN::FlagSaver::~~FlagSaver () [inline]

Destructor.

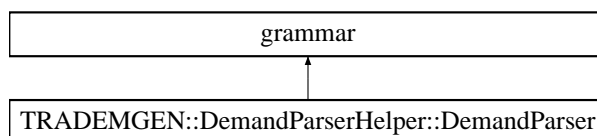
Definition at line 32 of file [BomDisplay.cpp](#).

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

- [trademgen/bom/BomDisplay.cpp](#)

22.30 grammar Class Reference

Inheritance diagram for grammar:



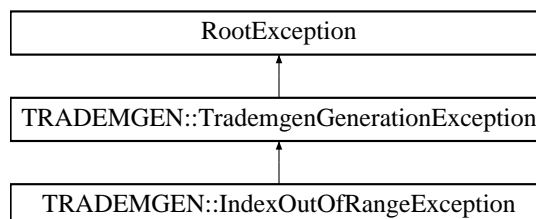
The documentation for this class was generated from the following file:

- [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.

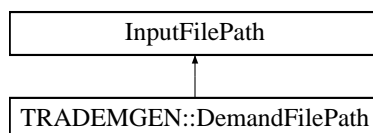
Definition at line 48 of file [TRADEMGEN_Exceptions.hpp](#).

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

- trademgen/[TRADEMGEN_Exceptions.hpp](#)

22.32 InputFilePath Class Reference

Inheritance diagram for InputFilePath:

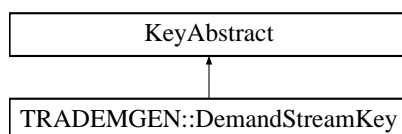


The documentation for this class was generated from the following file:

- trademgen/[TRADEMGEN_Types.hpp](#)

22.33 KeyAbstract Class Reference

Inheritance diagram for KeyAbstract:



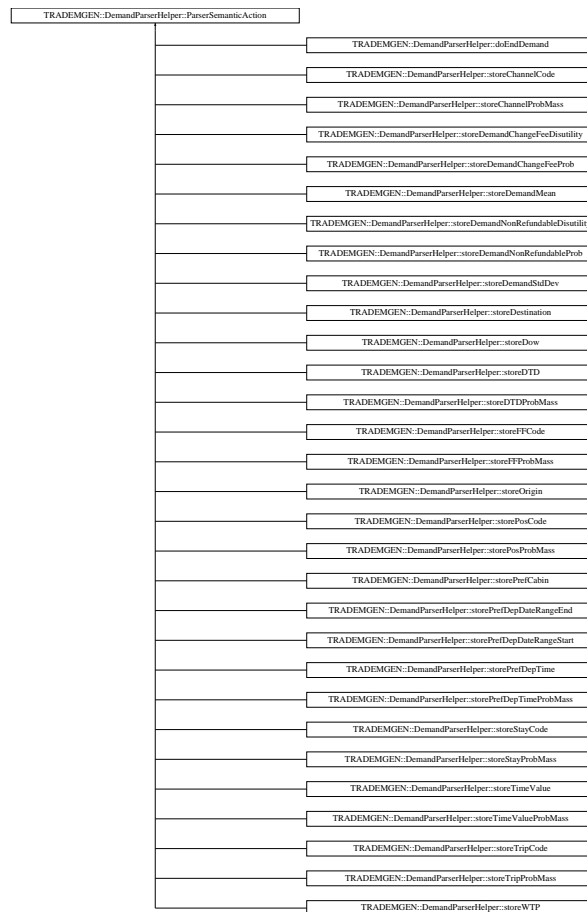
The documentation for this class was generated from the following file:

- 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 [TRADEMGENT::DemandParserHelper::storePrefDepDateRangeStart::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefDepDateRangeEnd::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDow::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeOrigin::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDestination::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefCabin::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandMean::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandStdDev::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandChangeFeeProb::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandChangeFeeDisutility::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandNonRefundableProb::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandNonRefundableDisutility::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePosCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePosProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeChannelCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeChannelProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTripCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTripProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeStayCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeStayProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeFFCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeFFProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefDepTime::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefDepTimeProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeWTP::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTimeValue::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTimeValueProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDTD::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDTDProbMass::operator\(\)](#), and [TRADEMGENT::DemandParserHelper::doEndDemand::operator\(\)](#).

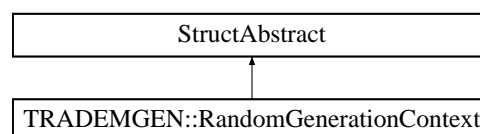
The documentation for this struct was generated from the following files:

- [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 [TRADEMGENT::DemandStream::generateTimeOfRequestStatisticsOrder\(\)](#), [TRADEMGENT::DemandStream::getNumberOfRequestsGeneratedSoFar\(\)](#), and [TRADEMGENT::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 [TRADEMGENT::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 [TRADEMGENT::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).

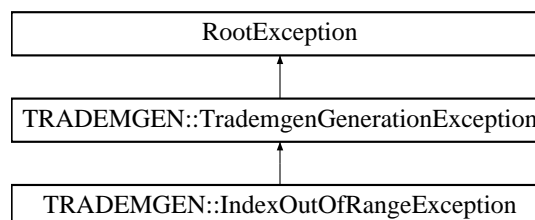
Definition at line 30 of file [RandomGenerationContext.cpp](#).

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:

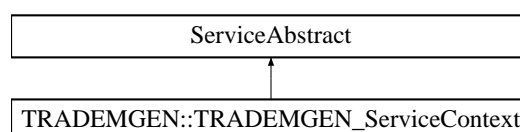


The documentation for this class was generated from the following file:

- [trademgen/TRADEMGEN_Exceptions.hpp](#)

22.37 ServiceAbstract Class Reference

Inheritance diagram for ServiceAbstract:



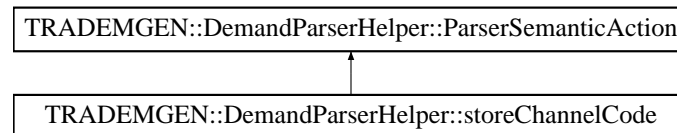
The documentation for this class was generated from the following file:

- [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 [TRADEMG...DemandParserHelper::ParserSemanticAction::_demand](#), and [TRADEMG...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 [TRADEMG-
N::DemandParserHelper::storePrefDepDateRangeStart::operator\(\)](#), [TRADEMG-
N::DemandParserHelper::storePrefDepDateRangeEnd::operator\(\)](#), [TRADEMG-
N::DemandParserHelper::storeDow::operator\(\)](#), [TRADEMG-
N::DemandParserHelper::storeOrigin::operator\(\)](#), [TRADEMG-
N::DemandParserHelper::storeDestination::operator\(\)](#), [TRADEMG-
N::DemandParserHelper::storePrefCabin::operator\(\)](#), [TRADEMG-
N::DemandParserHelper::storeDemandMean::operator\(\)](#), [TRADEMG-
N::DemandParserHelper::storeDemandStdDev::operator\(\)](#), [TRADEMG-
N::DemandParserHelper::storeDemandChangeFeeProb::operator\(\)](#), [TRADEMG-
N::DemandParserHelper::storeDemandChangeFeeDisutility::operator\(\)](#), [TRADEMG-
N::DemandParserHelper::storeDemandNonRefundableProb::operator\(\)](#), [TRADEMG-
N::DemandParserHelper::storeDemandNonRefundableDisutility::operator\(\)](#), [TRADEMG-
N::DemandParserHelper::storePosCode::operator\(\)](#), [TRADEMG-
N::DemandParserHelper::storePosProbMass::operator\(\)](#), [operator\(\)](#), [TRADEMG-
N::DemandParserHelper::storeChannelProbMass::operator\(\)](#), [TRADEMG-
N::DemandParserHelper::storeTripCode::operator\(\)](#), [TRADEMG-
N::DemandParserHelper::storeTripProbMass::operator\(\)](#), [TRADEMG-
N::DemandParserHelper::storeStayCode::operator\(\)](#), [TRADEMG-
N::DemandParserHelper::storeStayProbMass::operator\(\)](#), [TRADEMG-
N::DemandParserHelper::storeFFCode::operator\(\)](#), [TRADEMG-
N::DemandParserHelper::storeFFProbMass::operator\(\)](#), [TRADEMG-
N::DemandParserHelper::storePrefDepTime::operator\(\)](#), [TRADEMG-
N::DemandParserHelper::storePrefDepTimeProbMass::operator\(\)](#), [TRADEMG-
N::DemandParserHelper::storeWTP::operator\(\)](#), [TRADEMG-
N::DemandParserHelper::storeTimeValue::operator\(\)](#), [TRADEMG-
N::DemandParserHelper::storeTimeValueProbMass::operator\(\)](#), [TRADEMG-
N::DemandParserHelper::storeDT-D::operator\(\)](#), [TRADEMG-
N::DemandParserHelper::storeDTDProbMass::operator\(\)](#), and [TRADEMG-
N::DemandParserHelper::doEndDemand::operator\(\)](#).

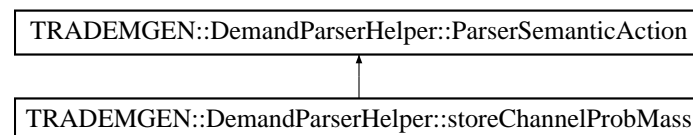
The documentation for this struct was generated from the following files:

- [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 [TRADEMGENT::DemandStruct::_channelProbDist](#), [TRADEMGENT::DemandParserHelper::ParserSemanticAction::_demand](#), and [TRADEMGENT::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 [TRADEMGENT::DemandParserHelper::storePrefDepDateRangeStart::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefDepDateRangeEnd::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDow::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeOrigin::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDestination::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefCabin::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandMean::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandStdDev::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandChangeFeeProb::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandChangeFeeDisutility::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandNonRefundableProb::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandNonRefundableDisutility::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePosCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePosProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeChannelCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTripCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTripProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeStayCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeStayProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeFFCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeFFProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefDepTime::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefDepTimeProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeWTP::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTimeValue::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTimeValueProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDTD::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDTPProbMass::operator\(\)](#), and [TRADEMGENT::DemandParserHelper::doEndDemand::operator\(\)](#).

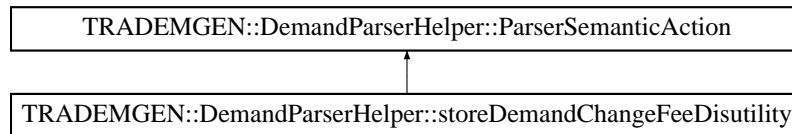
The documentation for this struct was generated from the following files:

- [trademgen/command/DemandParserHelper.hpp](#)
- [trademgen/command/DemandParserHelper.cpp](#)

22.40 TRADEMGEN::DemandParserHelper::storeDemandChangeFeeDisutility Struct Reference

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

Inheritance diagram for TRADEMGENT::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 TRADEMGENT::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 TRADEMGENT::DemandParserHelper::storeDemandChangeFeeDisutility::operator() (double *iReal*) const

Actor Function (functor).

Definition at line 155 of file [DemandParserHelper.cpp](#).

References [TRADEMGENT::DemandStruct::_changeFeeDisutility](#), and [TRADEMGENT::DemandParserHelper::ParserSemanticAction::_demand](#).

22.40.4 Member Data Documentation

22.40.4.1 [DemandStruct](#)& TRADEMGENT::DemandParserHelper::ParserSemanticAction::_demand [inherited]

Actor Context.

Definition at line 35 of file [DemandParserHelper.hpp](#).

Referenced by [TRADEMGENT::DemandParserHelper::storePrefDepDateRangeStart::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefDepDateRangeEnd::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDow::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeOrigin::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDestination::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefCabin::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandMean::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandStdDev::operator\(\)](#), [TRADEMGENT::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()).

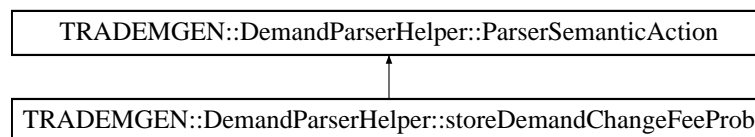
The documentation for this struct was generated from the following files:

- 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 [TRADEMGENT::DemandStruct::_changeFeeProb](#), and [TRADEMGENT::DemandParserHelper::ParserSemanticAction::_demand](#).

22.41.4 Member Data Documentation

22.41.4.1 DemandStruct& TRADEMGENT::DemandParserHelper::ParserSemanticAction::_demand [inherited]

Actor Context.

Definition at line 35 of file [DemandParserHelper.hpp](#).

Referenced by [TRADEMGENT::DemandParserHelper::storePrefDepDateRangeStart::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefDepDateRangeEnd::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDow::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeOrigin::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDestination::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefCabin::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandMean::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandStdDev::operator\(\)](#), [operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandChangeFeeDisutility::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandNonRefundableProb::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandNonRefundableDisutility::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePosCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePosProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeChannelCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeChannelProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTripCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTripProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeStayCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeStayProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeFFCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeFFProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefDepTime::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefDepTimeProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeWTP::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTimeValue::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTimeValueProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDTD::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDTDProbMass::operator\(\)](#), and [TRADEMGENT::DemandParserHelper::doEndDemand::operator\(\)](#).

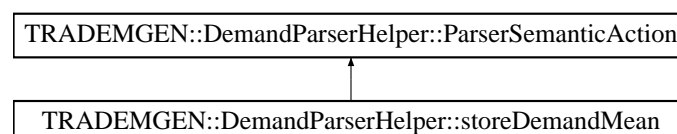
The documentation for this struct was generated from the following files:

- [trademgen/command/DemandParserHelper.hpp](#)
- [trademgen/command/DemandParserHelper.cpp](#)

22.42 TRADEMGEN::DemandParserHelper::storeDemandMean Struct Reference

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

Inheritance diagram for TRADEMGENT::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 [TRADEMGENT::DemandParserHelper::ParserSemanticAction::_demand](#), and [TRADEMGENT::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 [TRADEMGENT::DemandParserHelper::storePrefDepDateRangeStart::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefDepDateRangeEnd::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDow::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeOrigin::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDestination::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefCabin::operator\(\)](#), [operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandStdDev::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandChangeFeeProb::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandChangeFeeDisutility::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandNonRefundableProb::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandNonRefundableDisutility::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePosCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePosProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeChannelCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeChannelProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTripCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTripProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeStayCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeStayProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeFFCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeFFProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefDepTime::operator\(\)](#),

TRADEMG-EN::DemandParserHelper::storePrefDepTimeProbMass::operator(), TRADEMG-EN::DemandParserHelper::storeWTP::operator(), TRADEMG-EN::DemandParserHelper::storeTimeValue::operator(), TRADEMG-EN::DemandParserHelper::storeTimeValueProbMass::operator(), TRADEMG-EN::DemandParserHelper::storeDTD::operator(), TRADEMG-EN::DemandParserHelper::storeDTDProbMass::operator(), and TRADEMG-EN::DemandParserHelper::doEndDemand::operator().

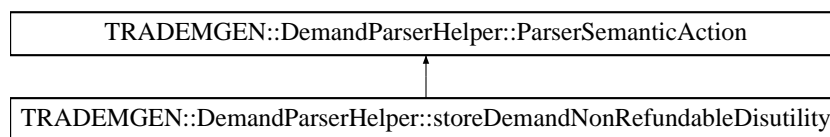
The documentation for this struct was generated from the following files:

- 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 [TRADEMG-EN::DemandParserHelper::ParserSemanticAction::_demand](#), and [TRADEMG-EN::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 [TRADEMGENT::DemandParserHelper::storePrefDepDateRangeStart::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefDepDateRangeEnd::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDow::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeOrigin::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDestination::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefCabin::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandMean::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandStdDev::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandChangeFeeProb::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandChangeFeeDisutility::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandNonRefundableProb::operator\(\)](#), [operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePosCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePosProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeChannelCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeChannelProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTripCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTripProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeStayCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeStayProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeFFCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeFFProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefDepTime::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefDepTimeProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeWTP::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTimeValue::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTimeValueProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDTD::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDTDProbMass::operator\(\)](#), and [TRADEMGENT::DemandParserHelper::doEndDemand::operator\(\)](#).

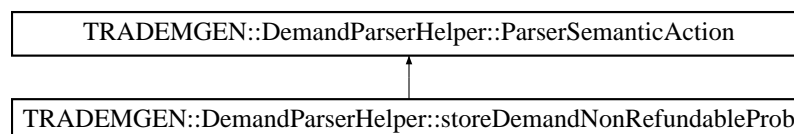
The documentation for this struct was generated from the following files:

- [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\(\)](#).

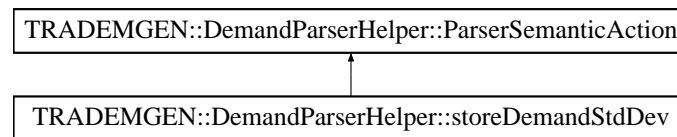
The documentation for this struct was generated from the following files:

- [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 standard 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\(\)](#),

TRADEMG-EN::DemandParserHelper::storeDemandMean::operator(), operator(), TRADEMG-EN::DemandParserHelper::storeDemandChangeFeeProb::operator(), TRADEMG-EN::DemandParserHelper::storeDemandChangeFeeDisutility::operator(), TRADEMG-EN::DemandParserHelper::storeDemandNonRefundableProb::operator(), TRADEMG-EN::DemandParserHelper::storeDemandNonRefundableDisutility::operator(), TRADEMG-EN::DemandParserHelper::storePosCode::operator(), TRADEMG-EN::DemandParserHelper::storePosProbMass::operator(), TRADEMG-EN::DemandParserHelper::storeChannelCode::operator(), TRADEMG-EN::DemandParserHelper::storeChannelProbMass::operator(), TRADEMG-EN::DemandParserHelper::storeTripCode::operator(), TRADEMG-EN::DemandParserHelper::storeTripProbMass::operator(), TRADEMG-EN::DemandParserHelper::storeStayCode::operator(), TRADEMG-EN::DemandParserHelper::storeStayProbMass::operator(), TRADEMG-EN::DemandParserHelper::storeFFCode::operator(), TRADEMG-EN::DemandParserHelper::storeFFProbMass::operator(), TRADEMG-EN::DemandParserHelper::storePrefDepTime::operator(), TRADEMG-EN::DemandParserHelper::storePrefDepTimeProbMass::operator(), TRADEMG-EN::DemandParserHelper::storeWTP::operator(), TRADEMG-EN::DemandParserHelper::storeTimeValue::operator(), TRADEMG-EN::DemandParserHelper::storeTimeValueProbMass::operator(), TRADEMG-EN::DemandParserHelper::storeDTD::operator(), TRADEMG-EN::DemandParserHelper::storeDTDProbMass::operator(), and TRADEMG-EN::DemandParserHelper::doEndDemand::operator().

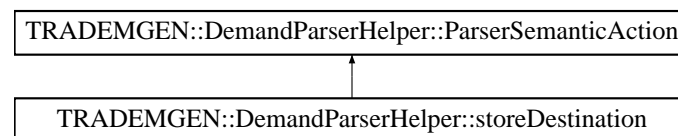
The documentation for this struct was generated from the following files:

- 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 [TRADEMGENT::DemandParserHelper::ParserSemanticAction::_demand](#), and [TRADEMGENT::DemandStruct::_destination](#).

22.46.4 Member Data Documentation

22.46.4.1 DemandStruct& TRADEMGENT::DemandParserHelper::ParserSemanticAction::_demand [inherited]

Actor Context.

Definition at line 35 of file [DemandParserHelper.hpp](#).

Referenced by [TRADEMGENT::DemandParserHelper::storePrefDepDateRangeStart::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefDepDateRangeEnd::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDow::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeOrigin::operator\(\)](#), [operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefCabin::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandMean::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandStdDev::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandChangeFeeProb::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandChangeFeeDisutility::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandNonRefundableProb::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandNonRefundableDisutility::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePosCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePosProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeChannelCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeChannelProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTripCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTripProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeStayCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeStayProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeFFCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeFFProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefDepTime::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefDepTimeProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeWTP::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTimeValue::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTimeValueProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDTD::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDTDProbMass::operator\(\)](#), and [TRADEMGENT::DemandParserHelper::doEndDemand::operator\(\)](#).

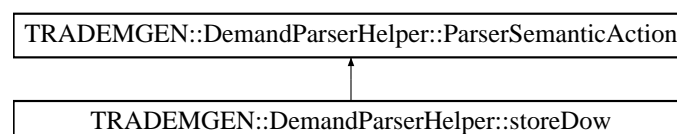
The documentation for this struct was generated from the following files:

- [trademgen/command/DemandParserHelper.hpp](#)
- [trademgen/command/DemandParserHelper.cpp](#)

22.47 TRADEMGEN::DemandParserHelper::storeDow Struct Reference

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

Inheritance diagram for TRADEMGENT::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 [TRADEMGENT::DemandParserHelper::ParserSemanticAction::_demand](#), and [TRADEMGENT::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 [TRADEMGENT::DemandParserHelper::storePrefDepDateRangeStart::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefDepDateRangeEnd::operator\(\)](#), [operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeOrigin::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDestination::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefCabin::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandMean::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandStdDev::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandChangeFeeProb::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandChangeFeeDisutility::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandNonRefundableProb::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandNonRefundableDisutility::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePosCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePosProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeChannelCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeChannelProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTripCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTripProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeStayCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeStayProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeFFCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeFFProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefDepTime::operator\(\)](#),

TRADEMG-EN::DemandParserHelper::storePrefDepTimeProbMass::operator(), TRADEMG-EN::DemandParserHelper::storeWTP::operator(), TRADEMG-EN::DemandParserHelper::storeTimeValue::operator(), TRADEMG-EN::DemandParserHelper::storeTimeValueProbMass::operator(), TRADEMG-EN::DemandParserHelper::storeDTD::operator(), TRADEMG-EN::DemandParserHelper::storeDTDProbMass::operator(), and TRADEMG-EN::DemandParserHelper::doEndDemand::operator().

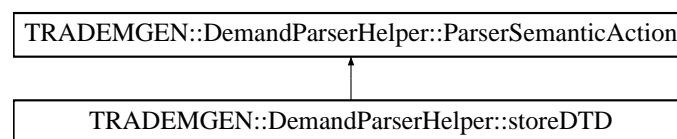
The documentation for this struct was generated from the following files:

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

22.48 TRADEMG-EN::DemandParserHelper::storeDTD Struct Reference

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

Inheritance diagram for TRADEMG-EN::DemandParserHelper::storeDTD:



Public Member Functions

- [storeDTD](#) ([DemandStruct](#) &)
- void [operator\(\)](#) (unsigned int *integer*) 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 TRADEMG-EN::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 TRADEMG-EN::DemandParserHelper::storeDTD::operator() (unsigned int *integer*) const

Actor Function (functor).

Definition at line 433 of file [DemandParserHelper.cpp](#).

References [TRADEMG-EN::DemandParserHelper::ParserSemanticAction::_demand](#), and [TRADEMG-EN::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 [TRADEMGENT::DemandParserHelper::storePrefDepDateRangeStart::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefDepDateRangeEnd::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDow::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeOrigin::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDestination::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefCabin::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandMean::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandStdDev::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandChangeFeeProb::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandChangeFeeDisutility::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandNonRefundableProb::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandNonRefundableDisutility::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePosCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePosProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeChannelCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeChannelProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTripCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTripProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeStayCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeStayProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeFFCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeFFProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefDepTime::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefDepTimeProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeWTP::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTimeValue::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTimeValueProbMass::operator\(\)](#), [operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDTDProbMass::operator\(\)](#), and [TRADEMGENT::DemandParserHelper::doEndDemand::operator\(\)](#).

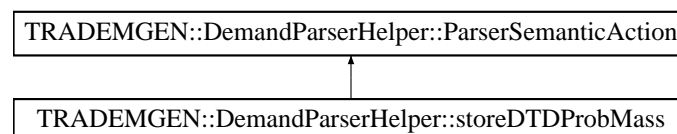
The documentation for this struct was generated from the following files:

- [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\(\)](#).

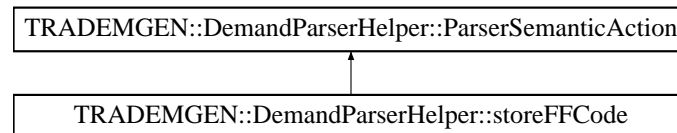
The documentation for this struct was generated from the following files:

- [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::storeDT-D::operator(), TRADEMGEN::DemandParserHelper::storeDTPProbMass::operator(), and TRADEMGEN::DemandParserHelper::doEndDemand::operator().

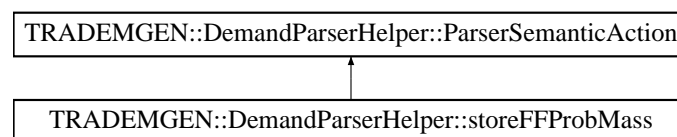
The documentation for this struct was generated from the following files:

- 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::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\(\)](#).

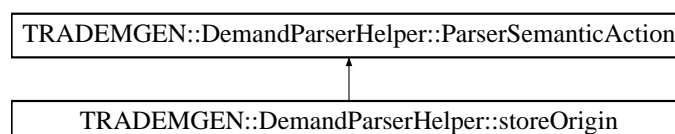
The documentation for this struct was generated from the following files:

- [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 [TRADEMGENT::DemandParserHelper::ParserSemanticAction::_demand](#), and [TRADEMGENT::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 [TRADEMGENT::DemandParserHelper::storePrefDepDateRangeStart::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefDepDateRangeEnd::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDow::operator\(\)](#), [operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDestination::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefCabin::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandMean::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandStdDev::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandChangeFeeProb::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandChangeFeeDisutility::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandNonRefundableProb::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandNonRefundableDisutility::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePosCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePosProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeChannelCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeChannelProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTripCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTripProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeStayCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeStayProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeFFCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeFFProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefDepTime::operator\(\)](#),

TRADEMG-EN::DemandParserHelper::storePrefDepTimeProbMass::operator(), TRADEMG-EN::DemandParserHelper::storeWTP::operator(), TRADEMG-EN::DemandParserHelper::storeTimeValue::operator(), TRADEMG-EN::DemandParserHelper::storeTimeValueProbMass::operator(), TRADEMG-EN::DemandParserHelper::storeDTD::operator(), TRADEMG-EN::DemandParserHelper::storeDTDProbMass::operator(), and TRADEMG-EN::DemandParserHelper::doEndDemand::operator().

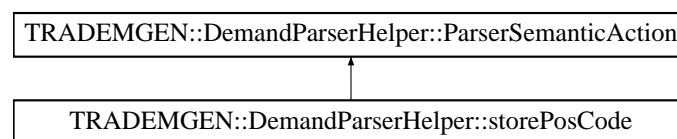
The documentation for this struct was generated from the following files:

- 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 [TRADEMG-EN::DemandParserHelper::ParserSemanticAction::_demand](#), and [TRADEMG-EN::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 [TRADEMG-EN::DemandParserHelper::storePrefDepDateRangeStart::operator\(\)](#), [TRADEMG-EN::DemandParserHelper::storePrefDepDateRangeEnd::operator\(\)](#), [TRADEMG-EN::DemandParserHelper::storeDow::operator\(\)](#), [TRADEMG-EN::DemandParserHelper::storeOrigin::operator\(\)](#), [TRADEMG-EN::DemandParserHelper::storeDestination::operator\(\)](#), [TRADEMG-EN::DemandParserHelper::storePrefCabin::operator\(\)](#), [TRADEMG-EN::DemandParserHelper::storeDemandMean::operator\(\)](#), [TRADEMG-EN::DemandParserHelper::storeDemandStdDev::operator\(\)](#), [TRADEMG-EN::DemandParserHelper::storeDemandChangeFeeProb::operator\(\)](#), [TRADEMG-EN::DemandParserHelper::storeDemandChangeFeeDisutility::operator\(\)](#), [TRADEMG-EN::DemandParserHelper::storeDemandNonRefundableProb::operator\(\)](#), [TRADEMG-EN::DemandParserHelper::storeDemandNonRefundableDisutility::operator\(\)](#), [operator\(\)](#), [TRADEMG-EN::DemandParserHelper::storePosProbMass::operator\(\)](#), [TRADEMG-EN::DemandParserHelper::storeChannelCode::operator\(\)](#), [TRADEMG-EN::DemandParserHelper::storeChannelProbMass::operator\(\)](#), [TRADEMG-EN::DemandParserHelper::storeTripCode::operator\(\)](#), [TRADEMG-EN::DemandParserHelper::storeTripProbMass::operator\(\)](#), [TRADEMG-EN::DemandParserHelper::storeStayCode::operator\(\)](#), [TRADEMG-EN::DemandParserHelper::storeStayProbMass::operator\(\)](#), [TRADEMG-EN::DemandParserHelper::storeFFCode::operator\(\)](#), [TRADEMG-EN::DemandParserHelper::storeFFProbMass::operator\(\)](#), [TRADEMG-EN::DemandParserHelper::storePrefDepTime::operator\(\)](#), [TRADEMG-EN::DemandParserHelper::storePrefDepTimeProbMass::operator\(\)](#), [TRADEMG-EN::DemandParserHelper::storeWTP::operator\(\)](#), [TRADEMG-EN::DemandParserHelper::storeTimeValue::operator\(\)](#), [TRADEMG-EN::DemandParserHelper::storeTimeValueProbMass::operator\(\)](#), [TRADEMG-EN::DemandParserHelper::storeDTD::operator\(\)](#), [TRADEMG-EN::DemandParserHelper::storeDTDProbMass::operator\(\)](#), and [TRADEMG-EN::DemandParserHelper::doEndDemand::operator\(\)](#).

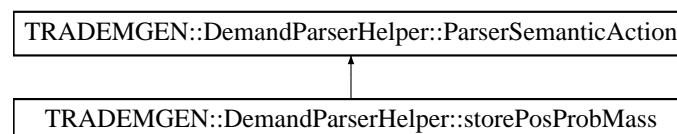
The documentation for this struct was generated from the following files:

- [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\(\)](#).

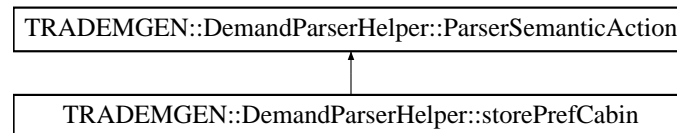
The documentation for this struct was generated from the following files:

- [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 [TRADEMG...DemandParserHelper::ParserSemanticAction::_demand](#), and [TRADEMG...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 [TRADEMG...DemandParserHelper::storePrefDepDateRangeStart::operator\(\)](#)(), [TRADEMG...DemandParserHelper::storePrefDepDateRangeEnd::operator\(\)](#)(), [TRADEMG...DemandParserHelper::storeDow::operator\(\)](#)(), [TRADEMG...DemandParserHelper::storeOrigin::operator\(\)](#)(), [TRADEMG...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().

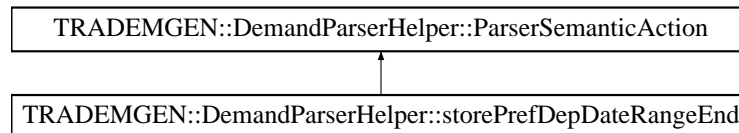
The documentation for this struct was generated from the following files:

- 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 [TRADEMGENT::DemandStruct::_dateRange](#), [TRADEMGENT::DemandParserHelper::ParserSemanticAction::_demand](#), [TRADEMGENT::DemandStruct::_itSeconds](#), [TRADEMGENT::DemandStruct::_prefDepDateEnd](#), [TRADEMGENT::DemandStruct::_prefDepDateStart](#), and [TRADEMGENT::DemandStruct::getDate\(\)](#).

22.56.4 Member Data Documentation

22.56.4.1 DemandStruct& TRADEMGENT::DemandParserHelper::ParserSemanticAction::_demand [inherited]

Actor Context.

Definition at line 35 of file [DemandParserHelper.hpp](#).

Referenced by [TRADEMGENT::DemandParserHelper::storePrefDepDateRangeStart::operator\(\)](#), [operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDow::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeOrigin::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDestination::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefCabin::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandMean::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandStdDev::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandChangeFeeProb::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandChangeFeeDisutility::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandNonRefundableProb::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandNonRefundableDisutility::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePosCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePosProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeChannelCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeChannelProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTripCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTripProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeStayCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeStayProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeFFCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeFFProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefDepTime::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefDepTimeProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeWTP::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTimeValue::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTimeValueProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDTD::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDTDProbMass::operator\(\)](#), and [TRADEMGENT::DemandParserHelper::doEndDemand::operator\(\)](#).

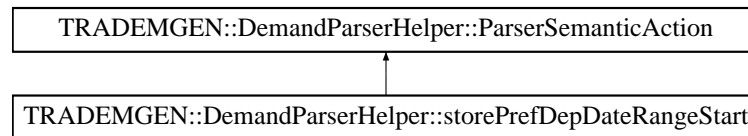
The documentation for this struct was generated from the following files:

- [trademgen/command/DemandParserHelper.hpp](#)
- [trademgen/command/DemandParserHelper.cpp](#)

22.57 TRADEMGENT::DemandParserHelper::storePrefDepDateRangeStart Struct Reference

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

Inheritance diagram for TRADEMGENT::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 TRADEMGENT::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 TRADEMGENT::DemandParserHelper::storePrefDepDateRangeStart::operator() ([iterator_t](#) iStr, [iterator_t](#) iStrEnd) const

Actor Function (functor).

Definition at line 37 of file [DemandParserHelper.cpp](#).

References [TRADEMGENT::DemandParserHelper::ParserSemanticAction::_demand](#), [TRADEMGENT::DemandStruct::_itSeconds](#), [TRADEMGENT::DemandStruct::_prefDepDateStart](#), and [TRADEMGENT::DemandStruct::getDate\(\)](#).

22.57.4 Member Data Documentation

22.57.4.1 [DemandStruct](#)& TRADEMGENT::DemandParserHelper::ParserSemanticAction::_demand [inherited]

Actor Context.

Definition at line 35 of file [DemandParserHelper.hpp](#).

Referenced by [operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefDepDateRangeEnd::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDow::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeOrigin::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDestination::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefCabin::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandMean::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandStdDev::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandChangeFeeProb::operator\(\)](#), and [TRADEMGENT::DemandParserHelper::storeDemandChangeFeeDisutility-](#)

[::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandNonRefundableProb::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandNonRefundableDisutility::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePosCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePosProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeChannelCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeChannelProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTripCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTripProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeStayCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeStayProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeFFCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeFFProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefDepTime::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefDepTimeProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeWTP::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTimeValue::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTimeValueProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDTD::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDTDProbMass::operator\(\)](#), and [TRADEMGENT::DemandParserHelper::doEndDemand::operator\(\)](#).

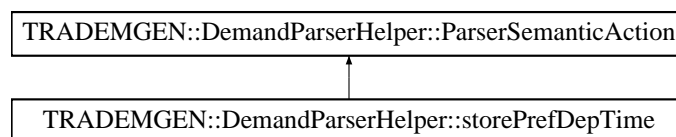
The documentation for this struct was generated from the following files:

- [trademgen/command/DemandParserHelper.hpp](#)
- [trademgen/command/DemandParserHelper.cpp](#)

22.58 TRADEMGENT::DemandParserHelper::storePrefDepTime Struct Reference

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

Inheritance diagram for TRADEMGENT::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 TRADEMGENT::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 [TRADEMGENT::DemandParserHelper::ParserSemanticAction::_demand](#), [TRADEMGENT::DemandStruct::_itMinutes](#), [TRADEMGENT::DemandStruct::_itPrefDepTime](#), [TRADEMGENT::DemandStruct::_itSeconds](#), and [TRADEMGENT::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 [TRADEMGENT::DemandParserHelper::storePrefDepDateRangeStart::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefDepDateRangeEnd::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDow::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeOrigin::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDestination::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefCabin::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandMean::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandStdDev::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandChangeFeeProb::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandNonRefundableProb::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandNonRefundableDisutility::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePosCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePosProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeChannelCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeChannelProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTripCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTripProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeStayCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeStayProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeFFCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeFFProbMass::operator\(\)](#), [operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefDepTimeProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeWTP::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTimeValue::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTimeValueProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDTD::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDTDProbMass::operator\(\)](#), and [TRADEMGENT::DemandParserHelper::doEndDemand::operator\(\)](#).

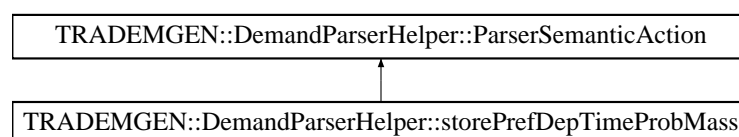
The documentation for this struct was generated from the following files:

- [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 [TRADEMGENT::DemandParserHelper::ParserSemanticAction::_demand](#), [TRADEMGENT::DemandStruct::_itPrefDepTime](#), and [TRADEMGENT::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 [TRADEMGENT::DemandParserHelper::storePrefDepDateRangeStart::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefDepDateRangeEnd::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDow::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeOrigin::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDestination::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefCabin::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandMean::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandStdDev::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandChangeFeeProb::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandChangeFeeDisutility::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandNonRefundableProb::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandNonRefundableDisutility::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePosCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePosProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeChannelCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeChannelProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTripCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTripProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeStayCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeStayProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeFFCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeFFProbMass::operator\(\)](#), [TRADEMGENT::Demand](#)

[ParserHelper::storePrefDepTime::operator\(\)](#), [operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeWTP::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTimeValue::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTimeValueProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDTD::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDTDProbMass::operator\(\)](#), and [TRADEMGENT::DemandParserHelper::doEndDemand::operator\(\)](#).

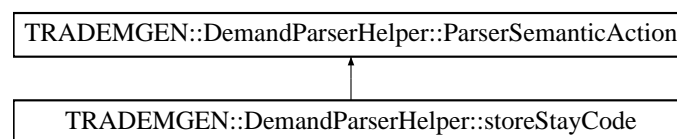
The documentation for this struct was generated from the following files:

- [trademgen/command/DemandParserHelper.hpp](#)
- [trademgen/command/DemandParserHelper.cpp](#)

22.60 TRADEMGENT::DemandParserHelper::storeStayCode Struct Reference

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

Inheritance diagram for TRADEMGENT::DemandParserHelper::storeStayCode:



Public Member Functions

- [storeStayCode](#) ([DemandStruct](#) &)
- void [operator\(\)](#) (unsigned int *integer*) 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 TRADEMGENT::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 TRADEMGENT::DemandParserHelper::storeStayCode::operator() (unsigned int *integer*) const

Actor Function (functor).

Definition at line 294 of file [DemandParserHelper.cpp](#).

References [TRADEMGENT::DemandParserHelper::ParserSemanticAction::_demand](#), and [TRADEMGENT::DemandStruct::_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 [TRADEMGENT::DemandParserHelper::storePrefDepDateRangeStart::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefDepDateRangeEnd::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDow::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeOrigin::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDestination::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefCabin::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandMean::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandStdDev::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandChangeFeeProb::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandChangeFeeDisutility::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandNonRefundableProb::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandNonRefundableDisutility::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePosCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePosProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeChannelCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeChannelProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTripCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTripProbMass::operator\(\)](#), [operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeStayProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeFFCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeFFProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefDepTime::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefDepTimeProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeWTP::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTimeValue::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTimeValueProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDTD::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDTDProbMass::operator\(\)](#), and [TRADEMGENT::DemandParserHelper::doEndDemand::operator\(\)](#).

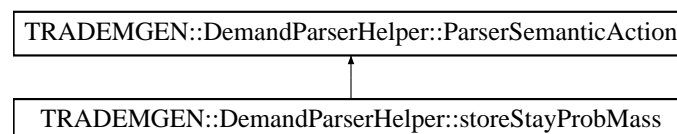
The documentation for this struct was generated from the following files:

- [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 [TRADEMGENT::DemandParserHelper::ParserSemanticAction::_demand](#), [TRADEMGENT::DemandStruct::_itStayDuration](#), and [TRADEMGENT::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 [TRADEMGENT::DemandParserHelper::storePrefDepDateRangeStart::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefDepDateRangeEnd::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDow::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeOrigin::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDestination::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefCabin::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandMean::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandStdDev::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandChangeFeeProb::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandChangeFeeDisutility::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandNonRefundableProb::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandNonRefundableDisutility::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePosCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePosProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeChannelCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeChannelProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTripCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTripProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeStayCode::operator\(\)](#), [operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeFFCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeFFProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefDepTime::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefDepTimeProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeWTP::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTimeValue::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTimeValueProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDTD::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDTDProbMass::operator\(\)](#), and [TRADEMGENT::DemandParserHelper::doEndDemand::operator\(\)](#).

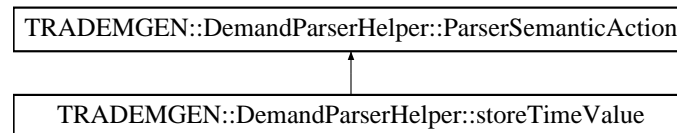
The documentation for this struct was generated from the following files:

- [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().

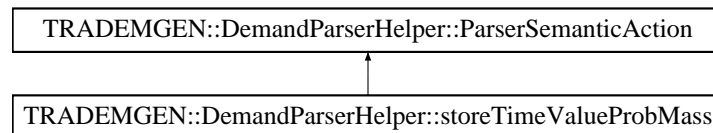
The documentation for this struct was generated from the following files:

- 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 [TRADEMGENT::DemandParserHelper::ParserSemanticAction::_demand](#), [TRADEMGENT::DemandStruct::_itTimeValue](#), and [TRADEMGENT::DemandStruct::_timeValueProbDist](#).

22.63.4 Member Data Documentation

22.63.4.1 DemandStruct& TRADEMGENT::DemandParserHelper::ParserSemanticAction::_demand [inherited]

Actor Context.

Definition at line 35 of file [DemandParserHelper.hpp](#).

Referenced by [TRADEMGENT::DemandParserHelper::storePrefDepDateRangeStart::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefDepDateRangeEnd::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDow::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeOrigin::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDestination::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefCabin::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandMean::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandStdDev::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandChangeFeeProb::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandChangeFeeDisutility::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandNonRefundableProb::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandNonRefundableDisutility::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePosCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePosProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeChannelCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeChannelProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTripCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTripProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeStayCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeStayProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeFFCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeFFProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefDepTime::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefDepTimeProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeWTP::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTimeValue::operator\(\)](#), [operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDTD::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDTDProbMass::operator\(\)](#), and [TRADEMGENT::DemandParserHelper::doEndDemand::operator\(\)](#).

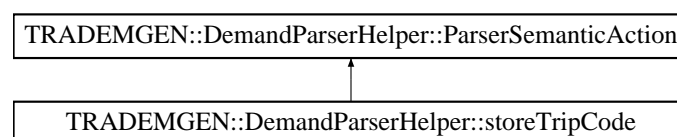
The documentation for this struct was generated from the following files:

- trademgen/command/[DemandParserHelper.hpp](#)
- trademgen/command/[DemandParserHelper.cpp](#)

22.64 TRADEMGEN::DemandParserHelper::storeTripCode Struct Reference

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

Inheritance diagram for TRADEMGENT::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\(\)](#)(), [TRADEMGENT::DemandParserHelper::storeTimeValue::operator\(\)](#)(), [TRADEMGENT::DemandParserHelper::storeTimeValueProbMass::operator\(\)](#)(), [TRADEMGENT::DemandParserHelper::storeDT-D::operator\(\)](#)(), [TRADEMGENT::DemandParserHelper::storeDTDProbMass::operator\(\)](#)(), and [TRADEMGENT::DemandParserHelper::doEndDemand::operator\(\)](#)).

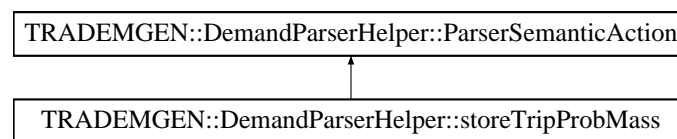
The documentation for this struct was generated from the following files:

- [trademgen/command/DemandParserHelper.hpp](#)
- [trademgen/command/DemandParserHelper.cpp](#)

22.65 TRADEMGENT::DemandParserHelper::storeTripProbMass Struct Reference

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

Inheritance diagram for TRADEMGENT::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 TRADEMGENT::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 TRADEMGENT::DemandParserHelper::storeTripProbMass::operator() (double *iReal*) const

Actor Function (functor).

Definition at line 271 of file [DemandParserHelper.cpp](#).

References [TRADEMGENT::DemandParserHelper::ParserSemanticAction::_demand](#), [TRADEMGENT::DemandStruct::_itTripCode](#), and [TRADEMGENT::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 [TRADEMGENT::DemandParserHelper::storePrefDepDateRangeStart::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefDepDateRangeEnd::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDow::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeOrigin::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDestination::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefCabin::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandMean::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandStdDev::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandChangeFeeProb::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandChangeFeeDisutility::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandNonRefundableProb::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDemandNonRefundableDisutility::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePosCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePosProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeChannelCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeChannelProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTripCode::operator\(\)](#), [operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeStayCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeStayProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeFFCode::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeFFProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefDepTime::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storePrefDepTimeProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeWTP::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTimeValue::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeTimeValueProbMass::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDTD::operator\(\)](#), [TRADEMGENT::DemandParserHelper::storeDTDProbMass::operator\(\)](#), and [TRADEMGENT::DemandParserHelper::doEndDemand::operator\(\)](#).

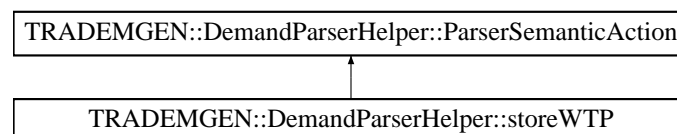
The documentation for this struct was generated from the following files:

- [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 (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](#).

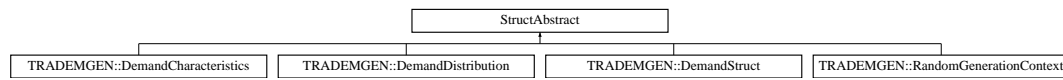
Referenced by [TRADEMGEN::DemandParserHelper::storePrefDepDateRangeStart::operator\(\)](#), [TRADEMGEN::DemandParserHelper::storePrefDepDateRangeEnd::operator\(\)](#), [TRADEMGEN::DemandParserHelper::storeDow::operator\(\)](#), [TRADEMGEN::DemandParserHelper::storeOrigin::operator\(\)](#), [TRADEMGEN::DemandParserHelper::storeDestination::operator\(\)](#), [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:

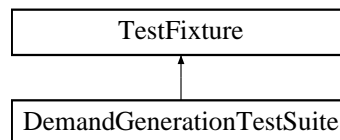


The documentation for this class was generated from the following file:

- trademgen/basic/[RandomGenerationContext.hpp](#)

22.68 TestFixture Class Reference

Inheritance diagram for TestFixture:



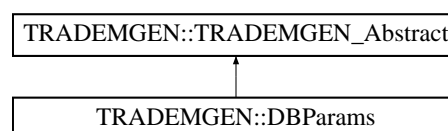
The documentation for this class was generated from the following file:

- test/trademgen/[DemandGenerationTestSuite.hpp](#)

22.69 TRADEMGEN::TRADEMGEM_Abstract Struct Reference

```
#include <trademgen/TRADEMGEM_Abstract.hpp>
```

Inheritance diagram for TRADEMGEN::TRADEMGEM_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

- [TRADEMGEM_Abstract](#) ()
- [TRADEMGEM_Abstract](#) (const [TRADEMGEM_Abstract](#) &)
- virtual [~TRADEMGEM_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 abstract.

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

<i>ostream&</i>	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

<i>istream&</i>	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::Progress-StatusSet &, 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

<i>const</i>	stdair::BasLogParams& Parameters for the output log stream.
<i>const</i>	stdair::BasDBParams& Parameters for the database access.
<i>const</i>	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

<i>const</i>	stdair::BasLogParams& Parameters for the output log stream.
<i>const</i>	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

<i>stdair::STDAIR_ServicePtr_T</i>	Handler on the STDAIR_Service.
<i>SEVMGR::SEVMGR_ServicePtr_T</i>	Handler on the SEVMGR_Service.
<i>const</i>	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

<i>const</i>	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 ($\mu = 10.0$, $\text{std_dev} = 1.0$)
- 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

<i>const</i>	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

<i>const</i>	DemandStreamKey & A string identifying uniquely the demand stream (e.g., "SIN-HND 2010--Feb-08 Y").
<i>const</i>	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

<i>const</i>	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

<i>const</i>	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 std::vector<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:

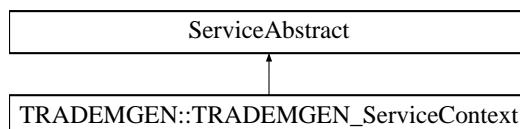
- [trademgen/TRADEMGEN_Service.hpp](#)
- [trademgen/service/TRADEMGEN_Service.cpp](#)

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\(\)](#).

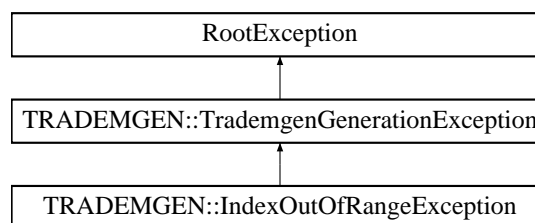
The documentation for this struct was generated from the following file:

- [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
00049         (boost_utf::log_successful_tests);
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                                 ,
00068                                 const stdair::DemandGenerationMethod&
00069                                 iDemandGenerationMethod,
00070                                 const bool isBuiltin) {
00071     // Seed for the random generation
00072     const stdair::RandomSeed_T lRandomSeed = stdair::DEFAULT_RANDOM_SEED;
00073
00074     // Output log File
00075     std::ostream oStr;
00076     oStr << "DemandGenerationTestSuite_" << iTestFlag << ".log";
00077     const stdair::Filename_T lLogFilename (oStr.str());
00078
00079     // Set the log parameters
00080     std::ofstream logOutputFile;
00081     // Open and clean the log outputfile
00082     logOutputFile.open (lLogFilename.c_str());
00083     logOutputFile.clear();
00084
00085     // Initialise the TraDemGen service object
00086     const stdair::BasLogParams lLogParams (stdair::LOG::DEBUG, logOutputFile);
00087     TRADEMGEN::TRADEMGEN_Service trademgenService (
00088         lLogParams, lRandomSeed);
00089
00090     NbOfEventsByDemandStreamMap_T lNbOfEventsMap;
00091
00092     // Total number of events
00093     stdair::Count_T lRefExpectedNbOfEvents (0);
00094     stdair::Count_T lRefActualNbOfEvents (0);
00095
00096     // Check whether or not a (CSV) input file should be read
00097     if (isBuiltin == true) {
00098         // Build the default sample BOM tree (filled with demand streams) for
00099         TraDemGen
00100         trademgenService.buildSampleBom();
00101     }
00102 }

```

```

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 (
lDemandInputFilename);
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
00163 const stdair::Count_T& lActualNbOfEventsToBeGenerated =
00164     trademgenService.generateFirstRequests (lDemandGenerationMethod);
00165
00166 // DEBUG
00167 STDAIR_LOG_DEBUG ("Expected number of events: "
00168     << lExpectedNbOfEventsToBeGenerated << ", actual: "
00169     << lActualNbOfEventsToBeGenerated);
00170
00171 // Total number of events, for all the demand streams:
00172 BOOST_CHECK_EQUAL (lRefActualNbOfEvents, lActualNbOfEventsToBeGenerated);
00173
00174 BOOST_CHECK_MESSAGE (lRefActualNbOfEvents == lActualNbOfEventsToBeGenerated,
00175     "Actual total number of requests to be generated: "
00176     << lExpectedNbOfEventsToBeGenerated
00177     << " (= "
00178     << std::floor (lExpectedNbOfEventsToBeGenerated)
00179     << "). Reference value: " << lRefActualNbOfEvents);
00180
00181 const bool isQueueDone = trademgenService.isQueueDone();
00182 BOOST_REQUIRE_MESSAGE (isQueueDone == false,
00183     "The event queue should not be empty.");
00184
00185 stdair::Count_T idx = 1;
00186 while (trademgenService.isQueueDone() == false) {
00187
00188     // Get the next event from the event queue
00189     stdair::EventStruct lEventStruct;
00190     stdair::ProgressStatusSet lPPS = trademgenService.popEvent (lEventStruct);
00191
00192     // DEBUG
00193     STDAIR_LOG_DEBUG ("Popped event: '" << lEventStruct.describe() << "'");
00194
00195 }

```

```

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
00227 const NbOfEventsPair_T& lNbOfEventsPair = itNbOfEventsMap->second;
00228 stdair::Count_T lCurrentNbOfEvents = lNbOfEventsPair.first;
00229 const stdair::Count_T& lExpectedTotalNbOfEvents = lNbOfEventsPair.second;
00230
00231 // Assess whether more events should be generated for that demand stream
00232 const bool stillHavingRequestsToBeGenerated = trademgenService.
00233     stillHavingRequestsToBeGenerated (lDemandStreamKey, lPPS,
00234         iDemandGenerationMethod);
00235
00236 if (lCurrentNbOfEvents == 1) {
00237     const stdair::ProgressStatus& lDemandStreamProgressStatus =
00238         lPPS.getSpecificGeneratorStatus();
00239     const stdair::Count_T& lNbOfRequests =
00240         lDemandStreamProgressStatus.getExpectedNb();
00241     BOOST_CHECK_EQUAL (lNbOfRequests, lExpectedTotalNbOfEvents);
00242     BOOST_CHECK_MESSAGE (lNbOfRequests == lExpectedTotalNbOfEvents,
00243         "[" << lDemandStreamKey
00244         << "] Total number of requests to be generated: "
00245         << lNbOfRequests << "). Expected value: "
00246         << lExpectedTotalNbOfEvents);
00247 }
00248
00249 // DEBUG
00250 STDAIR_LOG_DEBUG ("=> [" << lDemandStreamKey << "]"[" << lCurrentNbOfEvents
00251     << "/" << lExpectedTotalNbOfEvents
00252     << "] is now processed. "
00253     << "Still generate events for that demand stream? "
00254     << stillHavingRequestsToBeGenerated);
00255
00256 // If there are still events to be generated for that demand stream,
00257 // generate and add them to the event queue
00258 if (stillHavingRequestsToBeGenerated == true) {
00259     const stdair::BookingRequestPtr_T lNextRequest_ptr =
00260         trademgenService.generateNextRequest (lDemandStreamKey,
00261             iDemandGenerationMethod);
00262     assert (lNextRequest_ptr != NULL);
00263
00264     const stdair::Duration_T lDuration =
00265         lNextRequest_ptr->getRequestDateTime()
00266         - lPoppedRequest.getRequestDateTime();
00267     BOOST_REQUIRE_GT (lDuration.total_milliseconds(), 0);
00268     BOOST_REQUIRE_MESSAGE (lDuration.total_milliseconds() > 0,
00269         "[" << lDemandStreamKey
00270         << "] The date-time of the generated event ("
00271         << lNextRequest_ptr->getRequestDateTime()
00272         << ") is lower than the date-time "
00273         << "of the current event ("
00274         << lPoppedRequest.getRequestDateTime() << ")");
00275
00276 // DEBUG
00277 STDAIR_LOG_DEBUG ("[" << lDemandStreamKey << "]"[" << lCurrentNbOfEvents
00278     << "/" << lExpectedTotalNbOfEvents
00279     << "] Added request: '" << lNextRequest_ptr->describe()
00280     << "'. Is queue done? "
00281     << trademgenService.isQueueDone());
00282
00283 // Keep, within the dedicated map, the current counters of events
00284 updated.
00285 ++lCurrentNbOfEvents;
00286 itNbOfEventsMap->second = NbOfEventsPair_T (lCurrentNbOfEvents,
00287     lExpectedTotalNbOfEvents);
00288 }
00289
00290 // Iterate
00291 ++idx;
00292 }
00293 // 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 (UnitTestFixture);
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 "
00358         /demand01.csv");
00359
00359     // Generate the date time of the requests with the statistic order method.
00360     const stdair::DemandGenerationMethod lDemandGenerationMethod (
00361         stdair::DemandGenerationMethod::STA_ORD);
00362
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 "
00378         /missingFile.csv");
00379
00379     // Generate the date time of the requests with the statistic order method.
00380     const stdair::DemandGenerationMethod lDemandGenerationMethod (
00381         stdair::DemandGenerationMethod::STA_ORD);
00382
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 (
00399         stdair::DemandGenerationMethod::STA_ORD);
00400
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
00013     void simpleEventGeneration();
00014
00015     // void errorCase ();
00016
00017     DemandGenerationTestSuite ();
00018
00019 private:
00020     void simpleEventGenerationHelper();
00021
00022 protected:
00023     std::stringstream _describeKey;
00024 };
00025
00026 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
00012     // const std::string DEFAULT_TRADEMGEN_SERVICE_NAME = "trademgen";
00013
00014     const POSProbabilityMassFunction_T
00015     DEFAULT_POS_PROBALILITY_MASS =
00016     DefaultMap::createPOSProbMass();
00017
00018     POSProbabilityMassFunction_T
00019     DefaultMap::createPOSProbMass() {
00020     POSProbabilityMassFunction_T oMap;
00021     // oMap["SIN"] = 0.44; oMap["HKG"] = 0.04; oMap["CGK"] = 0.04;
00022     // oMap["SYD"] = 0.04; oMap["BKK"] = 0.04; oMap["LHR"] = 0.03;
00023     // oMap["MEL"] = 0.03; oMap["KUL"] = 0.03; oMap["MNL"] = 0.03;
00024     // oMap["PVG"] = 0.03; oMap["PER"] = 0.02; oMap["BNE"] = 0.02;
00025     // oMap["NRT"] = 0.02; oMap["DPS"] = 0.02; oMap["SGN"] = 0.02;
00026     // oMap["PEN"] = 0.02; oMap["FRA"] = 0.02; oMap["PEK"] = 0.02;
00027     // oMap["HKT"] = 0.02; oMap["AKT"] = 0.02; oMap["SFO"] = 0.01;
00028     // oMap["ICN"] = 0.01; oMap["TPE"] = 0.01; oMap["row"] = 0.02;
00029     oMap["row"] = 1.0;
00030     return oMap;
00031 }
00032
00033 const stdair::FloatDuration_T DEFAULT_LAST_LOWER_BOUND_ARRIVAL_PATTERN
00034 = -1;
00035
00036 const FRAT5Pattern_T DEFAULT_FRAT5_PATTERN
00037 = DefaultMap::createFRAT5Pattern();
```

```

00039
00041 FRAT5Pattern_T DefaultMap::createFRAT5Pattern
00042 () {
00043     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[2.000000001] = 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
,
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
00019     DEFAULT_POS_PROBALILITY_MASS;
00021     extern const FRAT5Pattern_T DEFAULT_FRAT5_PATTERN
00022     ;
00024     struct DefaultMap {
00025         static POSProbabilityMassFunction_T
00026         createPOSProbMass();
00027         static FRAT5Pattern_T createFRAT5Pattern();
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 [TRADEMG](#)

Typedefs

- typedef char [TRADEMG::char_t](#)
- typedef
boost::spirit::classic::file_iterator
< char_t > [TRADEMG::iterator_t](#)
- typedef
boost::spirit::classic::scanner
< iterator_t > [TRADEMG::scanner_t](#)
- typedef
boost::spirit::classic::rule
< scanner_t > [TRADEMG::rule_t](#)
- typedef
boost::spirit::classic::int_parser
< unsigned int, 10, 1, 1 > [TRADEMG::int1_p_t](#)
- typedef
boost::spirit::classic::uint_parser
< unsigned int, 10, 2, 2 > [TRADEMG::uint2_p_t](#)
- typedef
boost::spirit::classic::uint_parser
< unsigned int, 10, 1, 2 > [TRADEMG::uint1_2_p_t](#)
- typedef
boost::spirit::classic::uint_parser
< unsigned int, 10, 1, 3 > [TRADEMG::uint1_3_p_t](#)
- typedef
boost::spirit::classic::uint_parser
< unsigned int, 10, 4, 4 > [TRADEMG::uint4_p_t](#)
- typedef
boost::spirit::classic::uint_parser
< unsigned int, 10, 1, 4 > [TRADEMG::uint1_4_p_t](#)
- typedef
boost::spirit::classic::chset
< char_t > [TRADEMG::chset_t](#)
- typedef
boost::spirit::classic::impl::loop_traits
< chset_t, unsigned int,
unsigned int >::type [TRADEMG::repeat_p_t](#)
- typedef
boost::spirit::classic::bounded
< uint2_p_t, unsigned int > [TRADEMG::bounded2_p_t](#)
- typedef
boost::spirit::classic::bounded
< uint1_2_p_t, unsigned int > [TRADEMG::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_BASCOMPASERTYPES_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)
: _probabilityMassFunction (iProbabilityMassFunction) {
00130     determineInverseCumulativeDistributionFromProbabilityMassFunction
();
00131 }
00132
00133
00137 CategoricalAttribute() { }
00138
00142 CategoricalAttribute (const CategoricalAttribute
& iCategoricalAttribute)
: _probabilityMassFunction (iCategoricalAttribute.
_probabilityMassFunction) {
00143     determineInverseCumulativeDistributionFromProbabilityMassFunction
();
00144 }
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                         ::
00179                             value_type (lKey, attribute_value));
00180             }
00181         }
00182
00183     private:
00184         // ////////// Attributes //////////
00185         ProbabilityMassFunction_T _probabilityMassFunction
00186     ;
00189
00193         InverseCumulativeDistribution_T
00194         _inverseCumulativeDistribution;
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_CATEGORICALATTRIBUTE_LITE_HPP
00002 #define __TRADEMGEN_BAS_CATEGORICALATTRIBUTE_LITE_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
00022     template <typename T>
00023     struct CategoricalAttributeLite {
00024     public:
00025         // ////////////////////////////////// Type definitions //////////////////////////////////
00026         typedef std::map<T, stdair::Probability_T> ProbabilityMassFunction_T
00027     ;
00028
00029     public:
00030         // ////////////////////////////////// Business Methods //////////////////////////////////
00031         const T& getValue (const stdair::Probability_T&
00032 iCumulativeProbability) const {
00033             const DictionaryKey_T& lKey =
00034                 DictionaryManager::valueToKey (
00035 iCumulativeProbability);
00036
00037             for (unsigned int idx = 0; idx < _size; ++idx) {
00038                 if (_cumulativeDistribution.at(idx) >= lKey) {
00039                     const T& oValue = _valueArray.at(idx);
00040                     return oValue;
00041                 }
00042             }
00043
00044             std::ostringstream oStr;
00045             oStr << "The following cumulative probability is out of range: "
00046                 << iCumulativeProbability << displayProbabilityMass
00047 ();
00048             throw IndexOutOfRangeException (oStr.str());
00049         }
00050
00051         bool checkValue (const T& iValue) const {
00052             for (unsigned int idx = 0; idx < _size; ++idx) {
00053                 if (_valueArray.at(idx) == iValue) {
00054                     return true;
00055                 }
00056             }
00057             return false;
00058         }
00059
00060     public:
00061         // ////////////////////////////////// Display Support Methods //////////////////////////////////
00062         const std::string displayProbabilityMass() const {
00063             std::ostringstream oStr;
00064
00065             for (unsigned int idx = 0; idx < _size; ++idx) {
00066                 if (idx != 0) {
00067                     oStr << ", ";
00068                 }
00069                 oStr << _valueArray.at(idx) << ":"
00070                     << DictionaryManager::keyToValue (
00071 _cumulativeDistribution[idx]);
00072             }
00073             return oStr.str();
00074         }
00075
00076     public:
00077         // ////////////////////////////////// Constructors and destructors //////////////////////////////////
00078         CategoricalAttributeLite (const
00079 ProbabilityMassFunction_T& iValueMap)
00080             : _size (iValueMap.size()) {
00081             init (iValueMap);
00082         }
00083
00084         CategoricalAttributeLite() : _size(1) {
00085         }
00086     };
00087
00088
00089
00090
00091
00092
00093
00094
00095
00096
00097
00098
00099
00100
00101
00102
00103
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_BASIC_CATEGORICALATTRIBUTE_LITE_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&
00033         getCumulativeDistribution() const {
00034             return _cumulativeDistribution;
00035         }
00037         const ContinuousInverseDistribution_T&
00038         getInverseCumulativeDistribution () const {
00039             return _inverseCumulativeDistribution;
00040         }
00041     private:
00042         // ////////////////////////////////// Setters //////////////////////////////////
00044         void setCumulativeDistribution (const ContinuousDistribution_T
00045         & iCumulativeDistribution) {
00046             _cumulativeDistribution = iCumulativeDistribution;
00047             determineInverseCumulativeDistributionFromCumulativeDistribution
00048             ();
00049         }
00050     public:
00051         // ////////////////////////////////// Business Methods //////////////////////////////////
00052         const T getValue (const stdair::Probability_T&
00053         iCumulativeProbability) const{
00054             const DictionaryKey_T lKey =
00055                 DictionaryManager::valueToKey (
00056                 iCumulativeProbability);
00057             typename ContinuousInverseDistribution_T::const_iterator it =
00058                 _inverseCumulativeDistribution.lower_bound (lKey);
00059             stdair::Probability_T cumulativeProbabilityNextPoint =
00060                 DictionaryManager::keyToValue (it->first);
00061             T valueNextPoint = it->second;
00062             if (it == _inverseCumulativeDistribution.begin()) {
00063                 STDAIR_LOG_DEBUG ("Last element");
00064                 return valueNextPoint;
00065             }
00066             --it;
00067             stdair::Probability_T cumulativeProbabilityPreviousPoint =

```

```

00069         DictionaryManager::keyToValue (it->first);
00070         T valuePreviousPoint = it->second;
00071         if (cumulativeProbabilityNextPoint == cumulativeProbabilityPreviousPoint)
00072         {
00073             return valuePreviousPoint;
00074         }
00075         return valuePreviousPoint + (valueNextPoint - valuePreviousPoint)
00076             * (iCumulativeProbability - cumulativeProbabilityPreviousPoint)
00077             / (cumulativeProbabilityNextPoint - cumulativeProbabilityPreviousPoint)
00078     };
00079 public:
00080     // //////////// Display Support Methods ////////////
00083     const std::string displayCumulativeDistribution
00084     () const {
00085         std::ostringstream ostr;
00086         unsigned int idx = 0;
00087         for (typename ContinuousDistribution_T::const_iterator it =
00088             _cumulativeDistribution.begin();
00089             it != _cumulativeDistribution.end(); ++it, ++idx) {
00090             if (idx != 0) {
00091                 ostr << ", ";
00092             }
00093             ostr << it->first << ":"
00094                 << DictionaryManager::keyToValue (it
00095                 ->second);
00096             ostr << " ";
00097         }
00098         return ostr.str();
00099     }
00100     const std::string displayInverseCumulativeDistribution
00101     () const {
00102         std::ostringstream ostr;
00103         for (typename ContinuousInverseDistribution_T::const_iterator it =
00104             _inverseCumulativeDistribution.begin();
00105             it != _inverseCumulativeDistribution.end(); ++it) {
00106             ostr << "cumulative prob: " << DictionaryManager::keyToValue
00107             (it->first)
00108                 << " value: " << it->second << std::endl;
00109         }
00110         return ostr.str();
00111     }
00112 public:
00113     // //////////// Constructors and destructors ////////////
00114     ContinuousAttribute () { }
00115     ContinuousAttribute (const ContinuousDistribution_T
00116         & iCumulativeDistribution)
00117         : _cumulativeDistribution (iCumulativeDistribution) {
00118             determineInverseCumulativeDistributionFromCumulativeDistribution
00119         };
00120     ContinuousAttribute (const ContinuousAttribute
00121         & iContinuousAttribute)
00122         : _cumulativeDistribution (iContinuousAttribute._cumulativeDistribution),
00123           _inverseCumulativeDistribution (iContinuousAttribute.
00124             _inverseCumulativeDistribution) {
00125     };
00126     virtual ~ContinuousAttribute () { }
00127     void determineInverseCumulativeDistributionFromCumulativeDistribution
00128     () {
00129         for (typename ContinuousDistribution_T::iterator itCumulativeDistribution
00130             =
00131             _cumulativeDistribution.begin();
00132             itCumulativeDistribution != _cumulativeDistribution.end();
00133             ++itCumulativeDistribution) {
00134             _inverseCumulativeDistribution.
00135                 insert (typename ContinuousInverseDistribution_T
00136                     ::
00137                     value_type (itCumulativeDistribution->second,
00138                         itCumulativeDistribution->first));
00139         }
00140     }
00141 private:
00142     // //////////// Attributes ////////////
00143     ContinuousDistribution_T _cumulativeDistribution;
00144     ContinuousInverseDistribution_T
00145     _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_CONTINUOUSATTRIBUTE_LITE_HPP
00002 #define __TRADEMGEN_BAS_CONTINUOUSATTRIBUTE_LITE_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
00021     template <typename T>
00022     struct ContinuousAttributeLite {
00023     public:
00024         // ////////////////////////////////// Type definitions //////////////////////////////////
00025         typedef std::map<T, stdair::Probability_T> ContinuousDistribution_T
00026     ;
00027
00028     public:
00029         // ////////////////////////////////// Business Methods //////////////////////////////////
00030         const T getValue(const stdair::Probability_T&
00031 iCumulativeProbability) const{
00032             const DictionaryKey_T& lKey =
00033                 DictionaryManager::valueToKey (
00034 iCumulativeProbability);
00035
00036             // Find the first cumulative probability value greater or equal to lKey.
00037             unsigned int idx = 0;
00038             for (; idx < _size; ++idx) {
00039                 if (_cumulativeDistribution.at(idx) > lKey) {
00040                     break;
00041                 }
00042             }
00043         }
00044     };
00045 }
00046
00047
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 (
00061             _cumulativeDistribution.at(idx));
00062     const T& lValueCurrentPoint = _valueArray.at(idx);
00063
00064     //
00065     const stdair::Probability_T& lCumulativePreviousPoint =
00066         DictionaryManager::keyToValue (
00067             _cumulativeDistribution.at(idx-1));
00068     const T& lValuePreviousPoint = _valueArray.at(idx-1);
00069
00070     if (lCumulativePreviousPoint == lCumulativeCurrentPoint) {
00071         return lValuePreviousPoint;
00072     }
00073     T oValue= lValuePreviousPoint + (lValueCurrentPoint - lValuePreviousPoint
00074         * (iCumulativeProbability - lCumulativePreviousPoint)
00075         / (lCumulativeCurrentPoint - lCumulativePreviousPoint));
00076
00077     return oValue;
00078 }
00079
00082 const double getDerivativeValue(const T iKey) const{
00083     // Find the first key value greater or equal to iKey.
00084     unsigned int idx = 0;
00085     for (; idx < _size; ++idx) {
00086         if (_valueArray.at(idx) > iKey) {
00087             break;
00088         }
00089     }
00090
00091     assert (idx != 0);
00092     assert (idx != _size);
00093
00094     //
00095     const stdair::Probability_T& lCumulativeCurrentPoint =
00096         DictionaryManager::keyToValue (
00097             _cumulativeDistribution.at(idx));
00098     const T& lValueCurrentPoint = _valueArray.at(idx);
00099
00100     //
00101     const stdair::Probability_T& lCumulativePreviousPoint =
00102         DictionaryManager::keyToValue (
00103             _cumulativeDistribution.at(idx-1));
00104     const T& lValuePreviousPoint = _valueArray.at(idx-1);
00105
00106     assert (lValueCurrentPoint != lValuePreviousPoint);
00107
00108     const double oValue= (lCumulativeCurrentPoint - lCumulativePreviousPoint)
00109         / (lValueCurrentPoint - lValuePreviousPoint);
00110
00111     return oValue;
00112 }
00113
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
00136     () const {
00137         std::ostringstream ostr;
00138
00139         for (unsigned int idx = 0; idx < _size; ++idx) {

```

```

00139         if (idx != 0) {
00140             ostr << ", ";
00141         }
00142     }
00143     const std::vector<Probability_T> lProbability =
00144         DictionaryManager::keyToValue (
00145         _cumulativeDistribution.at(idx));
00146     ostr << _valueArray.at(idx) << ":" << lProbability;
00147 }
00148 return ostr.str();
00149 }
00150
00151
00152 public:
00153     // ////////// Constructors and destructors //////////
00154     ContinuousAttributeLite (const
00155     ContinuousDistribution_T& iValueMap)
00156         : _size (iValueMap.size()) {
00157         init (iValueMap);
00158     }
00159
00160     ContinuousAttributeLite (const
00161     ContinuousAttributeLite& iCAL)
00162         : _size (iCAL._size),
00163         _cumulativeDistribution (iCAL._cumulativeDistribution),
00164         _valueArray (iCAL._valueArray) {
00165     }
00166
00167     ContinuousAttributeLite& operator= (const
00168     ContinuousAttributeLite& iCAL) {
00169         _size = iCAL._size;
00170         _cumulativeDistribution = iCAL._cumulativeDistribution;
00171         _valueArray = iCAL._valueArray;
00172         return *this;
00173     }
00174
00175     virtual ~ContinuousAttributeLite() {
00176     }
00177
00178 private:
00179     ContinuousAttributeLite() : _size(1) {
00180     }
00181
00182     void init (const ContinuousDistribution_T&
00183     iValueMap) {
00184         //
00185         const unsigned int lSize = iValueMap.size();
00186         _cumulativeDistribution.reserve (lSize);
00187         _valueArray.reserve (lSize);
00188
00189         // Browse the map to retrieve the values and cumulative probabilities.
00190         for (typename ContinuousDistribution_T::const_iterator it =
00191             iValueMap.begin(); it != iValueMap.end(); ++it) {
00192
00193             const T& attributeValue = it->first;
00194             const DictionaryKey_T& lKey =
00195             DictionaryManager::valueToKey (it->second);
00196
00197             // Build the two arrays.
00198             _cumulativeDistribution.push_back (lKey);
00199             _valueArray.push_back (attributeValue);
00200         }
00201     }
00202
00203 private:
00204     // ////////// Attributes //////////
00205     unsigned int _size;
00206
00207     std::vector<DictionaryKey_T> _cumulativeDistribution;
00208
00209     std::vector<T> _valueArray;
00210 };
00211
00212 #endif // __TRADEMGEN_BAS_CONTINUOUSATTRIBUTE_LITE_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 (
00018     : _arrivalPattern (ArrivalPatternCumulativeDistribution_T
00019     ()),
00020     _posProbabilityMass (POSPProbabilityMassFunction_T
00021     ()),
00022     _channelProbabilityMass (ChannelProbabilityMassFunction_T
00023     ()),
00024     _tripTypeProbabilityMass (TripTypeProbabilityMassFunction_T
00025     ()),
00026     _stayDurationProbabilityMass (StayDurationProbabilityMassFunction_T
00027     ()),
00028     _frequentFlyerProbabilityMass (FrequentFlyerProbabilityMassFunction_T
00029     ()),
00030     _changeFeeProb (0.5), _changeFeeDisutility (0.0),
00031     _nonRefundableProb (0.5), _nonRefundableDisutility (0.0),
00032     _preferredDepartureTimeCumulativeDistribution (
00033     PreferredDepartureTimeContinuousDistribution_T
00034     ()),
00035     _minWTP (stdair::WTP_T()), _frat5Pattern (DEFAULT_FRAT5_PATTERN
00036     ),
00037     _valueOfTimeCumulativeDistribution (ValueOfTimeContinuousDistribution_T
00038     ()) {
00039 }
00040
00041 // //////////////////////////////////////
00042 DemandCharacteristics::
00043 DemandCharacteristics (const DemandCharacteristics
00044 & iDC)
00045 : _arrivalPattern (iDC._arrivalPattern),
00046   _posProbabilityMass (iDC._posProbabilityMass),
00047   _channelProbabilityMass (iDC._channelProbabilityMass),
00048   _tripTypeProbabilityMass (iDC._tripTypeProbabilityMass),
00049   _stayDurationProbabilityMass (iDC._stayDurationProbabilityMass),
00050   _frequentFlyerProbabilityMass (iDC._frequentFlyerProbabilityMass),
00051   _changeFeeProb (iDC._changeFeeProb),
00052   _changeFeeDisutility (iDC._changeFeeDisutility),
00053   _nonRefundableProb (iDC._nonRefundableProb),
00054   _nonRefundableDisutility (iDC._nonRefundableDisutility),
00055   _preferredDepartureTimeCumulativeDistribution (iDC.
00056   _preferredDepartureTimeCumulativeDistribution),
00057   _minWTP (iDC._minWTP), _frat5Pattern (iDC._frat5Pattern),
00058   _valueOfTimeCumulativeDistribution (iDC.
00059   _valueOfTimeCumulativeDistribution) {
00060 }
00061
```



```

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
() << std::endl;
00105     oStr << "Channel probability mass (channel, propotion): ";
00106     oStr << _channelProbabilityMass.
displayProbabilityMass() << std::endl;
00107     oStr << "Trip type probability mass (trip type, propotion): ";
00108     oStr << _tripTypeProbabilityMass.
displayProbabilityMass() << std::endl;
00109     oStr << "Stay duration probability mass (number of days, propotion): ";
00110     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 acceptance probability: "
00119         << _changeFeeProb
00120         << std::endl;
00121         ostr << "Change fee disutility: "
00122         << _changeFeeDisutility
00123         << std::endl;
00124         ostr << "Non refundable acceptance 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
00154     _valueOfTimeCumulativeDistribution;
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::Preferred-
DepartureTimeContinuousDistribution_T
- typedef
ContinuousAttributeLite
< stdair::PriceValue_T > TRADEMGEN::ValueOfTimeCumulativeDistribution_T
- typedef
ValueOfTimeCumulativeDistribution_T::ContinuousDistribution_T TRADEMGEN::ValueOfTimeContinuous-
Distribution_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 >
00014 #include <trademgen/basic/CategoricalAttributeLite.hpp>
00015 >
00016 namespace TRADEMGEN {
00017
00018     typedef ContinuousAttributeLite<stdair::FloatDuration_T>
00019     ContinuousFloatDuration_T;
00020
00021     typedef ContinuousFloatDuration_T::ContinuousDistribution_T
00022     ArrivalPatternCumulativeDistribution_T;
00023
00024     typedef CategoricalAttributeLite<stdair::AirportCode_T>
00025     POSProbabilityMass_T;
00026
00027     typedef POSProbabilityMass_T::ProbabilityMassFunction_T
00028     POSProbabilityMassFunction_T;
00029
00030     typedef CategoricalAttributeLite<stdair::ChannelLabel_T>
00031     ChannelProbabilityMass_T;
00032
00033     typedef ChannelProbabilityMass_T::ProbabilityMassFunction_T
00034     ChannelProbabilityMassFunction_T;
00035
00036     typedef CategoricalAttributeLite<stdair::TripType_T>
00037     TripTypeProbabilityMass_T;
00038
00039     typedef TripTypeProbabilityMass_T::ProbabilityMassFunction_T
00040     TripTypeProbabilityMassFunction_T;
00041
00042     typedef CategoricalAttributeLite<stdair::DayDuration_T>
00043     StayDurationProbabilityMass_T;
00044
00045     typedef StayDurationProbabilityMass_T::ProbabilityMassFunction_T
00046     StayDurationProbabilityMassFunction_T;
00047
00048     typedef CategoricalAttributeLite<stdair::FrequentFlyer_T>
00049     FrequentFlyerProbabilityMass_T;
00050
00051     typedef FrequentFlyerProbabilityMass_T::ProbabilityMassFunction_T
00052     FrequentFlyerProbabilityMassFunction_T;
00053
00054     typedef ContinuousAttributeLite<stdair::IntDuration_T>
00055     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,
                                const stdair::StdDevValue_T& iStdDev)
00016 : _meanNumberOfRequests (iMean),
00017   _stdDevNumberOfRequests (iStdDev) {
00018 }
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()
00042     const {
00043         std::ostringstream ostr;
00044         ostr << "N (" << _meanNumberOfRequests << ", "
00045         << _stdDevNumberOfRequests << ")";
00046         return ostr.str();
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
00036         &);
00039         ~DemandDistribution();
00040
00041     public:
00042         // ////////////////////////////////// Display Support Methods //////////////////////////////////
00043         void fromStream (std::istream& ioIn);
00049

```

```

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     ///////////////////////////////////////////////////////////////////
00014     // Type definitions ///////////////////////////////////////////////////////////////////
00015     //typedef unsigned short DictionaryKey_T;
00016     typedef stdair::Probability_T DictionaryKey_T;
00017
00021     class DictionaryManager {
00022     public:
00023         ///////////////////////////////////////////////////////////////////
00024         // 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     ()
00015     : _numberOfRequestsGeneratedSoFar (0),
00016       _cumulativeProbabilitySoFar (0.0) {
00017     }
00018
00019     ///////////////////////////////////////////////////////////////////
00020     RandomGenerationContext::
00021     RandomGenerationContext (const
RandomGenerationContext & iRGC)
00022     : _numberOfRequestsGeneratedSoFar (iRGC._numberOfRequestsGeneratedSoFar),
00023       _cumulativeProbabilitySoFar (iRGC._cumulativeProbabilitySoFar) {

```

```

00023     }
00024
00025     // //////////////////////////////////////
00026     RandomGenerationContext::~RandomGenerationContext
00027     () {
00028     }
00029     // //////////////////////////////////////
00030     const std::string RandomGenerationContext::describe
00031     () const {
00032         std::ostringstream oStr;
00033         oStr << _numberOfRequestsGeneratedSoFar
00034         << " => " << _cumulativeProbabilitySoFar;
00035         return oStr.str();
00036     }
00037     // //////////////////////////////////////
00038     void RandomGenerationContext::incrementGeneratedRequestsCounter
00039     () {
00040         ++_numberOfRequestsGeneratedSoFar;
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
00021     stdair::StructAbstract {
00022     public:
00023         // ////////////////////////////////// Getters //////////////////////////////////
00026         const stdair::Count_T& getNumberOfRequestsGeneratedSoFar
00027         () const {
00028             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     public:
00056         // /////////// 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 &iIsBuiltin, 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 &ioOutputFilename, 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 & iolsBuiltin, 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 & ioOutputFilename, const NbOfRuns_T & iNbOfRuns, const stdair::DemandGenerationMethod & ioDemandGenerationMethod)`

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
00040 typedef ba::accumulator_set<double,
00041                             ba::stats<ba::tag::min, ba::tag::max,
00042                                     ba::tag::mean (ba::immediate),
00043                                     ba::tag::sum,
00044                                     ba::tag::variance> > stat_acc_type
00045 ;
00046
00047 // /// Constants ///
00048
00049 const stdair::Filename_T K_TRADEMGEN_DEFAULT_LOG_FILENAME
00050 ("trademgen_generateDemand.log");
00051
00052 const stdair::Filename_T K_TRADEMGEN_DEFAULT_INPUT_FILENAME
00053 (STDAIR_SAMPLE_DIR
00054                                     "/demand01.csv");
00055
00056 const stdair::Filename_T K_TRADEMGEN_DEFAULT_OUTPUT_FILENAME
00057 ("request.csv");
00058
00059 const stdair::DemandGenerationMethod
00060 K_TRADEMGEN_DEFAULT_DEMAND_GENERATION_METHOD
00061 =
00062     stdair::DemandGenerationMethod::POI_PRO;
00063
00064 const char K_TRADEMGEN_DEFAULT_DEMAND_GENERATION_METHOD_CHAR
00065 =
00066     K_TRADEMGEN_DEFAULT_DEMAND_GENERATION_METHOD
00067     .getMethodAsChar();
00068
00069 const stdair::RandomSeed_T K_TRADEMGEN_DEFAULT_RANDOM_SEED
00070 =
00071     stdair::DEFAULT_RANDOM_SEED;
00072
00073 const NbOfRuns_T K_TRADEMGEN_DEFAULT_RANDOM_DRAWS
00074 = 1;
00075
00076 const bool K_TRADEMGEN_DEFAULT_BUILT_IN_INPUT
00077 = false;
00078
00079 const int K_TRADEMGEN_EARLY_RETURN_STATUS = 99;
00080
00081 void stat_display (std::ostream& oStream, const stat_acc_type
00082 & iStatAcc) {
00083
00084     // 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
00133 int readConfiguration (int argc, char* argv[], bool&
00134                        ioIsBuiltin,
00135                        stdair::RandomSeed_T& ioRandomSeed,
00136                        NbOfRuns_T& ioRandomRuns,
00137                        stdair::Filename_T& ioInputFilename,
00138                        stdair::Filename_T& ioOutputFilename,
00139                        stdair::Filename_T& ioLogFilename,
00140                        stdair::DemandGenerationMethod& ioDemandGenerationMethod)
00141 {
00142     // Demand generation method as a single char (e.g., 'P' or 'S').
00143     char lDemandGenerationMethodChar;
00144
00145     // Default for the built-in input
00146     ioIsBuiltin = K_TRADEMGEN_DEFAULT_BUILT_IN_INPUT;
00147
00148     ;
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.
00163          That latter must then be given with the -i/--input option")
00164         ("seed,s",
00165          boost::program_options::value<stdair::RandomSeed_T>(&ioRandomSeed)->
00166          default_value(K_TRADEMGEN_DEFAULT_RANDOM_SEED),
00167          "Seed for the random generation")
00168         ("draws,d",
00169          boost::program_options::value<NbOfRuns_T>(&ioRandomRuns)->default_value(
00170          K_TRADEMGEN_DEFAULT_RANDOM_DRAWS),
00171          "Number of runs for the demand generations")
00172         ("demandgeneration,G",
00173          boost::program_options::value< char >(&lDemandGenerationMethodChar)->
00174          default_value(K_TRADEMGEN_DEFAULT_DEMAND_GENERATION_METHOD_CHAR
00175          ),
00176          "Method used to generate the demand (i.e., the booking requests): Poisson
00177          Process (P) or Order Statistics (S)")
00178         ("input,i",
00179          boost::program_options::value< std::string >(&ioInputFilename)->
00180          default_value(K_TRADEMGEN_DEFAULT_INPUT_FILENAME),
00181          "(CSV) input file for the demand distributions")
00182         ("output,o",
00183          boost::program_options::value< std::string >(&ioOutputFilename)->
00184          default_value(K_TRADEMGEN_DEFAULT_OUTPUT_FILENAME),
00185          "(CSV) output file for the generated requests")
00186         ("log,l",
00187          boost::program_options::value< std::string >(&ioLogFilename)->
00188          default_value(K_TRADEMGEN_DEFAULT_LOG_FILENAME),
00189          "Filepath for the logs")
00190     ;
00191
00192     // Hidden options, will be allowed both on command line and
00193     // in config file, but will not be shown to the user.
00194     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
00220 << std::endl;
00221     return K_TRADEMGEN_EARLY_RETURN_STATUS;
00222 }
00223
00224 if (vm.count ("prefix")) {
00225     std::cout << "Installation prefix: " << PREFIXDIR << std::endl;
00226     return K_TRADEMGEN_EARLY_RETURN_STATUS;
00227 }
00228
00229 if (vm.count ("builtin")) {
00230     ioIsBuiltin = true;
00231 }
00232 const std::string isBuiltinStr = (ioIsBuiltin == true)? "yes": "no";
00233 std::cout << "The BOM should be built-in? " << isBuiltinStr << std::endl;
00234
00235 if (ioIsBuiltin == false) {
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     } else {
00241         // The built-in option is not selected. However, no demand input file
00242         // is specified
00243         std::cerr << "Either one among the -b/--builtin and -i/--input "
00244             << "options must be specified" << std::endl;
00245     }
00246 }
00247
00248 if (vm.count ("output")) {
00249     ioOutputFilename = vm["output"].as< std::string >();
00250     std::cout << "Output filename is: " << ioOutputFilename << std::endl;
00251 }
00252
00253 if (vm.count ("log")) {
00254     ioLogFilename = vm["log"].as< std::string >();
00255     std::cout << "Log filename is: " << ioLogFilename << std::endl;
00256 }
00257
00258 if (vm.count ("demandgeneration")) {
00259     ioDemandGenerationMethod =
00260         stdair::DemandGenerationMethod (lDemandGenerationMethodChar);
00261     std::cout << "Date-time request generation method is: "
00262         << ioDemandGenerationMethod.describe() << std::endl;
00263 }
00264
00265 //
00266 std::cout << "The random generation seed is: " << ioRandomSeed << std::endl;
00267
00268 //
00269 std::cout << "The number of runs is: " << ioRandomRuns << std::endl;
00270
00271

```

```

00272     return 0;
00273 }
00274
00275 // //////////////////////////////////////
00276 void generateDemand (TRADEMGEN::TRADEMGEN_Service
00277 & ioTrademgenService,
00278                      const stdair::Filename_T& iOutputFilename,
00279                      const NbOfRuns_T& iNbOfRuns,
00280                      const stdair::DemandGenerationMethod&
00281 iDemandGenerationMethod) {
00282
00283     // Open and clean the .csv output file
00284     std::ofstream output;
00285     output.open (iOutputFilename.c_str());
00286     output.clear();
00287
00288     // Initialise the statistics collector/accumulator
00289     stat_acc_type lStatAccumulator;
00290
00291     // Retrieve the expected (mean value of the) number of events to be
00292     // generated
00293     const stdair::Count_T& lExpectedNbOfEventsToBeGenerated =
00294     ioTrademgenService.getExpectedTotalNumberOfRequestsToBeGenerated
00295     ();
00296
00297     // Initialise the (Boost) progress display object
00298     boost::progress_display lProgressDisplay (lExpectedNbOfEventsToBeGenerated
00299 * iNbOfRuns);
00300
00301     for (NbOfRuns_T runIdx = 1; runIdx <= iNbOfRuns; ++runIdx) {
00302         // //////////////////////////////////////
00303         output << "Run number: " << runIdx << std::endl;
00304
00305         const stdair::Count_T& lActualNbOfEventsToBeGenerated =
00306         ioTrademgenService.generateFirstRequests (
00307         iDemandGenerationMethod);
00308
00309         // DEBUG
00310         STDAIR_LOG_DEBUG ("[" << runIdx << "] Expected: "
00311 << lExpectedNbOfEventsToBeGenerated << ", actual: "
00312 << lActualNbOfEventsToBeGenerated);
00313
00314         while (ioTrademgenService.isQueueDone() == false) {
00315             // Extract the next event from the event queue
00316             stdair::EventStruct lEventStruct;
00317             stdair::ProgressStatusSet lProgressStatusSet =
00318             ioTrademgenService.popEvent (lEventStruct);
00319
00320             // DEBUG
00321             STDAIR_LOG_DEBUG ("[" << runIdx << "] Popped event: '"
00322 << lEventStruct.describe() << "'");
00323
00324             // Extract the corresponding demand/booking request
00325             const stdair::BookingRequestStruct& lPoppedRequest =
00326             lEventStruct.getBookingRequest();
00327
00328             // DEBUG
00329             STDAIR_LOG_DEBUG ("[" << runIdx << "] Popped booking request: '"
00330 << lPoppedRequest.describe() << "'");
00331
00332             // Dump the request into the dedicated CSV file
00333             // stdair::BomDisplay::csvDisplay (output, lPoppedRequest);
00334
00335             // Retrieve the corresponding demand stream key
00336             const stdair::DemandGeneratorKey_T& lDemandStreamKey =
00337             lPoppedRequest.getDemandGeneratorKey();
00338
00339             // Assess whether more events should be generated for that demand stream
00340             const bool stillHavingRequestsToBeGenerated = ioTrademgenService.
00341             stillHavingRequestsToBeGenerated (lDemandStreamKey,
00342             lProgressStatusSet,
00343             iDemandGenerationMethod);
00344
00345             // DEBUG
00346             STDAIR_LOG_DEBUG (lProgressStatusSet.describe());
00347             STDAIR_LOG_DEBUG ("=> [" << lDemandStreamKey << "] is now processed. "
00348 << "Still generate events for that demand stream? "
00349 << stillHavingRequestsToBeGenerated);
00350
00351             // If there are still events to be generated for that demand stream,
00352             // generate and add them to the event queue
00353             if (stillHavingRequestsToBeGenerated == true) {
00354                 stdair::BookingRequestPtr_T lNextRequest_ptr =
00355                 ioTrademgenService.generateNextRequest (
00356                 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
00445     // Call the command-line option parser
00446     const int lOptionParserStatus =
00447         readConfiguration (argc, argv, isBuiltin, lRandomSeed,
00448             lNbOfRuns,
00449                 lInputFilename, lOutputFilename, lLogFilename,
00450                 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 whether 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     } else {
00471         // Create the DemandStream objects, and insert them within the BOM tree
00472         const TRADEMGEN::DemandFilePath lDemandFilePath (
00473             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 &iolsBuiltin, 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 & iolsBuiltin, 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
    "/demand01.csv");
00037
00038
00043 const bool K_TRADEMGEN_DEFAULT_BUILT_IN_INPUT
    = false;
00044
00048 const stdair::RandomSeed_T K_TRADEMGEN_DEFAULT_RANDOM_SEED
    =
    stdair::DEFAULT_RANDOM_SEED;
00049
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,
    WordList_T& ioWordList) {
00068     // Empty the word list
00069     ioWordList.clear();
00070
00071     // Boost Tokeniser
00072     typedef boost::tokenizer<boost::char_separator<char> > Tokeniser_T;
```

```

00074
00075 // Define the separators
00076 const boost::char_separator<char> lSeparatorList("
00077 .,:|+~*/_!=@#$$%^&(){}[]?'\<>\"");
00078
00079 // Initialise the phrase to be tokenised
00080 Tokeniser_T lTokens (iPhrase, lSeparatorList);
00081 for (Tokeniser_T::const_iterator tok_iter = lTokens.begin();
00082      tok_iter != lTokens.end(); ++tok_iter) {
00083     const std::string& lTerm = *tok_iter;
00084     ioWordList.push_back (lTerm);
00085 }
00086 }
00087
00088 // //////////////////////////////////////
00089 std::string createStringFromWordList (const WordList_T
00090 & iWordList) {
00091     std::ostringstream oStr;
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     return oStr.str();
00102 }
00103
00104 // ////////////////////////////////// Parsing of Options & Configuration //////////////////////////////////
00105 // A helper function to simplify the main part.
00106 template<class T> std::ostream& operator<< (std::ostream& os,
00107      const std::vector<T>& v) {
00108     std::copy (v.begin(), v.end(), std::ostream_iterator<T> (std::cout, " "));
00109     return os;
00110 }
00111
00112 const int K_TRADEMGEN_EARLY_RETURN_STATUS = 99;
00113
00114 int readConfiguration (int argc, char* argv[], bool&
00115 ioIsBuiltin,
00116                      stdair::RandomSeed_T& ioRandomSeed,
00117                      std::string& ioQueryString,
00118                      stdair::Filename_T& ioInputFilename,
00119                      std::string& ioLogFilename,
00120                      std::string& ioDBUser, std::string& ioDBPasswd,
00121                      std::string& ioDBHost, std::string& ioDBPort,
00122                      std::string& ioDBDBName) {
00123     // Default for the built-in input
00124     ioIsBuiltin = K_TRADEMGEN_DEFAULT_BUILT_IN_INPUT;
00125
00126     // Initialise the travel query string, if that one is empty
00127     if (ioQueryString.empty() == true) {
00128         ioQueryString = K_TRADEMGEN_DEFAULT_QUERY_STRING;
00129     }
00130
00131     // Transform the query string into a list of words (STL strings)
00132     WordList_T lWordList;
00133     tokeniseStringIntoWordList (ioQueryString,
00134                                lWordList);
00135
00136     // Declare a group of options that will be allowed only on command line
00137     boost::program_options::options_description generic ("Generic options");
00138     generic.add_options()
00139         ("prefix", "print installation prefix")
00140         ("version,v", "print version string")
00141         ("help,h", "produce help message");
00142
00143     // Declare a group of options that will be allowed both on command
00144     // line and in config file
00145     boost::program_options::options_description config ("Configuration");
00146     config.add_options()
00147         ("builtin,b",
00148          "The sample BOM tree can be either built-in or parsed from an input file.
00149          That latter must then be given with the -i/--input option")
00150         ("seed,s",
00151          boost::program_options::value<stdair::RandomSeed_T>(&ioRandomSeed)->
00152          default_value(K_TRADEMGEN_DEFAULT_RANDOM_SEED),
00153          "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     ) {
00323         return 0;
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 (
00340         lLogParams, lDBParams,
00341                                     lRandomSeed);
00342
00343     // Check wether or not a (CSV) input file should be read
00344     if (isBuiltin == true) {
00345         // Create a sample DemandStream object, and insert it within the BOM tree
00346         trademgenService.buildSampleBom();
00347     } else {
00348         // Create the DemandStream objects, and insert them within the BOM tree
00349         const TRADEMGEN::DemandFilePath lDemandFilePath (
00350             lInputFilename);
00351         trademgenService.parseAndLoad (lDemandFilePath);
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,
const DemandStream& iDemandStream) {
00088         // Save the formatting flags for the given STL output stream
00089         FlagSaver flagSaver (oStream);
00090
00091         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   (),
00030   POSProbabilityMassFunction_T
00031   (),
00032   ChannelProbabilityMassFunction_T
00033   (),
00034   TripTypeProbabilityMassFunction_T
00035   (),
00036   StayDurationProbabilityMassFunction_T
00037   (),
00038   FrequentFlyerProbabilityMassFunction_T
00039   (),
00040   0.5, 50, 0.5, 50,
00041   PreferredDepartureTimeContinuousDistribution_T
00042   (),
00043   0.0,
00044   ValueOfTimeContinuousDistribution_T
00045   ()),
00046   _posProMass (DEFAULT_POS_PROBABILITY_MASS),
00047   _firstDateTimeRequest (true) {
00048   assert (false);
00049 }
00050
00051 // //////////////////////////////////////
00052 DemandStream::DemandStream (const DemandStream&)
00053 : _key (stdair::DEFAULT_ORIGIN, stdair::DEFAULT_DESTINATION,
00054         stdair::DEFAULT_DEPARTURE_DATE, stdair::DEFAULT_CABIN_CODE),
00055   _parent (NULL),
00056   _demandCharacteristics (ArrivalPatternCumulativeDistribution_T
00057   (),
00058   POSProbabilityMassFunction_T
00059   (),
00060   ChannelProbabilityMassFunction_T
00061   (),
00062   TripTypeProbabilityMassFunction_T
00063   (),
00064   StayDurationProbabilityMassFunction_T
00065   (),
00066   FrequentFlyerProbabilityMassFunction_T
00067   (),
00068   0.5, 50, 0.5, 50,
00069   PreferredDepartureTimeContinuousDistribution_T
00070   (),
00071   0.0,
00072   ValueOfTimeContinuousDistribution_T

```

```

    ),
00058     _posProbMass (DEFAULT_POS_PROBABILITY_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
00082     & iArrivalPattern,
00083     const POSProbabilityMassFunction_T&
00084     iPOSProbMass,
00085     const ChannelProbabilityMassFunction_T
00086     & iChannelProbMass,
00087     const TripTypeProbabilityMassFunction_T
00088     & iTripTypeProbMass,
00089     const StayDurationProbabilityMassFunction_T
00090     & iStayDurationProbMass,
00091     const FrequentFlyerProbabilityMassFunction_T
00092     & iFrequentFlyerProbMass,
00093     const stdair::ChangeFeesRatio_T& iChangeFeeProb,
00094     const stdair::Disutility_T& iChangeFeeDisutility,
00095     const stdair::NonRefundableRatio_T& iNonRefundableProb,
00096     const stdair::Disutility_T& iNonRefundableDisutility,
00097     const PreferredDepartureTimeContinuousDistribution_T
00098     & iPreferredDepartureTimeContinuousDistribution,
00099     const stdair::WTP_T& iMinWTP,
00100     const ValueOfTimeContinuousDistribution_T
00101     & iValueOfTimeContinuousDistribution,
00102     const DemandDistribution& iDemandDistribution,
00103     stdair::BaseGenerator_T& ioSharedGenerator,
00104     const stdair::RandomSeed_T& iRequestDateTimeSeed,
00105     const stdair::RandomSeed_T& iDemandCharacteristicsSeed,
00106     const POSProbabilityMass_T&
00107     iDefaultPOSProbabilityMass) {
00108     setDemandCharacteristics (iArrivalPattern,
00109     iPOSProbMass,
00110     iChannelProbMass, iTripTypeProbMass,
00111     iStayDurationProbMass, iFrequentFlyerProbMass,
00112     iChangeFeeProb, iChangeFeeDisutility,
00113     iNonRefundableProb, iNonRefundableDisutility,
00114     iPreferredDepartureTimeContinuousDistribution,
00115     iMinWTP, iValueOfTimeContinuousDistribution);
00116
00117     setDemandDistribution (iDemandDistribution);
00118     setTotalNumberOfRequestsToBeGenerated
00119     (0);
00120     setRequestDateTimeRandomGeneratorSeed
00121     (iRequestDateTimeSeed);
00122     setDemandCharacteristicsRandomGeneratorSeed
00123     (iDemandCharacteristicsSeed);
00124     setPOSProbabilityMass (iDefaultPOSProbabilityMass);
00125
00126     //
00127     init (ioSharedGenerator);
00128     }
00129
00130     // //////////////////////////////////////
00131     std::string DemandStream::display() const {
00132     std::ostringstream ostr;
00133
00134     ostr << "Demand stream key: " << _key.toString() << std::endl;
00135
00136     //
00137     ostr << _demandCharacteristics.describe();
00138
00139     //
00140     ostr << _demandDistribution.describe() << " => "
00141     << _totalNumberOfRequestsToBeGenerated
00142     << " 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 =
std::floor (lRealNumberOfRequestsToBeGenerated + 0.5);
00162
00163         _totalNumberOfRequestsToBeGenerated =
lIntegerNumberOfRequestsToBeGenerated;
00164
00165         _stillHavingRequestsToBeGenerated = true;
00166         _firstDateTimeRequest = true;
00167     }
00168
00169     // //////////////////////////////////////
00170     const bool DemandStream::
00171     stillHavingRequestsToBeGenerated (const
stdair::DemandGenerationMethod& iDemandGenerationMethod) const {
00172
00173         const stdair::DemandGenerationMethod::EN_DemandGenerationMethod&
lENDemandGenerationMethod =
iDemandGenerationMethod.getMethod();
00174
00175         if (lENDemandGenerationMethod == stdair::DemandGenerationMethod::STA_ORD) {
00176             bool hasStillHavingRequestsToBeGenerated = true;
00177
00178             // Check whether enough requests have already been generated
00179             const stdair::Count_T lNbOfRequestsGeneratedSoFar =
_randomGenerationContext.
getNumberOfRequestsGeneratedSoFar();
00180
00181             const stdair::Count_T lRemainingNumberOfRequestsToBeGenerated =
_totalNumberOfRequestsToBeGenerated
- lNbOfRequestsGeneratedSoFar;
00182
00183             if (lRemainingNumberOfRequestsToBeGenerated <= 0) {
00184                 hasStillHavingRequestsToBeGenerated = false;
00185             }
00186
00187             return hasStillHavingRequestsToBeGenerated;
00188         } else {
00189             return _stillHavingRequestsToBeGenerated;
00190         }
00191     }
00192
00193     // //////////////////////////////////////
00194     const stdair::DateTime_T DemandStream::generateTimeOfRequestPoissonProcess
() {
00195
00196         // Prepare arrival pattern.
00197         const ContinuousFloatDuration_T& lArrivalPattern =
_demandCharacteristics._arrivalPattern
;
00198
00199         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                 (),
00210                     lHardcodedReferenceDepartureTime);
00211
00212         // If no request has been generated so far...
00213         if (_firstDateTimeRequest) {
00214             const stdair::Probability_T lProbabilityFirstRequest = 0;
00215
00216             // Get the lower bound of the arrival pattern (corresponding
00217             // to a cumulative probability of 0).
00218             _dateTimeLastRequest =
00219                 lArrivalPattern.getValue (lProbabilityFirstRequest);
00220
00221             _firstDateTimeRequest = false;
00222         }
00223
00224         // Sanity check.
00225         assert (_firstDateTimeRequest == false);
00226
00227         // If the date time of the last request is equal to the lower bound of
00228         // the last daily rate interval (default value is -1, meaning one day
00229         // before departure), we stopped generating request by returning a
00230         // request date time after departure date time.
00231         if (_dateTimeLastRequest == DEFAULT_LAST_LOWER_BOUND_ARRIVAL_PATTERN
00232             ) {
00233             _stillHavingRequestsToBeGenerated = false;
00234
00235             // Get a positive number of days.
00236             const stdair::Duration_T lDifferenceBetweenDepartureAndThisLowerBound =
00237                 convertFloatIntoDuration (-
00238                     DEFAULT_LAST_LOWER_BOUND_ARRIVAL_PATTERN
00239                 );
00240
00241             // Calculate a request date-time after the departure date time to end
00242             // the demand generation algorithm.
00243             const stdair::DateTime_T oDateTimeThisRequest =
00244                 lDepartureDateTime + lDifferenceBetweenDepartureAndThisLowerBound;
00245
00246             return oDateTimeThisRequest;
00247         }
00248
00249         // Get the upper bound of the current daily rate interval.
00250         stdair::FloatDuration_T lUpperBound =
00251             lArrivalPattern.getUpperBound (_dateTimeLastRequest);
00252
00253         // Compute the daily rate demand.
00254         double lDailyRate = lArrivalPattern.getDerivativeValue(
00255             _dateTimeLastRequest);
00256
00257         // Get the expected average number of requests.
00258         const double lDemandMean = _demandDistribution.
00259             _meanNumberOfRequests;
00260
00261         // Multiply the daily rate by the expected average number of requests.
00262         lDailyRate *= lDemandMean;
00263
00264         // Generate an exponential variable.
00265         const stdair::FloatDuration_T lExponentialVariable =
00266             _requestDateTimeRandomGenerator.
00267             generateExponential (lDailyRate);
00268
00269         // Compute the new date time request.
00270         const stdair::FloatDuration_T lDateTimeThisRequest =
00271             _dateTimeLastRequest + lExponentialVariable;
00272
00273         stdair::DateTime_T oDateTimeThisRequest;
00274
00275         // Verify if this request is in the given daily rate interval.
00276         if (lDateTimeThisRequest < lUpperBound) {
00277
00278             // Conversion.
00279             const stdair::Duration_T lDifferenceBetweenDepartureAndThisRequest =
00280                 convertFloatIntoDuration (lDateTimeThisRequest)
00281         };
00282
00283         // The request date-time is derived from departure date and arrival
00284         pattern.
00285         oDateTimeThisRequest = lDepartureDateTime
00286             + lDifferenceBetweenDepartureAndThisRequest;
00287
00288         // Remember this date time request.
00289         _dateTimeLastRequest = lDateTimeThisRequest;
00290
00291         // Update the counter of requests generated so far.
00292         incrementGeneratedRequestsCounter();

```

```

00282
00283     const double lRefDateTimeThisRequest = lDateTimeThisRequest + double(2880
00284         0.001/86400.0);
00285     STDAIR_LOG_NOTIFICATION (boost::gregorian::to_iso_string(_key.
00286         getPreferredDepartureDate()) << ";<" <<
00287         std::setprecision(10) << lRefDateTimeThisRequest);
00288     } else {
00289         // The current request is not in the given daily rate interval.
00290         // Change the daily rate.
00291         _dateTimeLastRequest = lUpperBound;
00292         // Generate a date time request in the new daily rate interval.
00293         oDateTimeThisRequest = generateTimeOfRequestPoissonProcess
00294     };
00295     }
00296     return oDateTimeThisRequest;
00297 }
00298 // ////////////////////////////////////////
00299 const stdair::DateTime_T DemandStream::generateTimeOfRequestStatisticsOrder
00300 () {
00301     //
00302     // Calculate the result of the formula above step by step.
00303     //
00304     // 1) Get the number of requests generated so far.
00305     // (equal to k - 1)
00306     const stdair::Count_T lNbOfRequestsGeneratedSoFar =
00307         _randomGenerationContext.
00308         getNumberOfRequestsGeneratedSoFar();
00309     // 2) Deduce the number of requests not generated yet.
00310     // (equal to n - k + 1)
00311     const stdair::Count_T lRemainingNumberOfRequestsToBeGenerated =
00312         _totalNumberOfRequestsToBeGenerated -
00313         lNbOfRequestsGeneratedSoFar;
00314     // Assert that there are still requests to be generated.
00315     assert (lRemainingNumberOfRequestsToBeGenerated > 0);
00316     // 3) Inverse the number of requests not generated yet.
00317     // 1/(n - k + 1)
00318     const double lRemainingRate =
00319         1.0 / static_cast<double> (lRemainingNumberOfRequestsToBeGenerated);
00320     // 4) Get the cumulative probability so far and take its complement.
00321     // (equal to 1 - x(k-1))
00322     const stdair::Probability_T lCumulativeProbabilitySoFar =
00323         _randomGenerationContext.
00324         getCumulativeProbabilitySoFar();
00325     const stdair::Probability_T lComplementOfCumulativeProbabilitySoFar =
00326         1.0 - lCumulativeProbabilitySoFar;
00327     // 5) Draw a random variable y and calculate the factor equal to
00328     // (1 - y)^(1/(n - k + 1)).
00329     const stdair::Probability_T lVariate = _requestDateTimeRandomGenerator
00330     ();
00331     double lFactor = std::pow (1.0 - lVariate, lRemainingRate);
00332     if (lFactor >= 1.0 - 1e-6){
00333         lFactor = 1.0 - 1e-6;
00334     }
00335     // 6) Apply the whole formula above to calculate the cumulative probability
00336     // of the new request.
00337     // (equal to 1 - (1 - x(k-1))(1 - y)^(1/(n - k + 1)))
00338     const stdair::Probability_T lCumulativeProbabilityThisRequest =
00339         1.0 - lComplementOfCumulativeProbabilitySoFar * lFactor;
00340     // Now that the cumulative proportion of events generated has been
00341     // calculated, we deduce from the arrival pattern the arrival time of the
00342     // k-th event.
00343     const stdair::FloatDuration_T lNumberOfDaysBetweenDepartureAndThisRequest =
00344         _demandCharacteristics._arrivalPattern
00345         .getValue (lCumulativeProbabilityThisRequest);
00346     const stdair::Duration_T lDifferenceBetweenDepartureAndThisRequest =
00347         convertFloatIntoDuration (
00348             lNumberOfDaysBetweenDepartureAndThisRequest);
00349     const stdair::Time_T lHardcodedReferenceDepartureTime =
00350         boost::posix_time::hours (8);
00351     const stdair::DateTime_T lDepartureDateTime =
00352         boost::posix_time::ptime (_key.getPreferredDepartureDate

```

```

    ),
    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
00442 // Generate a random number between 0 and 1.
00443 const stdair::Probability_T lVariate =
_demandCharacteristicsRandomGenerator
();
00444
00445 return _demandCharacteristics._channelProbabilityMass
.getValue (lVariate);
00446 }
00447

```

```

00448 // //////////////////////////////////////
00449 const stdair::TripType_T DemandStream::generateTripType
00450 () {
00451     // Generate a random number between 0 and 1.
00452     const stdair::Probability_T lVariate =
00453         _demandCharacteristicsRandomGenerator
00454         ();
00455     return _demandCharacteristics.
00456         _tripTypeProbabilityMass.getValue (lVariate);
00457 }
00458 // //////////////////////////////////////
00459 const stdair::DayDuration_T DemandStream::generateStayDuration
00460 () {
00461     // Generate a random number between 0 and 1.
00462     const stdair::Probability_T lVariate =
00463         _demandCharacteristicsRandomGenerator
00464         ();
00465     return _demandCharacteristics.
00466         _stayDurationProbabilityMass.getValue (
00467             lVariate);
00468 }
00469 // //////////////////////////////////////
00470 const stdair::FrequentFlyer_T DemandStream::generateFrequentFlyer
00471 () {
00472     // Generate a random number between 0 and 1.
00473     const stdair::Probability_T lVariate =
00474         _demandCharacteristicsRandomGenerator
00475         ();
00476     return _demandCharacteristics.
00477         _frequentFlyerProbabilityMass.getValue (
00478             lVariate);
00479 }
00480 // //////////////////////////////////////
00481 const stdair::ChangeFees_T DemandStream::generateChangeFees
00482 () {
00483     // Generate a random number between 0 and 1.
00484     const stdair::Probability_T lVariate =
00485         _demandCharacteristicsRandomGenerator
00486         ();
00487     if (lVariate < _demandCharacteristics._changeFeeProb)
00488     {
00489         return true;
00490     }
00491     return false;
00492 }
00493 // //////////////////////////////////////
00494 const stdair::NonRefundable_T DemandStream::generateNonRefundable
00495 () {
00496     // Generate a random number between 0 and 1.
00497     const stdair::Probability_T lVariate =
00498         _demandCharacteristicsRandomGenerator
00499         ();
00500     if (lVariate < _demandCharacteristics.
00501         _nonRefundableProb) {
00502         return true;
00503     }
00504     return false;
00505 }
00506 // //////////////////////////////////////
00507 const stdair::Duration_T DemandStream::generatePreferredDepartureTime
00508 () {
00509     // Generate a random number between 0 and 1.
00510     const stdair::Probability_T lVariate =
00511         _demandCharacteristicsRandomGenerator
00512         ();
00513     const stdair::IntDuration_T lNbOfSeconds = _demandCharacteristics
00514         _preferredDepartureTimeCumulativeDistribution.getValue (lVariate);
00515     const stdair::Duration_T oTime = boost::posix_time::seconds (lNbOfSeconds);
00516     return oTime;
00517 }
00518 // //////////////////////////////////////
00519 const stdair::WTP_T DemandStream::
00520 generateWTP (stdair::RandomGeneration& ioGenerator,
00521             const stdair::Date_T& iDepartureDate,
00522             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.
00523         getValue(lProb);
00524     const stdair::WTP_T lWTP = _demandCharacteristics.
00525         _minWTP
00526         * (1.0 + (lFrat5Coef - 1.0) * log(ioGenerator()) / log(0.5));
00527     return lWTP;
00528 }
00529
00530 // //////////////////////////////////////
00531 const stdair::PriceValue_T DemandStream::generateValueOfTime
00532 () {
00533     // Generate a random number between 0 and 1.
00534     const stdair::Probability_T lVariate =
00535         _demandCharacteristicsRandomGenerator
00536         ();
00537     return _demandCharacteristics.
00538         _valueOfTimeCumulativeDistribution.getValue
00539         (lVariate);
00540 }
00541 // //////////////////////////////////////
00542 stdair::BookingRequestPtr_T DemandStream::
00543 generateNextRequest (stdair::RandomGeneration&
00544 ioGenerator,
00545                     const stdair::DemandGenerationMethod&
00546 iDemandGenerationMethod) {
00547     // Origin
00548     const stdair::AirportCode_T& lOrigin = _key.getOrigin();
00549     // Destination
00550     const stdair::AirportCode_T& lDestination = _key.getDestination
00551     ();
00552     // Preferred departure date
00553     const stdair::Date_T& lPreferredDepartureDate =
00554         _key.getPreferredDepartureDate();
00555     // Preferred cabin
00556     const stdair::CabinCode_T& lPreferredCabin = _key.getPreferredCabin
00557     ();
00558     // Party size
00559     const stdair::NbOfSeats_T lPartySize = stdair::DEFAULT_PARTY_SIZE;
00560     // POS
00561     const stdair::AirportCode_T lPOS = generatePOS();
00562
00563     // Compute the request date time with the correct algorithm.
00564     stdair::DateTime_T lDateTimeThisRequest;
00565     const stdair::DemandGenerationMethod:&EN_DemandGenerationMethod&
00566     lENDemandGenerationMethod =
00567         iDemandGenerationMethod.getMethod();
00568     switch(lENDemandGenerationMethod) {
00569     case stdair::DemandGenerationMethod::POI_PRO:
00570         lDateTimeThisRequest = generateTimeOfRequestPoissonProcess
00571         (); break;
00572     case stdair::DemandGenerationMethod::STA_ORD:
00573         lDateTimeThisRequest = generateTimeOfRequestStatisticsOrder
00574         (); break;
00575     default: assert (false); break;
00576     }
00577
00578     // Booking channel.
00579     const stdair::ChannelLabel_T lChannelLabel = generateChannel
00580     ();
00581     // Trip type.
00582     const stdair::TripType_T lTripType = generateTripType();
00583     // Stay duration.
00584     const stdair::DayDuration_T lStayDuration = generateStayDuration
00585     ();
00586     // Frequent flyer type.
00587     const stdair::FrequentFlyer_T lFrequentFlyer = generateFrequentFlyer
00588     ();
00589     // Change fees
00590     const stdair::ChangeFees_T lChangeFees = generateChangeFees
00591     ();
00592     // Change fee disutility
00593     const stdair::Disutility_T lChangeFeeDisutility =
00594         _demandCharacteristics._changeFeeDisutility
00595         ;
00596     // Non refundable

```

```

00584     const stdair::NonRefundable_T lNonRefundable = generateNonRefundable
00585   );
00586   // Non refundable disutility
00587   const stdair::Disutility_T lNonRefundableDisutility =
00588     _demandCharacteristics._nonRefundableDisutility
00589 ;
00590   // Preferred departure time.
00591   const stdair::Duration_T lPreferredDepartureTime =
00592     generatePreferredDepartureTime();
00593   // Value of time
00594   const stdair::PriceValue_T lValueOfTime = generateValueOfTime
00595   );
00596   // WTP
00597   const stdair::WTP_T lWTP = generateWTP (ioGenerator,
00598     lPreferredDepartureDate,
00599     lDateTimeThisRequest, lStayDuration)
00600 ;
00601   // TODO: move the creation of the structure out of the BOM layer
00602   // (into the command layer, e.g., within the DemandManager command).
00603   // Create the booking request
00604   stdair::BookingRequestStruct lBookingRequestStruct (describeKey(
00605     ), lOrigin,
00606     lDestination, lPOS,
00607     lPreferredDepartureDate,
00608     lDateTimeThisRequest,
00609     lPreferredCabin,
00610     lPartySize,
00611     lChannelLabel,
00612     lTripType,
00613     lStayDuration,
00614     lFrequentFlyer,
00615     lPreferredDepartureTime,
00616     lWTP, lValueOfTime,
00617     lChangeFees,
00618     lChangeFeeDisutility,
00619     lNonRefundable,
00620     lNonRefundableDisutility);
00621   stdair::BookingRequestPtr_T oBookingRequest_ptr =
00622     boost::make_shared<stdair::BookingRequestStruct> (lBookingRequestStruct)
00623 ;
00624   // DEBUG
00625   // STDAIR_LOG_DEBUG ("n[BKG] " << oBookingRequest_ptr->describe());
00626   return oBookingRequest_ptr;
00627 }
00628
00629 // //////////////////////////////////////
00630 void DemandStream::reset (stdair::BaseGenerator_T&
00631   ioSharedGenerator) {
00632   _randomGenerationContext.reset();
00633   init (ioSharedGenerator);
00634 }
00635
00636 }
```

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 >
00015 #include <trademgen/basic/DemandDistribution.hpp>
00016 >
00017 #include <trademgen/basic/RandomGenerationContext.hpp>
00018 >
00019 #include <trademgen/bom/DemandStreamKey.hpp>
00020 #include <trademgen/bom/DemandStreamTypes.hpp>
00021 >
00022 namespace stdair {
00023     class FacBomManager;
00024     template <typename BOM> class FacBom;
00025 }
00026 namespace TRADEMGEN {
00027
00028     class DemandStream : public stdair::BomAbstract {
00029     public:
00030         template <typename BOM> friend class stdair::FacBom;
00031         friend class stdair::FacBomManager;
00032
00033     public:
00034         // ////////////////////////////////// Type definitions //////////////////////////////////
00035         typedef DemandStreamKey Key_T;
00036
00037     public:
00038         // ////////////////////////////////// Getters //////////////////////////////////
00039         const Key_T& getKey() const {
00040             return _key;
00041         }
00042
00043         BomAbstract* const getParent() const {
00044             return _parent;
00045         }
00046
00047         const stdair::AirportCode_T& getOrigin() const {
00048             return _key.getOrigin();
00049         }
00050
00051         const stdair::AirportCode_T& getDestination() const {
00052             return _key.getDestination();
00053         }
00054
00055         const stdair::Date_T& getPreferredDepartureDate()
00056         const {
00057             return _key.getPreferredDepartureDate();
00058         }
00059
00060         const stdair::CabinCode_T& getPreferredCabin() const {
00061             return _key.getPreferredCabin();
00062         }
00063
00064     }
00065
00066 }
00067
00068 
```

```

00075     const stdair::HolderMap_T& getHolderMap() const {
00076         return _holderMap;
00077     }
00078
00080     const DemandCharacteristics& getDemandCharacteristics
00081     () const {
00082         return _demandCharacteristics;
00083     }
00084
00085     const DemandDistribution& getDemandDistribution
00086     () const {
00087         return _demandDistribution;
00088     }
00089
00090     const stdair::NbOfRequests_T& getTotalNumberOfRequestsToBeGenerated
00091     () const {
00092         return _totalNumberOfRequestsToBeGenerated;
00093     }
00094
00095     const stdair::NbOfRequests_T& getMeanNumberOfRequests
00096     () const {
00097         return _demandDistribution._meanNumberOfRequests;
00098     }
00099
00100     const stdair::StdDevValue_T& getStdDevNumberOfRequests
00101     () const {
00102         return _demandDistribution._stdDevNumberOfRequests;
00103     }
00104
00105     const stdair::Count_T& getNumberOfRequestsGeneratedSoFar
00106     () const {
00107         return _randomGenerationContext.
00108         getNumberOfRequestsGeneratedSoFar();
00109     }
00110
00111     const stdair::Disutility_T& getChangeFeeDisutility()
00112     const {
00113         return _demandCharacteristics._changeFeeDisutility;
00114     }
00115
00116     const stdair::Disutility_T& getNonRefundableDisutility
00117     () const {
00118         return _demandCharacteristics.
00119         _nonRefundableDisutility;
00120     }
00121
00122     const POSProbabilityMass_T& getPOSProbabilityMass
00123     () const {
00124         return _posProMass;
00125     }
00126
00127 public:
00128     // ////////////////////////////////// Setters //////////////////////////////////
00129     void setNumberOfRequestsGeneratedSoFar (
00130     const stdair::Count_T& iCount) {
00131         _randomGenerationContext.
00132         setNumberOfRequestsGeneratedSoFar (iCount);
00133     }
00134
00135     void setDemandDistribution (const DemandDistribution
00136     & iDemandDistribution) {
00137         _demandDistribution = iDemandDistribution;
00138     }
00139
00140     void
00141     setDemandCharacteristics (const
00142     ArrivalPatternCumulativeDistribution_T&
00143     iArrivalPattern,
00144     const POSProbabilityMassFunction_T
00145     & iPOSProbMass,
00146     const ChannelProbabilityMassFunction_T
00147     & iChannelProbMass,
00148     const TripTypeProbabilityMassFunction_T
00149     & iTripTypeProbMass,
00150     const StayDurationProbabilityMassFunction_T
00151     & iStayDurationProbMass,
00152     const FrequentFlyerProbabilityMassFunction_T
00153     & iFrequentFlyerProbMass,
00154     const stdair::ChangeFeesRatio_T& iChangeFeeProb,
00155     const stdair::Disutility_T& iChangeFeeDisutility,
00156     const stdair::NonRefundableRatio_T&
00157     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&,
stdair::BaseGenerator_T& ioSharedGenerator,
00205               const stdair::RandomSeed_T& iRequestDateTimeSeed,
00206               const stdair::RandomSeed_T& iDemandCharacteristicsSeed,
00207               const POSProbabilityMass_T&);
00208
00214 void setBoolFirstDateTimeRequest (const bool&
iFirstDateTimeRequest) {
00215     _firstDateTimeRequest = iFirstDateTimeRequest;
00216 }
00217
00218 public:
00219     // ////////////////////////////////// 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 public:
00286     // //////////// 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 (
00320 const stdair::FloatDuration_T);
00321
00322 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 ;

```

```

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&
00052 ioIn) {
00053 }
00054
00055 // //////////////////////////////////////
00056 const std::string DemandStreamKey::toString() const
00057 {
00058     std::ostringstream ostr;
00059     ostr << _origin << "-" << _destination << " " << _preferredDepartureDate
00060         << " " << _preferredCabin;
00061     return ostr.str();
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:
00024     DemandStreamKey();
00025
00026 public:
00027     DemandStreamKey (const stdair::AirportCode_T& iOrigin,
00028                     const stdair::AirportCode_T& iDestination,
00029                     const stdair::Date_T& iPreferredDepartureDate,
00030                     const stdair::CabinCode_T& iPreferredCabin);
00031     DemandStreamKey (const DemandStreamKey&);
00032
00033     ~DemandStreamKey();
00034
00035 public:
00036     // ////////////////////////////////// Getters //////////////////////////////////
00037     const stdair::AirportCode_T& getOrigin() const {
00038         return _origin;
00039     }
00040
00041     const stdair::AirportCode_T& getDestination() const {
00042         return _destination;
00043     }
00044 }

```

```

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 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
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         _fffProbDist.begin();
00103         it != _fffProbDist.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
00150             ); ++it, ++idx) {
00151             const stdair::FloatDuration_T& lDTD = it->first;
00152             const stdair::Probability_T& lDTDProbMass = it->second;
00153             if (idx != 0) {
00154                 ostr << ", ";
00155             }
00156             ostr << lDTD << ":" << lDTDProbMass;
00157         }
00158         ostr << "; ";
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 ;
00064     ChannelProbabilityMassFunction_T
00065     _channelProbDist;
00066     TripTypeProbabilityMassFunction_T
00067     _tripProbDist;
00068     StayDurationProbabilityMassFunction_T
00069     _stayProbDist;
00070     FrequentFlyerProbabilityMassFunction_T
00071     _ffProbDist;
00072     PreferredDepartureTimeContinuousDistribution_T
00073     _prefDepTimeProbDist;
00074     stdair::WTP_T _minWTP;
00075     ValueOfTimeContinuousDistribution_T
00076     _timeValueProbDist;
00077     ArrivalPatternCumulativeDistribution_T
00078     _dtdProbDist;
00079
00080 public:
00081 // //////////// Staging ////////////
00082     stdair::Date_T _prefDepDateStart;
00083     stdair::Date_T _prefDepDateEnd;
00084     unsigned int _itYear;
00085     unsigned int _itMonth;
00086     unsigned int _itDay;
00087
00088     long _itHours;
00089     long _itMinutes;
00090     long _itSeconds;
00091
00092     stdair::AirportCode_T _itPosCode;
00093
00094     stdair::ChannelLabel_T _itChannelCode;
00095
00096     stdair::TripType_T _itTripCode;
00097
00098     stdair::DayDuration_T _itStayDuration;
00099
00100     stdair::FrequentFlyer_T _itFFCode;
00101
00102     stdair::Duration_T _itPrefDepTime;
00103
00104     stdair::PriceValue_T _itTimeValue;
00105
00106     stdair::DayDuration_T _itDTD;
00107 };
00108
00109 #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&
00025 ioSociSession,
00026                    stdair::DBRequestStatement_T& ioSelectStatement,
00027                    stdair::AirlineStruct& ioAirline) {
00028     try {
00029         // Instanciate a SQL statement (no request is performed at that stage)
00030     } catch (std::exception const& lException) {
00044         STDAIR_LOG_ERROR ("Error: " << lException.what());
00045         throw stdair::SQLDatabaseException (lException.what());
00046     }
00047 }
00048
00049 // //////////////////////////////////////
00050 void DBManager::
00051 prepareSelectOnAirlineCodeStatement (stdair::DBSession_T& ioSociSession,
00052                    stdair::DBRequestStatement_T&
00053 ioSelectStatement,
00054                    const stdair::AirlineCode_T&
00055 iAirlineCode,
00056                    stdair::AirlineStruct& ioAirline) {
00057     try {
00058         // Instanciate a SQL statement (no request is performed at that stage)
00059     } catch (std::exception const& lException) {
00090         STDAIR_LOG_ERROR ("Error: " << lException.what());
00091         throw stdair::SQLDatabaseException (lException.what());
00092     }
00093 }
00094
00095 // //////////////////////////////////////
00096 bool DBManager::iterateOnStatement (
00097     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,
stdair::AirlineStruct& ioAirline) {
00159
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
00170         const bool shouldDoReset = true;
00171         bool hasStillData = iterateOnStatement (
lSelectStatement, ioAirline,
00171                                                         shouldDoReset);
00172
00173         if (hasStillData == true) {
00174             oHasRetrievedAirline = true;
00175         }
00176
00177         // Sanity check
00178         const bool shouldNotDoReset = false;
00179         hasStillData = iterateOnStatement (lSelectStatement,
ioAirline,
00179                                                         shouldNotDoReset);
00180
00181         // Debug
00182         // 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     public:
00037         static void prepareSelectStatement (
stdair::DBSession_T&,
stdair::DBRequestStatement_T&,
stdair::AirlineStruct&);
00040
00045         static bool iterateOnStatement (
stdair::DBRequestStatement_T&,
stdair::AirlineStruct&,
const bool iShouldDoReset);
00048
00049     private:
00052         static void prepareSelectOnAirlineCodeStatement (stdair::DBSession_T&,
stdair::DBRequestStatement_T&,
stdair::AirlineCode_T&,
const
stdair::AirlineStruct&);
00055

```

```

00056
00057
00058     private:
00060         DBManager() {}
00061         DBManager(const DBManager&) {}
00062         ~DBManager() {}
00063     };
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 >
00024 #include <trademgen/basic/DemandDistribution.hpp>
00025 >
00026 #include <trademgen/bom/DemandStruct.hpp>
00027 #include <trademgen/bom/DemandStream.hpp>
00028 #include <trademgen/command/DemandManager.hpp>
00029 >
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```

```

00028 namespace TRADEMGEN {
00029
00030 // //////////////////////////////////////
00031 void DemandManager::
00032 buildSampleBomStd (SEVMGR::SEVMGR_ServicePtr_T ioSEVMGR_ServicePtr,
00033                   stdair::RandomGeneration& ioSharedGenerator,
00034                   const POSProbabilityMass_T&
00035 iPOSProbMass) {
00036     // Sanity check
00037     assert (ioSEVMGR_ServicePtr != NULL);
00038
00039     // Key of the demand stream
00040     const stdair::AirportCode_T lOrigin ("SIN");
00041     const stdair::AirportCode_T lDestination ("BKK");
00042     const stdair::Date_T lDepDate (2011, 2, 14);
00043     const stdair::CabinCode_T lCabin ("Y");
00044
00045     //
00046     const DemandStreamKey lDemandStreamKey (lOrigin, lDestination, lDepDate,
00047                                             lCabin);
00048
00049     // DEBUG
00050     // STDAIR_LOG_DEBUG ("Demand stream key: " << lDemandStreamKey.describe());
00051
00052     // Distribution for the number of requests
00053     const stdair::MeanValue_T lDemandMean (10.0);
00054     const stdair::StdDevValue_T lDemandStdDev (1.0);
00055     const DemandDistribution lDemandDistribution (lDemandMean, lDemandStdDev);
00056
00057     // Seed
00058     const stdair::RandomSeed_T& lRequestDateTimeSeed =
00059         generateSeed (ioSharedGenerator);
00060     const stdair::RandomSeed_T& lDemandCharacteristicsSeed =
00061         generateSeed (ioSharedGenerator);
00062
00063     //
00064     ArrivalPatternCumulativeDistribution_T
00065     lDTPProbDist;
00066     lDTPProbDist.insert (ArrivalPatternCumulativeDistribution_T::value_type(-330
00067 ,
00068                                0));
00069     lDTPProbDist.insert (ArrivalPatternCumulativeDistribution_T::value_type(-40,
00070                                0.2));
00071 );
00072     lDTPProbDist.insert (ArrivalPatternCumulativeDistribution_T::value_type(-20,
00073                                0.6));
00074 );
00075     lDTPProbDist.insert (ArrivalPatternCumulativeDistribution_T::value_type(-1,
00076                                1.0));
00077 );
00078     //
00079     POSProbabilityMassFunction_T lPOSProbDist;
00080     lPOSProbDist.insert (POSProbabilityMassFunction_T::value_type ("BKK", 0.3))
00081 ;
00082     lPOSProbDist.insert (POSProbabilityMassFunction_T::value_type ("SIN", 0.7))
00083 ;
00084     //
00085     ChannelProbabilityMassFunction_T
00086     lChannelProbDist;
00087     lChannelProbDist.insert (ChannelProbabilityMassFunction_T::value_type ("DF"
00088 ,
00089                                0.1));
00090     lChannelProbDist.insert (ChannelProbabilityMassFunction_T::value_type ("DN"
00091 ,
00092                                0.3));
00093     lChannelProbDist.insert (ChannelProbabilityMassFunction_T::value_type ("IF"
00094 ,
00095                                0.4));
00096     lChannelProbDist.insert (ChannelProbabilityMassFunction_T::value_type ("IN"
00097 ,
00098                                0.2));
00099 );
00100     //
00101     TripTypeProbabilityMassFunction_T
00102     lTripProbDist;
00103     lTripProbDist.insert (TripTypeProbabilityMassFunction_T::value_type ("RO",
00104                                0.6));
00105     lTripProbDist.insert (TripTypeProbabilityMassFunction_T::value_type ("RI",
00106                                0.2));
00107     lTripProbDist.insert (TripTypeProbabilityMassFunction_T::value_type ("OW",
00108                                0.2));
00109     //
00110     StayDurationProbabilityMassFunction_T
00111     lStayProbDist;

```

```

00096     lStayProbDist.insert(StayDurationProbabilityMassFunction_T::value_type(0,
00097                                                                    0.1)
00098 );
00098     lStayProbDist.insert(StayDurationProbabilityMassFunction_T::value_type(1,
00099                                                                    0.1)
00100 );
00100     lStayProbDist.insert(StayDurationProbabilityMassFunction_T::value_type(2,
00101                                                                    .15)
00102 );
00102     lStayProbDist.insert(StayDurationProbabilityMassFunction_T::value_type(3,
00103                                                                    .15)
00104 );
00104     lStayProbDist.insert(StayDurationProbabilityMassFunction_T::value_type(4,
00105                                                                    .15)
00106 );
00106     lStayProbDist.insert(StayDurationProbabilityMassFunction_T::value_type(5,
00107                                                                    .35)
00108 );
00108     //
00109     FrequentFlyerProbabilityMassFunction_T
00110     lFFProbDist;
00110     lFFProbDist.insert(FrequentFlyerProbabilityMassFunction_T::value_type("P",
00111                                                                    0.01)
00112 );
00112     lFFProbDist.insert(FrequentFlyerProbabilityMassFunction_T::value_type("G",
00113                                                                    0.05)
00114 );
00114     lFFProbDist.insert(FrequentFlyerProbabilityMassFunction_T::value_type("S",
00115                                                                    0.15)
00116 );
00116     lFFProbDist.insert(FrequentFlyerProbabilityMassFunction_T::value_type("M",
00117                                                                    0.3)
00118 );
00118     lFFProbDist.insert(FrequentFlyerProbabilityMassFunction_T::value_type("N",
00119                                                                    0.49)
00120 );
00120     //
00121     PreferredDepartureTimeContinuousDistribution_T
00122     lPrefDepTimeProbDist;
00122     lPrefDepTimeProbDist.
00123     insert (PreferredDepartureTimeContinuousDistribution_T::value_type (6 *
stdair::HOURL_CONVERTED_IN_SECONDS, 0));
00124     lPrefDepTimeProbDist.
00125     insert (PreferredDepartureTimeContinuousDistribution_T::value_type (7 *
stdair::HOURL_CONVERTED_IN_SECONDS,
00126                                                                    0.1)
00127 );
00127     lPrefDepTimeProbDist.
00128     insert (PreferredDepartureTimeContinuousDistribution_T::value_type (9 *
stdair::HOURL_CONVERTED_IN_SECONDS,
00129                                                                    0.3)
00130 );
00130     lPrefDepTimeProbDist.
00131     insert (PreferredDepartureTimeContinuousDistribution_T::value_type (17 *
stdair::HOURL_CONVERTED_IN_SECONDS,
00132                                                                    0.4)
00133 );
00133     lPrefDepTimeProbDist.
00134     insert (PreferredDepartureTimeContinuousDistribution_T::value_type (19 *
stdair::HOURL_CONVERTED_IN_SECONDS,
00135                                                                    0.80)
00136 );
00136     lPrefDepTimeProbDist.
00137     insert (PreferredDepartureTimeContinuousDistribution_T::value_type (20 *
stdair::HOURL_CONVERTED_IN_SECONDS,
00138                                                                    0.95)
00139 );
00139     lPrefDepTimeProbDist.
00140     insert (PreferredDepartureTimeContinuousDistribution_T::value_type (22 *
stdair::HOURL_CONVERTED_IN_SECONDS,
00141                                                                    1));
00142     //
00143     ValueOfTimeContinuousDistribution_T
00144     lTimeValueProbDist;
00144     lTimeValueProbDist.insert(ValueOfTimeContinuousDistribution_T::value_type(1
5,
00145                                                                    0
00146 ));
00146     lTimeValueProbDist.insert(ValueOfTimeContinuousDistribution_T::value_type(6
0,
00147                                                                    1
00148 ));
00148     //
00149     const stdair::WTP_T lWTP (1000.0);
00150     const stdair::ChangeFeesRatio_T lChangeFees (0.5);
00151     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, lDTPProbDist,
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
00175     ioSEVMGR_ServicePtr->addStatus (stdair::EventType::BKG_REQ,
00176                                     lExpectedTotalNbOfEvents);
00177 }
00178
00179 // //////////////////////////////////////
00180 DemandStream& DemandManager::createDemandStream
00181 (SEVMGR::SEVMGR_ServicePtr_T ioSEVMGR_ServicePtr,
00182  const DemandStreamKey& iKey,
00183  const ArrivalPatternCumulativeDistribution_T
00184  & iArrivalPattern,
00185  const POSProbabilityMassFunction_T& iPOSProbMass
00186  ,
00187  const ChannelProbabilityMassFunction_T&
00188  iChannelProbMass,
00189  const TripTypeProbabilityMassFunction_T&
00190  iTripTypeProbMass,
00191  const StayDurationProbabilityMassFunction_T
00192  & iStayDurationProbMass,
00193  const FrequentFlyerProbabilityMassFunction_T
00194  & iFrequentFlyerProbMass,
00195  const stdair::ChangeFeesRatio_T& iChangeFeeProb,
00196  const stdair::Disutility_T& iChangeFeeDisutility,
00197  const stdair::NonRefundableRatio_T& iNonRefundableProb,
00198  const stdair::Disutility_T& iNonRefundableDisutility,
00199  const PreferredDepartureTimeContinuousDistribution_T
00200  & iPreferredDepartureTimeContinuousDistribution,
00201  const stdair::WTP_T& iMinWTP,
00202  const ValueOfTimeContinuousDistribution_T
00203  & iValueOfTimeContinuousDistribution,
00204  const DemandDistribution& iDemandDistribution,
00205  stdair::BaseGenerator_T& ioSharedGenerator,
00206  const stdair::RandomSeed_T& iRequestDateTimeSeed,
00207  const stdair::RandomSeed_T& iDemandCharacteristicsSeed,
00208  const POSProbabilityMass_T& iDefaultPOSProbabilityMass) {
00209
00210     // Sanity check
00211     assert (ioSEVMGR_ServicePtr != NULL);
00212
00213     //
00214     DemandStream& oDemandStream =
00215         stdair::FacBom<DemandStream>::instance().create (iKey);
00216
00217     oDemandStream.setAll (iArrivalPattern, iPOSProbMass,
00218                           iChannelProbMass, iTripTypeProbMass,
00219                           iStayDurationProbMass, iFrequentFlyerProbMass,
00220                           iChangeFeeProb, iChangeFeeDisutility,
00221                           iNonRefundableProb, iNonRefundableDisutility,
00222                           iPreferredDepartureTimeContinuousDistribution,
00223                           iMinWTP, iValueOfTimeContinuousDistribution,
00224                           iDemandDistribution, ioSharedGenerator,
00225                           iRequestDateTimeSeed, iDemandCharacteristicsSeed,
00226                           iDefaultPOSProbabilityMass);
00227
00228     ioSEVMGR_ServicePtr->addEventGenerator (oDemandStream);
00229
00230     return oDemandStream;
00231 }
00232
00233 // //////////////////////////////////////
00234 void DemandManager::
00235 createDemandCharacteristics (SEVMGR::SEVMGR_ServicePtr_T ioSEVMGR_ServicePtr,
00236                             stdair::RandomGeneration& ioSharedGenerator,
00237                             const POSProbabilityMass_T&
00238                             iPOSProbMass,
00239                             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
00262         // DEBUG
00263         // STDAIR_LOG_DEBUG ("Demand stream key: " <<
00264             lDemandStreamKey.describe());
00265
00266         //
00267         const DemandDistribution lDemandDistribution (iDemand._demandMean,
00268                                                      iDemand._demandStdDev);
00269
00270         // Seed
00271         const stdair::RandomSeed_T& lRequestDateTimeSeed =
00272             generateSeed (ioSharedGenerator);
00273         const stdair::RandomSeed_T& lDemandCharacteristicsSeed =
00274             generateSeed (ioSharedGenerator);
00275
00276         // Delegate the call to the dedicated command
00277         DemandStream& lDemandStream =
00278             createDemandStream (ioSEVMGR_ServicePtr, lDemandStreamKey,
00279                               iDemand._dtdProbDist, iDemand._posProbDist,
00280                               iDemand._channelProbDist,
00281                               iDemand._tripProbDist,
00282                               iDemand._stayProbDist, iDemand._ffProbDist,
00283                               iDemand._changeFeeProb,
00284                               iDemand._changeFeeDisutility,
00285                               iDemand._nonRefundableProb,
00286                               iDemand._nonRefundableDisutility,
00287                               iDemand._prefDepTimeProbDist,
00288                               iDemand._minWTP,
00289                               iDemand._timeValueProbDist,
00290                               lDemandDistribution, lSharedGenerator,
00291                               lRequestDateTimeSeed,
00292                               lDemandCharacteristicsSeed,
00293                               iPOSProbMass);
00294
00295         // Calculate the expected total number of events for the current
00296         // demand stream
00297         const stdair::NbOfRequests_T& lExpectedTotalNbOfEvents =
00298             lDemandStream.getMeanNumberOfRequests();
00299
00300         ioSEVMGR_ServicePtr->addStatus (stdair::EventType::BKG_REQ,
00301                                         lExpectedTotalNbOfEvents);
00302     }
00303 }
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 );
00314     return oSeed;
00315 }
00316
00317 // //////////////////////////////////////
00318 const bool DemandManager::
00319 stillHavingRequestsToBeGenerated (SEVMGR::SEVMGR_ServicePtr_T
00320 ioSEVMGR_ServicePtr,
00321                                const stdair::DemandStreamKeyStr_T& iKey,
00322                                stdair::ProgressStatusSet& ioPSS,
00323                                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& lPreferredDepartureDate =
00364         lBookingRequest->getPreferredDepartureDate();
00365     const stdair::Duration_T& lPreferredDepartureTime =
00366         lBookingRequest->getPreferredDepartureTime();
00367
00368     if ((lPreferredDepartureDate > lBookingRequestDate) ||
00369         (lPreferredDepartureDate == lBookingRequestDate &&
00370          lPreferredDepartureTime > lBookingRequestTime)) {
00371
00372         // Create an event structure
00373         stdair::EventStruct lEventStruct (stdair::EventType::BKG_REQ,
00374                                           lBookingRequest);
00375
00376         ioSEVMGR_ServicePtr->addEvent (lEventStruct);
00377
00378     } else {
00379
00380         // Update the expected number of eventss for the given event type (i.e.,
00381         // booking request)
00382         stdair::Count_T lCurrentBRNumber =
00383             ioSEVMGR_ServicePtr->getActualTotalNumberOfEventsToBeGenerated (
stdair::EventType::BKG_REQ);
00384         lCurrentBRNumber--;
00385         ioSEVMGR_ServicePtr->updateStatus (stdair::EventType::BKG_REQ,
lCurrentBRNumber);
00386
00387     }
00388
00389     return lBookingRequest;
00390 }
00391
00392 // //////////////////////////////////////
00393 stdair::Count_T DemandManager::
00394 generateFirstRequests (SEVMGR::SEVMGR_ServicePtr_T ioSEVMGR_ServicePtr,
00395                      stdair::RandomGeneration& ioGenerator,
00396                      const stdair::DemandGenerationMethod&
iDemandGenerationMethod) {
00397     // Sanity check
00398     assert (ioSEVMGR_ServicePtr != NULL);
00399
00400     // 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 (
00434                 iDemandGenerationMethod);
00435
00436         if (stillHavingRequestsToBeGenerated) {
00437             // Generate the next event (booking request), and insert it
00438             // into the event queue
00439             generateNextRequest (ioSEVMGR_ServicePtr, ioGenerator,
00440                                 lKey.toString(),
00441                                 iDemandGenerationMethod);
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     //
00454     return oTotalNbOfEvents;
00455 }
00456
00457 // //////////////////////////////////////
00458 void DemandManager::reset (SEVMGR::SEVMGR_ServicePtr_T ioSEVMGR_ServicePtr,
00459     stdair::BaseGenerator_T& ioShareGenerator) {
00460     // Sanity check
00461     assert (ioSEVMGR_ServicePtr != NULL);
00462
00463     // TODO: check whether it is really necessary to destroy the
00464     // objects manually. Indeed, FacSupervisor::cleanAll() should
00465     // destroy any BOM object.
00466
00467     // Reset all the DemandStream objects
00468     const DemandStreamList_T& lDemandStreamList =
00469         ioSEVMGR_ServicePtr->getEventGeneratorList<DemandStream>();
00470     for (DemandStreamList_T::const_iterator itDS = lDemandStreamList.begin();
00471         itDS != lDemandStreamList.end(); ++itDS) {
00472         DemandStream* lCurrentDS_ptr = *itDS;
00473         assert (lCurrentDS_ptr != NULL);
00474
00475         lCurrentDS_ptr->reset (ioShareGenerator);
00476     }
00477
00478     ioSEVMGR_ServicePtr->reset();
00479 }
00480
00481 // //////////////////////////////////////
00482 bool DemandManager::
00483 generateCancellation (stdair::RandomGeneration& ioGenerator,
00484     const stdair::TravelSolutionStruct& iTravelSolution,
00485     const stdair::PartySize_T& iPartySize,
00486     const stdair::DateTime_T& iRequestTime,
00487     const stdair::Date_T& iDepartureDate,
00488     stdair::EventStruct& ioEventStruct) {
00489
00490     // Draw a random number to decide if we generate a
00491     // cancellation. For instance, the probability will be hardcoded.
00492     // The cancellation time will be generated uniformly.
00493     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     // Create the cancellation.
00568     stdair::CancellationStruct lCancellationStruct (lSegmentPath,
00569         lClassIDList,
00570         iPartySize,
00571         lCancellationTime);
00572
00573     stdair::CancellationPtr_T lCancellation_ptr =
00574         boost::make_shared<stdair::CancellationStruct> (lCancellationStruct);
00575
00576     // Create an event structure
00577     stdair::EventStruct lEventStruct (stdair::EventType::CX, lCancellation_ptr)
;
00578
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 {
00590     // Sanity check
00591     assert (ioSEVMGR_ServicePtr != NULL);
00592     //
00593     ArrivalPatternCumulativeDistribution_T
00594     lDTDProbDist;
00595     lDTDProbDist.insert (ArrivalPatternCumulativeDistribution_T::value_type (-330
00596     ,
00597     0));
00598     lDTDProbDist.insert (ArrivalPatternCumulativeDistribution_T::value_type (-150
00599     ,
00600     0.1)
00601     );
00602     lDTDProbDist.insert (ArrivalPatternCumulativeDistribution_T::value_type (-92,
00603     0.2)
00604     );
00605     lDTDProbDist.insert (ArrivalPatternCumulativeDistribution_T::value_type (-55,
00606     0.3)
00607     );
00608     lDTDProbDist.insert (ArrivalPatternCumulativeDistribution_T::value_type (-34,
00609     0.4)
00610     );
00611     lDTDProbDist.insert (ArrivalPatternCumulativeDistribution_T::value_type (-21,
00612     0.5)
00613     );
00614     lDTDProbDist.insert (ArrivalPatternCumulativeDistribution_T::value_type (-12,
00615     0.6)
00616     );
00617     lDTDProbDist.insert (ArrivalPatternCumulativeDistribution_T::value_type (-6,
00618     0.7)
00619     );
00620     lDTDProbDist.insert (ArrivalPatternCumulativeDistribution_T::value_type (-3,
00621     0.8)
00622     );
00623     lDTDProbDist.insert (ArrivalPatternCumulativeDistribution_T::value_type (-1,
00624     0.9)
00625     );
00626     lDTDProbDist.insert (ArrivalPatternCumulativeDistribution_T::value_type (0,
00627     1.0)
00628     );
00629     //
00630     ChannelProbabilityMassFunction_T
00631     lChannelProbDist;
00632     lChannelProbDist.insert (ChannelProbabilityMassFunction_T::value_type ("DF"
00633     ,
00634     0.0)
00635     );
00636     lChannelProbDist.insert (ChannelProbabilityMassFunction_T::value_type ("DN"
00637     ,
00638     0.0)
00639     );
00640     lChannelProbDist.insert (ChannelProbabilityMassFunction_T::value_type ("IF"
00641     ,
00642     0.0)
00643     );
00644     lChannelProbDist.insert (ChannelProbabilityMassFunction_T::value_type ("IN"
00645     ,
00646     1.0)
00647     );
00648     //
00649     TripTypeProbabilityMassFunction_T
00650     lTripProbDist;
00651     lTripProbDist.insert (TripTypeProbabilityMassFunction_T::value_type ("RO",
00652     0.0));
00653     lTripProbDist.insert (TripTypeProbabilityMassFunction_T::value_type ("RI",
00654     0.0));
00655     lTripProbDist.insert (TripTypeProbabilityMassFunction_T::value_type ("OW",
00656     1.0));
00657     //
00658     StayDurationProbabilityMassFunction_T
00659     lStayProbDist;
00660     lStayProbDist.insert (StayDurationProbabilityMassFunction_T::value_type (0,
00661     0.1)
00662     );
00663     lStayProbDist.insert (StayDurationProbabilityMassFunction_T::value_type (1,
00664     0.1)
00665     );

```

```

00643     lStayProbDist.insert(StayDurationProbabilityMassFunction_T::value_type(2,
00644                                     .15)
00645 );
00645     lStayProbDist.insert(StayDurationProbabilityMassFunction_T::value_type(3,
00646                                     .15)
00647 );
00647     lStayProbDist.insert(StayDurationProbabilityMassFunction_T::value_type(4,
00648                                     .15)
00649 );
00649     lStayProbDist.insert(StayDurationProbabilityMassFunction_T::value_type(5,
00650                                     .35)
00651 );
00651
00652     //
00653     FrequentFlyerProbabilityMassFunction_T
00654     lFFProbDist;
00654     lFFProbDist.insert(FrequentFlyerProbabilityMassFunction_T::value_type("P",
00655                                     0.1)
00656 );
00656     lFFProbDist.insert(FrequentFlyerProbabilityMassFunction_T::value_type("G",
00657                                     0.01)
00658 );
00658     lFFProbDist.insert(FrequentFlyerProbabilityMassFunction_T::value_type("S",
00659                                     0.09)
00660 );
00660     lFFProbDist.insert(FrequentFlyerProbabilityMassFunction_T::value_type("M",
00661                                     0.4)
00662 );
00662     lFFProbDist.insert(FrequentFlyerProbabilityMassFunction_T::value_type("N",
00663                                     0.4)
00664 );
00664
00665     //
00666     ValueOfTimeContinuousDistribution_T
00667     lTimeValueProbDist;
00667     lTimeValueProbDist.insert(ValueOfTimeContinuousDistribution_T::value_type(1
00668                                     5,
00669                                     0
00670 ));
00669     lTimeValueProbDist.insert(ValueOfTimeContinuousDistribution_T::value_type(6
00670                                     0,
00671                                     1
00672 ));
00671
00672     /*
00673     =====*/
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,
00682     lDepDate,
00683                                     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,
00691     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 ;
00701     lSINBKKPOSProbDist.insert (POSProbabilityMassFunction_T::value_type ("SIN",
00702     1.0));
00702     lSINBKKPOSProbDist.insert (POSProbabilityMassFunction_T::value_type ("BKK",
00703     0.0));
00703
00704     //
00705     PreferredDepartureTimeContinuousDistribution_T
00706     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,
lDTPDProbDist,
00732                         lSINBKKPOSProbDist, lChannelProbDist, lTripProbDist,
00733                         lStayProbDist, lFFPProbDist,
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 =
generateSeed (ioSharedGenerator);
00768     const stdair::RandomSeed_T& lBKKHKGDemandCharacteristicsSeed =
generateSeed (ioSharedGenerator);
00769
00770
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
00780     lBKKPrefDepTimeProbDist;
00781     insert (PreferredDepartureTimeContinuousDistribution_T::value_type (8 *
stdair::HOURL_CONVERTED_IN_SECONDS, 0));
00782     lBKKPrefDepTimeProbDist;
00783     insert (PreferredDepartureTimeContinuousDistribution_T::value_type (10 *
stdair::HOURL_CONVERTED_IN_SECONDS,
00784                                     0.2))
;
00785     lBKKPrefDepTimeProbDist;
00786     insert (PreferredDepartureTimeContinuousDistribution_T::value_type (1 *
stdair::HOURL_CONVERTED_IN_SECONDS,
00787                                     0.6))
;
00788     lBKKPrefDepTimeProbDist;
00789     insert (PreferredDepartureTimeContinuousDistribution_T::value_type (14 *
stdair::HOURL_CONVERTED_IN_SECONDS,
00790                                     0.8))
;
00791     lBKKPrefDepTimeProbDist;
00792     insert (PreferredDepartureTimeContinuousDistribution_T::value_type (16 *
stdair::HOURL_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,
lDTPDProbDist,
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,
00853         lDTPProbDist,
00854         lSINHKGPOSPProbDist, lChannelProbDist, lTripProbDist,
00855         lStayProbDist, lFFPProbDist,
00856         lChangeFees, lChangeFeeDisutility,
00857         lNonRefundable, lNonRefundableDisutility,
00858         lSINPrefDepTimeProbDist,
00859         lSINHKGWTP, lTimeValueProbDist,
00860         lSINHKGDemandDistribution,
00861         ioSharedGenerator.getBaseGenerator(),
00862         lSINHKGRequestDateTimeSeed,
00863         lSINHKGDemandCharacteristicsSeed, iPOSProbMass);
00864
00865 // Calculate the expected total number of events for the current
00866 // demand stream
00867 const stdair::NbOfRequests_T& lSINHKGExpectedNbOfEvents =
00868     lSINHKGDemandStream.getMeanNumberOfRequests();
00869
00870 /*
00871 =====*/
00872 const stdair::NbOfRequests_T lExpectedTotalNbOfEvents =
00873     lSINBKKExpectedNbOfEvents + lBKKHKGExpectedNbOfEvents +
00874     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 >
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     // Forward declarations
00029     struct DemandDistribution;
00030     struct DemandStruct;
00031     class DemandStream;
00032     namespace DemandParserHelper {
00033         struct doEndDemand;
00034     }
00035
00036     class DemandManager : public stdair::CmdAbstract {
00037     friend struct DemandParserHelper::doEndDemand
00038     ;
00039     friend class TRADEMGEN_Service;
00040
00041 private:
00042     // ////////// Business methodes //////////
00043     static void buildSampleBomStd (SEVMGR::SEVMGR_ServicePtr_T,
00044                                     stdair::RandomGeneration&,
00045                                     const POSProbabilityMass_T
00046                                     &);
00047
00048     // Demand sample bom for partnerships study.
00049     static void buildSampleBom (SEVMGR::SEVMGR_ServicePtr_T,
00050                                     stdair::RandomGeneration&,
00051                                     const POSProbabilityMass_T&
00052                                     );
00053
00054     static void createDemandCharacteristics (SEVMGR::SEVMGR_ServicePtr_T,
00055                                             stdair::RandomGeneration&,
00056                                             const POSProbabilityMass_T
00057                                             &,
00058                                             const DemandStruct&);
00059
00060     static stdair::RandomSeed_T generateSeed (stdair::RandomGeneration&);
00061
00062     static DemandStream&
00063     createDemandStream (SEVMGR::SEVMGR_ServicePtr_T,
00064                         const DemandStreamKey&,
00065                         const ArrivalPatternCumulativeDistribution_T
00066                         &,
00067                         const POSProbabilityMassFunction_T
00068                         &,
00069                         const ChannelProbabilityMassFunction_T
00070                         &,
00071                         const TripTypeProbabilityMassFunction_T
00072                         &,
00073                         const StayDurationProbabilityMassFunction_T
00074                         &,
00075                         const FrequentFlyerProbabilityMassFunction_T
00076                         &,
00077                         const stdair::ChangeFeesRatio_T&,
00078                         const stdair::Disutility_T&,
00079                         const stdair::NonRefundableRatio_T&,
00080                         const stdair::Disutility_T&,
00081                         const PreferredDepartureTimeContinuousDistribution_T
00082                         &,
00083                         const stdair::WTP_T&,
00084                         const ValueOfTimeContinuousDistribution_T
00085                         &,
00086                         const DemandDistribution&,
00087                         stdair::BaseGenerator_T&,
00088                         const stdair::RandomSeed_T&,
00089                         const stdair::RandomSeed_T&,
00090                         const POSProbabilityMass_T&);
00091
00092 }

```

```

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 >
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&
iDefaultPOSProbabilityMass) {
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 >
00012 //define BOOST_SPIRIT_DEBUG
00013 #include <trademgen/command/DemandParserHelper.hpp>
00014 >
00014 #include <trademgen/command/DemandManager.hpp>
00015 >
00015 namespace bsc = boost::spirit::classic;
00016
00017 namespace TRADEMGEN {
00018     namespace DemandParserHelper {
00019         ///////////////////////////////////////////////////////////////////////////////////////////////////////////////////
00020         // Semantic actions
00021         ///////////////////////////////////////////////////////////////////////////////////////////////////////////////////
00022         ParserSemanticAction::ParserSemanticAction
00023         (DemandStruct& ioDemand)
00024         : _demand (ioDemand) {
00025         }
00026         ///////////////////////////////////////////////////////////////////////////////////////////////////////////////////
00027         storePrefDepDateRangeStart::
00028         storePrefDepDateRangeStart (DemandStruct
00029         & ioDemand)
00030         : ParserSemanticAction (ioDemand) {
00031         }
00032         ///////////////////////////////////////////////////////////////////////////////////////////////////////////////////
00033         void storePrefDepDateRangeStart::operator()
00034         (iterator_t iStr,
00035          iterator_t iStrEnd) const {
00036             _demand._prefDepDateStart = _demand.
00037             getDate();
00038             // Reset the number of seconds
00039             _demand._itSeconds = 0;
00040         }
00041         ///////////////////////////////////////////////////////////////////////////////////////////////////////////////////
00042         storePrefDepDateRangeEnd::
00043         storePrefDepDateRangeEnd (DemandStruct
00044         & ioDemand)
00045         : ParserSemanticAction (ioDemand) {
00046         }
00047         ///////////////////////////////////////////////////////////////////////////////////////////////////////////////////
00048         void storePrefDepDateRangeEnd::operator()
00049         (iterator_t iStr,
00050          iterator_t iStrEnd) const {
00051             // As a Boost date period (DatePeriod_T) defines the last day of
00052             // the period to be end-date - one day, we have to add one day to that
00053             // end date before.
00054             const stdair::DateOffset_T oneDay (1);
00055             _demand._prefDepDateEnd = _demand.getDate
00056             () + oneDay;
00057             // Transform the date pair (i.e., the date range) into a date period
00058             _demand._dateRange =
00059             stdair::DatePeriod_T (_demand._prefDepDateStart
00060             ,
00061             _demand._prefDepDateEnd);
00062             // Reset the number of seconds
00063             _demand._itSeconds = 0;
00064         }
00065         ///////////////////////////////////////////////////////////////////////////////////////////////////////////////////
00066         storeDow::storeDow (DemandStruct& ioDemand)
00067         : ParserSemanticAction (ioDemand) {
00068         }
00069         ///////////////////////////////////////////////////////////////////////////////////////////////////////////////////

```

```

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     //STDAIR_LOG_DEBUG ("PosProbMass: " << iReal);
00215 }
00216
00217 // //////////////////////////////////////
00218 storeChannelCode::storeChannelCode (
DemandStruct& ioDemand)
00219 : ParserSemanticAction (ioDemand) {
00220 }
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 storeChannelProbMass::storeChannelProbMass
00231 (DemandStruct& ioDemand)
00232 : ParserSemanticAction (ioDemand) {
00233 }
00234 ///////////////////////////////////////////////////////////////////
00235 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     //STDAIR_LOG_DEBUG ("ChannelProbMass: " << iReal);
00250 }
00251 ///////////////////////////////////////////////////////////////////
00252 storeTripCode::storeTripCode (DemandStruct
& ioDemand)
00253 : ParserSemanticAction (ioDemand) {
00254 }
00255 ///////////////////////////////////////////////////////////////////
00256 void storeTripCode::operator() (iterator_t
iStr,
00257                                     iterator_t iStrEnd) const {
00258     _demand._itTripCode = std::string (iStr, iStrEnd);
00259     //STDAIR_LOG_DEBUG ("Trip code: " << _demand._itTripCode);
00260 }
00261 ///////////////////////////////////////////////////////////////////
00262 storeTripProbMass::storeTripProbMass (
DemandStruct& ioDemand)
00263 : ParserSemanticAction (ioDemand) {
00264 }
00265 ///////////////////////////////////////////////////////////////////
00266 void storeTripProbMass::operator() (double
iReal) const {
00267     const bool hasInsertBeenSuccessfull =
00268         _demand._tripProbDist.
00269         insert (TripTypeProbabilityMassFunction_T
::
00270             value_type (_demand._itTripCode, iReal)).
second;
00271     if (hasInsertBeenSuccessfull == false) {
00272         STDAIR_LOG_ERROR ("The same trip type code ("
00273             << _demand._itTripCode
00274             << "') has probably been given twice");
00275         throw stdair::CodeDuplicationException ("The same trip type code ("
00276             + _demand._itTripCode
00277             + "') has probably been given
twice");
00278     }
00279     //STDAIR_LOG_DEBUG ("TripProbMass: " << iReal);
00280 }
00281 ///////////////////////////////////////////////////////////////////
00282 storeStayCode::storeStayCode (DemandStruct
& ioDemand)
00283 : ParserSemanticAction (ioDemand) {
00284 }
00285 ///////////////////////////////////////////////////////////////////
00286 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     // STDAIR_LOG_DEBUG ("StayProbMass: " << iReal);
00319 }
00320
00321 // //////////////////////////////////////
00322 storeFFCode::storeFFCode (DemandStruct&
ioDemand)
00323 : ParserSemanticAction (ioDemand) {
00324 }
00325
00326 // //////////////////////////////////////
00327 void storeFFCode::operator() (iterator_t
iStr, iterator_t iStrEnd) const {
00328     _demand._itFFCode = std::string (iStr, iStrEnd);
00329     //STDAIR_LOG_DEBUG ("FF code: " << _demand._itFFCode);
00330 }
00331
00332 // //////////////////////////////////////
00333 storeFFProbMass::storeFFProbMass (
DemandStruct& ioDemand)
00334 : ParserSemanticAction (ioDemand) {
00335 }
00336
00337 // //////////////////////////////////////
00338 void storeFFProbMass::operator() (double iReal)
const {
00339     const bool hasInsertBeenSuccessfull =
00340         _demand._ffProbDist.
00341         insert (FrequentFlyerProbabilityMassFunction_T
::
00342             value_type (_demand._itFFCode, iReal)).second;
00343     if (hasInsertBeenSuccessfull == false) {
00344         STDAIR_LOG_ERROR ("The same Frequent Flyer code ('"
00345             << _demand._itFFCode
00346             << "') has probably been given twice");
00347         throw stdair::CodeDuplicationException("The same Frequent Flyer code ('"
00348             + _demand._itFFCode
00349             + "') has probably been given
00350             twice");
00351     }
00352     //STDAIR_LOG_DEBUG ("FfProbMass: " << iReal);
00353 }
00354
00355 // //////////////////////////////////////
00356 storePrefDepTime::storePrefDepTime (
DemandStruct& ioDemand)
00357 : ParserSemanticAction (ioDemand) {
00358 }
00359
00360 // //////////////////////////////////////
00361 void storePrefDepTime::operator() (iterator_t
iStr,
00362     iterator_t iStrEnd) const {
00363     _demand._itPrefDepTime = _demand.getTime
00364     ();
00365     // 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 storeDTProbMass::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 ("DTProbMass: " << 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 intl_p_t intl_p;
00498
00499 uint2_p_t uint2_p;
00500
00501 uint1_2_p_t uint1_2_p;
00502
00503 uint1_3_p_t uint1_3_p;
00504
00505 uint4_p_t uint4_p;
00506
00507 uint1_4_p_t uint1_4_p;
00508
00509 repeat_p_t airline_code_p (chset_t("0-9A-Z")
.derived(), 2, 3);
00510
00511 bounded1_4_p_t flight_number_p (uint1_4_p
.derived(), 0u, 9999u);
00512
00513 bounded4_p_t year_p (uint4_p.derived(), 2000u,
2099u);
00514
00515 bounded2_p_t month_p (uint2_p.derived(), 1u, 12u)
;
00516
00517 bounded2_p_t day_p (uint2_p.derived(), 1u, 31u);
00518
00519 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.
00724             _demand) ]
00725         >> ':' >> (bsc::ureal_p) [storeDemandChangeFeeDisutility
00726             (self._demand) ]
00727     ;
00728
00729     non_refundable =
00730         (bsc::ureal_p) [storeDemandNonRefundableProb
00731             (self._demand) ]
00732         >> ':' >> (bsc::ureal_p) [storeDemandNonRefundableDisutility
00733             (self._demand) ]
00734     ;
00735
00736     pref_dep_time_dist =
00737         pref_dep_time_pair >> * ( ',' >> pref_dep_time_pair )
00738     ;
00739
00740     pref_dep_time_pair =
00741         (time) [storePrefDepTime (self._demand) ]
00742         >> ':' >> pref_dep_time_share
00743     ;
00744
00745     pref_dep_time_share =
00746         (bsc::ureal_p) [storePrefDepTimeProbMass (self.
00747             _demand) ]
00748     ;
00749
00750     time =
00751         bsc::lexeme_d[
00752             (hours_p) [bsc::assign_a (self._demand._itHours) ]
00753             >> !('.' >> (minutes_p) [bsc::assign_a (self._demand._itMinutes) ]
00754             >> !('.' >> (seconds_p) [bsc::assign_a (self._demand._itSeconds) ]
00755             )
00756     ]
00757     ;
00758
00759     wtp =
00760         (bsc::ureal_p) [storeWTP (self._demand) ]
00761     ;
00762
00763     time_value_dist =
00764         time_value_pair >> * ( ',' >> time_value_pair )
00765     ;
00766
00767     time_value_pair =
00768         (bsc::ureal_p) [storeTimeValue (self._demand) ]
00769         >> ':' >> time_value_share
00770     ;
00771
00772     time_value_share =
00773         (bsc::ureal_p) [storeTimeValueProbMass (self.
00774             _demand) ]
00775     ;
00776
00777     dtd_dist =
00778         dtd_pair >> * ( ',' >> dtd_pair )
00779     ;
00780
00781     dtd_pair =
00782         (bsc::ureal_p) [storeDTD (self._demand) ]
00783         >> ':' >> dtd_share
00784     ;
00785
00786     dtd_share =
00787         (bsc::ureal_p) [storeDTPProbMass (self._demand) ]
00788     ;

```

```

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
00840 () const {
00841     return demand_list;
00842 }
00843 }
00844
00845 //
00846 // Entry class for the file parser
00847 //
00851 // //////////////////////////////////////
00852 DemandFileParser::
00853 DemandFileParser (SEVMGR::SEVMGR_ServicePtr_T
00854 ioSEVMGR_ServicePtr,
00855                 stdair::RandomGeneration& ioSharedGenerator,
00856                 const POSProbabilityMass_T&
00857 iPOSProbMass,
00858                 const std::string& iFilename)
00859 : _filename (iFilename),
00860   _sevmgrServicePtr (ioSEVMGR_ServicePtr),
00861   _uniformGenerator (ioSharedGenerator),
00862   _posProbabilityMass (iPOSProbMass) {
00863     init();
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
00888     throw DemandInputFileNotFoundException ("The demand file " + _filename
00889         + " does not exist or can not "
00890         + "be read");
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     } else {
00926         std::ostringstream oStr;
00927         oStr << "Parsing of demand input file: " << _filename << " failed: read "
00928             << info.length << " characters. The input file has "
00929             << hasBeenFullyReadStr << "been fully read. Stop point: "
00930             << info.stop;
00931         STDAIR_LOG_ERROR (oStr.str());
00932         throw stdair::ParserException (oStr.str());
00933     }
00934
00935     return oResult;
00936 }
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     namespace DemandParserHelper {
00025
00026         // //////////////////////////////////////
00027         // Semantic actions
00028         // //////////////////////////////////////
00029
00031         struct ParserSemanticAction {
00033             ParserSemanticAction (DemandStruct&);
00035             DemandStruct& _demand;
00036         };
00037
00039         struct storePrefDepDateRangeStart : public
00041 ParserSemanticAction {
00043             storePrefDepDateRangeStart (DemandStruct
00045 &);
00047             void operator() (iterator_t iStr, iterator_t
00049 iStrEnd) const;
00051             };
00053
00055         struct storePrefDepDateRangeEnd : public
00057 ParserSemanticAction {
00059             storePrefDepDateRangeEnd (DemandStruct
00061 &);
00063             void operator() (iterator_t iStr, iterator_t
00065 iStrEnd) const;
00067             };
00069
00071         struct storeDow : public ParserSemanticAction {
00073             storeDow (DemandStruct&);
00075             void operator() (iterator_t iStr, iterator_t
00077 iStrEnd) const;
00079             };
00081
00083         struct storeOrigin : public ParserSemanticAction
00085 {
00087             storeOrigin (DemandStruct&);
00089             void operator() (iterator_t iStr, iterator_t
00091 iStrEnd) const;
00093             };
00095
00097         struct storeDestination : public ParserSemanticAction
00099 {
00101             storeDestination (DemandStruct&);
00103             void operator() (iterator_t iStr, iterator_t
00105 iStrEnd) const;
00107             };
00109
00111         struct storePrefCabin : public ParserSemanticAction
00113 {
00115             storePrefCabin (DemandStruct&);
00117             void operator() (iterator_t iStr, iterator_t
00119 iStrEnd) const;
00121             };
00123
00125         struct storeDemandMean : public ParserSemanticAction
00127 {
00129             storeDemandMean (DemandStruct&);
00131             void operator() (double iReal) const;
00133             };
00135
00137         struct storeDemandStdDev : public ParserSemanticAction
00139 {

```

```

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
00400     , channel_share,
        trip_dist, trip_pair, trip_code,
00401     trip_share,
        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 // 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     }
```

```

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     () {
00019         _instance = NULL;
00020     }
00021
00022     // //////////////////////////////////////
00023     FacTRADEMGENServiceContext&
00024     FacTRADEMGENServiceContext::instance() {
00025
00026         if (_instance == NULL) {
00027             _instance = new FacTRADEMGENServiceContext();
00028             assert (_instance != NULL);
00029
00030             stdair::FacSupervisor::instance().
00031             registerServiceFactory (_instance);
00032         }
00033         return *_instance;
00034     }
00035
00036     // //////////////////////////////////////
00037     TRADEMGEN_ServiceContext&
00038     FacTRADEMGENServiceContext::
00039     create (const stdair::RandomSeed_T& iRandomSeed) {
00040         TRADEMGEN_ServiceContext* aServiceContext_ptr =
00041         NULL;
00042
00043         aServiceContext_ptr = new TRADEMGEN_ServiceContext
00044         (iRandomSeed);
00045         assert (aServiceContext_ptr != NULL);
00046
00047         // The new object is added to the Bom pool
00048         _pool.push_back (aServiceContext_ptr);
00049
00050         return *aServiceContext_ptr;
00051     }
00052 }

```

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](#) (libpytrademngen)

23.101.1 Typedef Documentation

23.101.1.1 typedef unsigned int [NbOfRuns_T](#)

Definition at line [31](#) of file [pytrademngen.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 [pytrademngen.cpp](#).

23.101.2 Function Documentation

23.101.2.1 [BOOST_PYTHON_MODULE](#) ([libpytrademngen](#))

Definition at line [355](#) of file [pytrademngen.cpp](#).

References [TRADEMGEN::Trademgener::init\(\)](#), and [TRADEMGEN::Trademgener::trademngen\(\)](#).

23.102 pytrademngen.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 <trademngen/TRADEMGEN_Service.hpp>
00025 #include <trademngen/config/trademngen-paths.hpp>
00026 >
00027 // Aliases for namespaces
00028 namespace ba = boost::accumulators;
00029
00030 // ////////// Specific type definitions //////////
00031 typedef unsigned int NbOfRuns_T;
00032
00033 typedef ba::accumulator_set<double,
00034                             ba::stats<ba::tag::min, ba::tag::max,
00035                                         ba::tag::mean (ba::immediate),
00036                                         ba::tag::sum,
00037                                         ba::tag::variance> > stat_acc_type
00038 ;
00039
00040 namespace TRADEMGEN {
00041
00042 void stat_display (std::ostream& oStream, const stat_acc_type
00043 & iStatAcc) {
00044     // Store current formatting flags of the output stream
00045     std::ios::fmtflags oldFlags = oStream.flags();
00046
00047     //
00048     oStream.setf (std::ios::fixed);
00049
00050     //
00051     oStream << "Statistics for the demand generation runs: " << std::endl;
00052     oStream << " minimum   = " << ba::min (iStatAcc) << std::endl;
00053     oStream << " mean      = " << ba::mean (iStatAcc) << std::endl;
00054     oStream << " maximum   = " << ba::max (iStatAcc) << std::endl;
00055     oStream << " count     = " << ba::count (iStatAcc) << std::endl;
00056     oStream << " variance  = " << ba::variance (iStatAcc) << std::endl;
00057
00058     // Reset formatting flags of output stream
00059     oStream.flags (oldFlags);
00060 }
00061
00062 struct Trademgener {
00063 public:
00064     std::string
00065     trademngen (const NbOfRuns_T& iNbOfRuns,
00066                 const std::string& iDemandGenerationMethodString) {
00067         std::ostringstream oStream;
00068
00069         // Convert the input string into a demand generation method enumeration
00070         const stdair::DemandGenerationMethod
00071             iDemandGenerationMethod (iDemandGenerationMethodString);
00072
00073         // Sanity check
00074         if (_logOutputStream == NULL) {
00075             oStream << "The log filepath is not valid." << std::endl;
00076             return oStream.str();
00077         }
00078         assert (_logOutputStream != NULL);
00079
00080         try {
00081             // DEBUG
00082             *_logOutputStream << "Demand generation for " << iNbOfRuns << " runs, "
00083                 << "with the following method: "
00084                 << iDemandGenerationMethod << std::endl;
00085
00086             if (_trademngenService == NULL) {
00087                 oStream << "The TraDemGen service has not been initialised, "
00088                     << "i.e., the init() method has not been called "
00089                     << "correctly on the Trademgener object. Please "
00090                     << "check that all the parameters are not empty and "
00091                     << "point to actual files.";
00092                 *_logOutputStream << oStream.str();
00093                 return oStream.str();
00094             }
00095             assert (_trademngenService != NULL);
00096         }
00097     }
00098 };

```

```

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
00118     // Initialise the (Boost) progress display object
00119     boost::progress_display
00120         lProgressDisplay (lExpectedNbOfEventsToBeGenerated * iNbOfRuns);
00121
00122     for (NbOfRuns_T runIdx = 1; runIdx <= iNbOfRuns; ++runIdx) {
00123         // //////////////////////////////////////
00124         *_logOutputStream << "Run number: " << runIdx << std::endl;
00125
00126         const stdair::Count_T& lActualNbOfEventsToBeGenerated =
00127             _trademgenService->generateFirstRequests (
00128                 iDemandGenerationMethod);
00129
00130         // DEBUG
00131         *_logOutputStream << "[" << runIdx << "] Expected: "
00132             << lExpectedNbOfEventsToBeGenerated << ", actual: "
00133             << lActualNbOfEventsToBeGenerated << std::endl;
00134
00135         while (_trademgenService->isQueueDone() == false) {
00136
00137             // Extract the next event from the event queue
00138             stdair::EventStruct lEventStruct;
00139             stdair::ProgressStatusSet lProgressStatusSet =
00140                 _trademgenService->popEvent (lEventStruct);
00141
00142             // DEBUG
00143             // STDAIR_LOG_DEBUG ("[" << runIdx << "] Popped event: '"
00144                 << lEventStruct.describe() << "'.");
00145
00146             // Extract the corresponding demand/booking request
00147             const stdair::BookingRequestStruct& lPoppedRequest =
00148                 lEventStruct.getBookingRequest();
00149
00150             // DEBUG
00151             *_logOutputStream << "[" << runIdx << "] Popped booking request: '"
00152                 << lPoppedRequest.describe() << "'." << std::endl;
00153
00154             // Dump the request into the dedicated CSV file
00155             // stdair::BomDisplay::csvDisplay (output, lPoppedRequest);
00156
00157             // Retrieve the corresponding demand stream key
00158             const stdair::DemandGeneratorKey_T& lDemandStreamKey =
00159                 lPoppedRequest.getDemandGeneratorKey();
00160
00161             // Assess whether more events should be generated for that
00162             // demand stream
00163             const bool stillHavingRequestsToBeGenerated = _trademgenService->
00164                 stillHavingRequestsToBeGenerated (lDemandStreamKey,
00165                     lProgressStatusSet,
00166                     iDemandGenerationMethod);
00167
00168             // DEBUG
00169             *_logOutputStream << lProgressStatusSet.describe() << std::endl;
00170             *_logOutputStream << "> [" << lDemandStreamKey
00171                 << "] is now processed. Still generate events "
00172                 << "for that demand stream? "
00173                 << stillHavingRequestsToBeGenerated << std::endl;
00174
00175             // If there are still events to be generated for that demand
00176             // stream, generate and add them to the event queue
00177             if (stillHavingRequestsToBeGenerated == true) {
00178                 stdair::BookingRequestPtr_T lNextRequest_ptr =
00179                     _trademgenService->generateNextRequest (
00180                         lDemandStreamKey,
00181                         iDemandGenerationMethod)
00182             ;
00183
00184             assert (lNextRequest_ptr != NULL);
00185
00186             // Sanity check
00187             const stdair::Duration_T lDuration =
00188                 lNextRequest_ptr->getRequestDateTime()
00189                 - lPoppedRequest.getRequestDateTime();
00190             if (lDuration.total_milliseconds() < 0) {
00191                 *_logOutputStream << "[" << lDemandStreamKey
00192                     << "] The date-time of the generated event ("
00193                     << 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 "
00234             << "statistics for the " << iNbOfRuns << " runs."
00235             << std::endl;
00236 std::ostringstream oStatStr;
00237 stat_display (oStatStr, lStatAccumulator);
00238 *_logOutputStream << oStatStr.str() << std::endl;
00239
00240 // DEBUG
00241 const std::string& lBOMStr = _trademgenService->csvDisplay();
00242 *_logOutputStream << lBOMStr << std::endl;
00243
00244 // DEBUG
00245 *_logOutputStream << "TraDemGen output: "
00246             << oStream.str() << std::endl;
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:
00265 Trademgener() : _trademgenService (NULL), _logOutputStream (NULL
00266 ) {
00267 }
00268
00269 Trademgener (const Trademgener& iTrademgener)
00270 : _trademgenService (iTrademgener._trademgenService),
00271   _logOutputStream (iTrademgener._logOutputStream) {
00272 }
00273
00274 ~Trademgener() {
00275     _trademgenService = NULL;
00276     _logOutputStream = NULL;
00277 }
00278
00279 bool init (const std::string& iLogFilePath,
00280           const stdair::RandomSeed_T& iRandomSeed, const bool isBuiltin,
00281           const stdair::Filename_T& iDemandInputFilename) {
00282     bool isEverythingOK = true;
00283
00284     try {
00285         // Check that the file path given as input corresponds to an actual
00286         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,
00314 iRandomSeed);
00315     assert (_trademgenService != NULL);
00316
00317     // Check whether or not a (CSV) input file should be read
00318     if (isBuiltin == true) {
00319         // Create a sample DemandStream object, and insert it within
00320         // the BOM tree
00321         _trademgenService->buildSampleBom();
00322     } else {
00323         // Create the DemandStream objects, and insert them within
00324         // the BOM tree
00325         const DemandFilePath lDemandFilePath (
00326 iDemandInputFilename);
00327         _trademgenService->parseAndLoad (lDemandFilePath);
00328     }
00329
00330     // DEBUG
00331     *_logOutputStream << "Python wrapper initialised" << std::endl;
00332
00333     } catch (const stdair::RootException& eTrademgenError) {
00334         *_logOutputStream << "Trademgen error: " << eTrademgenError.what()
00335             << std::endl;
00336     } catch (const std::exception& eStdError) {
00337         *_logOutputStream << "Error: " << eStdError.what() << std::endl;
00338     } catch (...) {
00339         *_logOutputStream << "Unknown error" << std::endl;
00340     }
00341
00342     return isEverythingOK;
00343 }
00344
00345 private:
00346     TRADEMGEN_Service* _trademgenService;
00347     std::ofstream* _logOutputStream;
00348 };
00349
00350 }
00351
00352 }
00353
00354 // //////////////////////////////////////
00355 BOOST_PYTHON_MODULE(libpytrademgen) {
00356     boost::python::class_<TRADEMGEN::Trademgener> ("Trademgener")
00357         .def ("trademgen", &TRADEMGEN::Trademgener::trademgen
00358             )
00359         .def ("init", &TRADEMGEN::Trademgener::init);
00360 }

```

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 namespace TRADEMGEN {
00040 // //////////////////////////////////////
00041 TRADEMGEN_Service::TRADEMGEN_Service() : _trademgenServiceContext (NULL) {
00042     assert (false);
00043 }
00044 // //////////////////////////////////////
00045 TRADEMGEN_Service::TRADEMGEN_Service (const TRADEMGEN_Service& iService)
00046 : _trademgenServiceContext (NULL) {
00047     assert (false);
00048 }
00049 // //////////////////////////////////////
00050 TRADEMGEN_Service::TRADEMGEN_Service (const stdair::BasLogParams& iLogParams,
00051                                         const stdair::RandomSeed_T& iRandomSeed
00052 )
00053 : _trademgenServiceContext (NULL) {
00054     // Initialise the STDAIR service handler
00055     stdair::STDAIR_ServicePtr_T lSTDAIR_Service_ptr =
00056         initStdAirService (iLogParams);
00057     // Initialise the service context
00058     initServiceContext (iRandomSeed);
00059     // Add the StdAir service context to the TRADEMGEN service context
00060     // \note TRADEMGEN owns the STDAIR service resources here.
00061     const bool ownStdairService = true;
00062     addStdAirService (lSTDAIR_Service_ptr, ownStdairService);
00063     // Initialise the SEvMgr service.
00064     initSEVMGRService();
00065     // Initialise the (remaining of the) context
00066     initTrademgenService();
00067 }
00068 // //////////////////////////////////////
00069 TRADEMGEN_Service::TRADEMGEN_Service (const stdair::BasLogParams& iLogParams,
00070                                         const stdair::BasDBParams& iDBParams,
00071                                         const stdair::RandomSeed_T& iRandomSeed
00072 )
00073 : _trademgenServiceContext (NULL) {
00074     // Initialise the STDAIR service handler
00075     stdair::STDAIR_ServicePtr_T lSTDAIR_Service_ptr =
00076         initStdAirService (iLogParams, iDBParams);
00077     // Initialise the service context
00078     initServiceContext (iRandomSeed);
00079     // Add the StdAir service context to the TRADEMGEN service context
00080     // \note TRADEMGEN owns the STDAIR service resources here.
00081     const bool ownStdairService = true;

```

```

00093     addStdAirService (lSTDAIR_Service_ptr, ownStdairService);
00094
00095     // Initialise 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 {
00127     // Delete/Clean all the objects from memory
00128     finalise();
00129 }
00130
00131 // //////////////////////////////////////
00132 void TRADEMGEN_Service::finalise() {
00133     assert (_trademgenServiceContext != NULL);
00134     // Reset the (Boost.)Smart pointer pointing on the STDAIR_Service object.
00135     _trademgenServiceContext->reset();
00136 }
00137
00138 // //////////////////////////////////////
00139 void TRADEMGEN_Service::
00140 initServiceContext (const stdair::RandomSeed_T& iRandomSeed) {
00141     // Initialise the service context
00142     TRADEMGEN_ServiceContext& lTRADEMGEN_ServiceContext =
00143         FacTRADEMGENServiceContext::instance(
00144         ).create (iRandomSeed);
00145     _trademgenServiceContext = &lTRADEMGEN_ServiceContext;
00146 }
00147
00148 // //////////////////////////////////////
00149 void TRADEMGEN_Service::
00150 addStdAirService (stdair::STDAIR_ServicePtr_T ioSTDAIR_Service_ptr,
00151                  const bool iOwnStdairService) {
00152     // Retrieve the TraDemGen service context
00153     assert (_trademgenServiceContext != NULL);
00154     TRADEMGEN_ServiceContext& lTRADEMGEN_ServiceContext =
00155         *_trademgenServiceContext;
00156
00157     // Store the STDAIR service object within the (TRADEMGEN) service context
00158     lTRADEMGEN_ServiceContext.setSTDAIR_Service (ioSTDAIR_Service_ptr,
00159                                                  iOwnStdairService);
00159 }
00160
00161 // //////////////////////////////////////
00162 void TRADEMGEN_Service::
00163 addSEVMGRService (SEVMGR::SEVMGR_ServicePtr_T ioSEVMGR_Service_ptr) {
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

```

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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
00194     stdair::STDAIR_ServicePtr_T lSTDAIR_Service_ptr =
00195         boost::make_shared<stdair::STDAIR_Service> (iLogParams);
00196     assert (lSTDAIR_Service_ptr != NULL);
00197
00198     return lSTDAIR_Service_ptr;
00199 }
00200
00201 // //////////////////////////////////////
00202 void TRADEMGEN_Service::initSEVMGRService() {
00203
00204     // Retrieve the TraDemGen service context
00205     assert (_trademgenServiceContext != NULL);
00206     TRADEMGEN_ServiceContext& lTRADEMGEN_ServiceContext =
00207         *_trademgenServiceContext;
00208
00209     // Retrieve the StdAir service context
00210     stdair::STDAIR_ServicePtr_T lSTDAIR_Service_ptr =
00211         lTRADEMGEN_ServiceContext.getSTDAIR_ServicePtr();
00212
00213     SEVMGR::SEVMGR_ServicePtr_T lSEVMGR_Service_ptr =
00214         boost::make_shared<SEVMGR::SEVMGR_Service> (lSTDAIR_Service_ptr);
00215
00216     // Store the SEVMgr service object within the (TraDemGen) service context
00217     lTRADEMGEN_ServiceContext.setSEVMGR_Service (lSEVMGR_Service_ptr);
00218 }
00219
00220 // //////////////////////////////////////
00221 void TRADEMGEN_Service::initTrademgenService() {
00222     // Do nothing at this stage. A sample BOM tree may be built by
00223     // calling the buildSampleBom() method
00224 }
00225
00226 // //////////////////////////////////////
00227 void TRADEMGEN_Service::
00228 parseAndLoad (const DemandFilePath&
00229 iDemandFilePath) {
00230
00231     // Retrieve the TraDemGen service context
00232     if (_trademgenServiceContext == NULL) {
00233         throw stdair::NonInitialisedServiceException ("The TraDemGen service has
00234
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00281     DemandParser::generateDemand (iDemandFilePath,
00282     lSEVMGR_Service_ptr,
00283                                     lSharedGenerator, lDefaultPOSProbabilityMass)
00284 ;
00285     const double lGenerationMeasure = lDemandGeneration.elapsed();
00286     buildComplementaryLinks (lPersistentBomRoot);
00287     // DEBUG
00288     STDAIR_LOG_DEBUG ("Demand generation time: " << lGenerationMeasure);
00289     if (doesOwnStdairService == true) {
00290         //
00291         clonePersistentBom ();
00292     }
00293 }
00294 // //////////////////////////////////////
00295 void TRADEMGEN_Service::buildSampleBom() {
00296     // Retrieve the TraDemGen service context
00297     if (_trademgenServiceContext == NULL) {
00298         throw stdair::NonInitialisedServiceException ("The TraDemGen service has
00299 "
00300 "not been initialised");
00301     }
00302     assert (_trademgenServiceContext != NULL);
00303     // Retrieve the TraDemGen service context and whether it owns the Stdair
00304     // service
00305     TRADEMGEN_ServiceContext& lTRADEMGEN_ServiceContext
00306 =
00307     *_trademgenServiceContext;
00308     const bool doesOwnStdairService =
00309     lTRADEMGEN_ServiceContext.getOwnStdairServiceFlag();
00310     // Retrieve the StdAir service object from the (TraDemGen) service context
00311     stdair::STDAIR_Service& lSTDAIR_Service =
00312     lTRADEMGEN_ServiceContext.getSTDAIR_Service();
00313     // Retrieve the persistent BOM root object.
00314     stdair::BomRoot& lPersistentBomRoot =
00315     lSTDAIR_Service.getPersistentBomRoot();
00316     if (doesOwnStdairService == true) {
00317         //
00318         lSTDAIR_Service.buildSampleBom();
00319     }
00320     // Retrieve the shared generator
00321     stdair::RandomGeneration& lSharedGenerator =
00322     lTRADEMGEN_ServiceContext.getUniformGenerator();
00323     // Retrieve the default POS distribution
00324     const POSProbabilityMass_T& lDefaultPOSProbabilityMass
00325 =
00326     lTRADEMGEN_ServiceContext.getPOSProbabilityMass();
00327     // Retrieve the pointer on the SEVMgr service handler.
00328     SEVMGR::SEVMGR_ServicePtr_T lSEVMGR_Service_ptr =
00329     lTRADEMGEN_ServiceContext.getSEVMGR_ServicePtr();
00330     // Delegate the BOM building to the dedicated service
00331     DemandManager::buildSampleBom (
00332     lSEVMGR_Service_ptr, lSharedGenerator,
00333     lDefaultPOSProbabilityMass);
00334     // Build the complementary links
00335     buildComplementaryLinks (lPersistentBomRoot);
00336     if (doesOwnStdairService == true) {
00337         //
00338         clonePersistentBom ();
00339     }
00340 }
00341 // //////////////////////////////////////
00342 void TRADEMGEN_Service::clonePersistentBom
00343 () {
00344     // Retrieve the TraDemGen service context
00345     if (_trademgenServiceContext == NULL) {
00346         throw stdair::NonInitialisedServiceException ("The TraDemGen service has
00347 "
00348 "not been initialised");
00349     }
00350     assert (_trademgenServiceContext != NULL);
00351 }

```

```

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
00402 if (doesOwnStdairService == true) {
00403 //
00404 lSTDAIR_Service.clonePersistentBom ();
00405 }
00406
00407 stdair::BomRoot& lBomRoot = lSTDAIR_Service.getBomRoot();
00408 buildComplementaryLinks (lBomRoot);
00409 }
00410
00411 // //////////////////////////////////////
00412 void TRADEMGEN_Service::buildComplementaryLinks
00413 (stdair::BomRoot& ioBomRoot) {
00414 // Currently, no more things to do by TRADEMGEN at that stage.
00415 }
00416
00417 // //////////////////////////////////////
00418 stdair::BookingRequestStruct TRADEMGEN_Service::
00419 buildSampleBookingRequest (const bool isForCRS) {
00420
00421 // Retrieve the TraDemGen service context
00422 if (_trademgenServiceContext == NULL) {
00423 throw stdair::NonInitialisedServiceException ("The TraDemGen service has
"
00424 "not been initialised");
00425 }
00426 assert (_trademgenServiceContext != NULL);
00427
00428 TRADEMGEN_ServiceContext& lTRADEMGEN_ServiceContext
=
00429 *_trademgenServiceContext;
00430
00431 // Retrieve the STDAIR service object from the (TraDemGen) service context
00432 stdair::STDAIR_Service& lSTDAIR_Service =
00433 lTRADEMGEN_ServiceContext.getSTDAIR_Service();
00434
00435 // Delegate the BOM building to the dedicated service
00436 return lSTDAIR_Service.buildSampleBookingRequest (isForCRS);
00437 }
00438
00439 // //////////////////////////////////////
00440 std::string TRADEMGEN_Service::
00441 jsonHandler (const stdair::JSONString& iJSONString) const {
00442
00443 // Retrieve the TraDemGen service context
00444 if (_trademgenServiceContext == NULL) {
00445 throw stdair::NonInitialisedServiceException ("The TraDemGen service has
"
00446 "not been initialised");
00447 }
00448 assert (_trademgenServiceContext != NULL);
00449
00450 TRADEMGEN_ServiceContext& lTRADEMGEN_ServiceContext
=
00451 *_trademgenServiceContext;
00452
00453 // Retrieve the pointer on the SEVMGR service handler.
00454 SEVMGR::SEVMGR_ServicePtr_T lSEVMGR_Service_ptr =
00455 lTRADEMGEN_ServiceContext.getSEVMGR_ServicePtr();
00456
00457 return lSEVMGR_Service_ptr->jsonHandler (iJSONString);
00458 }
00459
00460 // //////////////////////////////////////
00461 std::string TRADEMGEN_Service::csvDisplay()
00462 const {
00463
00464 // Retrieve the TraDemGen service context
00465 if (_trademgenServiceContext == NULL) {
00466 throw stdair::NonInitialisedServiceException ("The TraDemGen service has
"
00467 "not been initialised");
00468 }
00469 assert (_trademgenServiceContext != NULL);
00470

```

```

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
00496         "not been initialised");
00497     }
00498     assert (_trademgenServiceContext != NULL);
00499
00500     TRADEMGEN_ServiceContext& lTRADEMGEN_ServiceContext
=
00501     *_trademgenServiceContext;
00502
00503     // Retrieve the pointer on the SEVMgr service handler.
00504     SEVMGR::SEVMGR_ServicePtr_T lSEVMGR_Service_ptr =
00505     lTRADEMGEN_ServiceContext.getSEVMGR_ServicePtr();
00506
00507     // Delegate the BOM building to the dedicated service
00508     return lSEVMGR_Service_ptr->list ();
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
00519         "not been initialised");
00520     }
00521     assert (_trademgenServiceContext != NULL);
00522
00523     TRADEMGEN_ServiceContext& lTRADEMGEN_ServiceContext
=
00524     *_trademgenServiceContext;
00525
00526     // Retrieve the pointer on the SEVMgr service handler.
00527     SEVMGR::SEVMGR_ServicePtr_T lSEVMGR_Service_ptr =
00528     lTRADEMGEN_ServiceContext.getSEVMGR_ServicePtr();
00529
00530     // Delegate the BOM building to the dedicated service
00531     return lSEVMGR_Service_ptr->list (iEventType);
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
00541         "not been initialised");
00542     }
00543     assert (_trademgenServiceContext != NULL);
00544     // TRADEMGEN_ServiceContext& lTRADEMGEN_ServiceContext =
00545     // *_trademgenServiceContext;
00546
00547     // Get the date-time for the present time
00548     boost::posix_time::ptime lNowDateTime =
00549     boost::posix_time::second_clock::local_time();
00550     //boost::gregorian::date lNowDate = lNowDateTime.date();
00551
00552     // DEBUG
00553     STDAIR_LOG_DEBUG (std::endl
00554     << "=====
"
00555     << std::endl
00556     << lNowDateTime);

```



```

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
00597 () const {
00598     // Retrieve the TraDemGen service context
00599     assert (_trademgenServiceContext != NULL);
00600     TRADEMGEN_ServiceContext& lTRADEMGEN_ServiceContext
00601 =
00602         *_trademgenServiceContext;
00603
00604     // Retrieve the SEVMGR service context
00605     SEVMGR::SEVMGR_Service& lSEVMGR_Service =
00606         lTRADEMGEN_ServiceContext.getSEVMGR_Service();
00607
00608     // Delegate the call to the dedicated command
00609     const stdair::Count_T& oExpectedTotalNumberOfRequestsToBeGenerated =
00610         lSEVMGR_Service.getExpectedTotalNumberOfEventsToBeGenerated (
00611         stdair::EventType::BKG_REQ);
00612
00613     //
00614     return oExpectedTotalNumberOfRequestsToBeGenerated;
00615 }
00616
00617 // //////////////////////////////////////
00618 const stdair::Count_T& TRADEMGEN_Service::
00619 getActualTotalNumberOfRequestsToBeGenerated
00620 () const {
00621     // Retrieve the TraDemGen service context
00622     assert (_trademgenServiceContext != NULL);
00623     TRADEMGEN_ServiceContext& lTRADEMGEN_ServiceContext
00624 =
00625         *_trademgenServiceContext;
00626
00627     // Retrieve the SEVMGR service context
00628     SEVMGR::SEVMGR_Service& lSEVMGR_Service =
00629         lTRADEMGEN_ServiceContext.getSEVMGR_Service();
00630
00631     // Delegate the call to the dedicated command
00632     const stdair::Count_T& oActualTotalNumberOfRequestsToBeGenerated =
00633         lSEVMGR_Service.getActualTotalNumberOfEventsToBeGenerated (
00634         stdair::EventType::BKG_REQ);
00635
00636     //
00637     return oActualTotalNumberOfRequestsToBeGenerated;
00638 }
00639
00640 // //////////////////////////////////////
00641 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 successfully generated, 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
00783     // Add the generated cancellation event into the queue
00784     lSEVMGR_Service.addEvent (lRefEventStruct);
00785
00786     // Update the status of cancellation events within the event queue.
00787     const bool hasProgressStatus =
00788     lSEVMGR_Service.hasProgressStatus (stdair::EventType::CX);
00789     if (hasProgressStatus == false) {
00790         const stdair::Count_T lCancellationNumber = 1;
00791         lSEVMGR_Service.addStatus (stdair::EventType::CX, lCancellationNumber);
00792     } else {
00793         stdair::Count_T lCurrentCancellationNumber =
00794         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     // Retrieve the TraDemGen service context
00813     assert (_trademgenServiceContext != NULL);
00814     TRADEMGEN_ServiceContext& lTRADEMGEN_ServiceContext
00815     =
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
00831 const stdair::ProgressStatus& TRADEMGEN_Service::getProgressStatus
00832 () const {
00833     // Retrieve the TraDemGen service context
00834     assert (_trademgenServiceContext != NULL);
00835     TRADEMGEN_ServiceContext& lTRADEMGEN_ServiceContext
00836     =
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
00848 const stdair::ProgressStatus& TRADEMGEN_Service::
00849 getProgressStatus (const stdair::EventType::EN_EventType&
00850 iEventType) const {
00851     // Retrieve the TraDemGen service context
00852     assert (_trademgenServiceContext != NULL);
00853     TRADEMGEN_ServiceContext& lTRADEMGEN_ServiceContext
00854     =
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
00866 bool TRADEMGEN_Service::
00867 hasDemandStream (const stdair::DemandStreamKeyStr_T&
00868 iDemandStreamKey) const {
00869     // Retrieve the TraDemGen service context
00870     assert (_trademgenServiceContext != NULL);
00871     TRADEMGEN_ServiceContext& lTRADEMGEN_ServiceContext
00872     =
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
00886     () const {
00887         // Retrieve the TraDemGen service context
00888         assert (_trademgenServiceContext != NULL);
00889         TRADEMGEN_ServiceContext& lTRADEMGEN_ServiceContext
00890         =
00891         *_trademgenServiceContext;
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         return oStream.str();
00911     }
00912 }
00913
00914 }
00915
00916 namespace SEVMGR {
00917
00926     // //////////////////////////////////////
00927     template<class EventGenerator>
00928     void SEVMGR_Service::addEventGenerator (EventGenerator& iEventGenerator)
00929     const {
00930         // Retrieve the StdAir service
00931         const stdair::STDAIR_Service& lSTDAIR_Service =
00932         this->getSTDAIR_Service();
00933
00934         // Retrieve the BOM root object instance
00935         stdair::BomRoot& lPersistentBomRoot =
00936         lSTDAIR_Service.getPersistentBomRoot();
00937
00938         // Link the DemandStream to its parent (EventQueue)
00939         stdair::FacBomManager::linkWithParent (lPersistentBomRoot, iEventGenerator)
00940         ;
00941
00942         // Add the DemandStream to the dedicated list and map
00943         stdair::FacBomManager::addToListAndMap (lPersistentBomRoot,
00944         iEventGenerator);
00945     }
00946
00947     // //////////////////////////////////////
00948     template<class EventGenerator, class Key>
00949     EventGenerator& SEVMGR_Service::getEventGenerator(const Key& iKey) const {
00950
00951         // Retrieve the StdAir service
00952         const stdair::STDAIR_Service& lSTDAIR_Service =
00953         this->getSTDAIR_Service();
00954
00955         // Retrieve the BOM root object instance
00956         stdair::BomRoot& lPersistentBomRoot =
00957         lSTDAIR_Service.getPersistentBomRoot();
00958
00959         // Retrieve the DemandStream which corresponds to the given key.
00960         EventGenerator& lEventGenerator =
00961         stdair::BomManager::getObject<EventGenerator> (lPersistentBomRoot,
00962         iKey);
00963
00964         return lEventGenerator;
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 template<class EventGenerator>
00994 const std::list<EventGenerator*> SEVMGR_Service::getEventGeneratorList ()
00995 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 // //////////////////////////////////////
01031 template void SEVMGR_Service::
01032 addEventGenerator<TRADEMGEN::DemandStream> (TRADEMGEN::DemandStream
01033 &) const;
01034
01035 template TRADEMGEN::DemandStream& SEVMGR_Service::
01036 getEventGenerator<TRADEMGEN::DemandStream, stdair::DemandStreamKeyStr_T> (
01037 const stdair::DemandStreamKeyStr_T&) const;
01038
01039 template bool SEVMGR_Service::
01040 hasEventGenerator<TRADEMGEN::DemandStream, stdair::DemandStreamKeyStr_T> (
01041 const stdair::DemandStreamKeyStr_T&) const;
01042
01043 template const TRADEMGEN::DemandStreamList_T
01044 SEVMGR_Service::
01045 getEventGeneratorList<TRADEMGEN::DemandStream> () const;
01046
01047 template bool SEVMGR_Service::hasEventGeneratorList<TRADEMGEN::DemandStream> (
01048 ) const;
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 ),
00020   _posProbabilityMass (DEFAULT_POS_PROBALILITY_MASS
00021 ) {
00022
00023 // //////////////////////////////////////
00024 TRADEMGEN_ServiceContext::TRADEMGEN_ServiceContext (const TRADEMGEN_ServiceContext& iServiceContext)
00025 : _ownStdairService (false), _uniformGenerator (stdair::DEFAULT_RANDOM_SEED
00026 ),
00027   _posProbabilityMass (DEFAULT_POS_PROBALILITY_MASS
00028 ) {
00029
00030 // //////////////////////////////////////
00031 TRADEMGEN_ServiceContext::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 trademngen/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 <trademngen/TRADEMGEN_Types.hpp>
#include <trademngen/basic/DemandCharacteristicsTypes.hpp>

```

Classes

- class [TRADEMGEN::TRADEMGEN_ServiceContext](#)
Class holding the context of the Trademngen services.

Namespaces

- namespace [stdair](#)
Forward declarations.
- namespace [TRADEMGEN](#)

23.108 TRADEMGEN_ServiceContext.hpp

```

00001 #ifndef __TRADEMGEN_SVC_TRADEMGENSEVICECONTEXT_HPP
00002 #define __TRADEMGEN_SVC_TRADEMGENSEVICECONTEXT_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 <trademngen/TRADEMGEN_Types.hpp>
00021 #include <trademngen/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 FacTRADEMGENSEerviceContext;
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         TRADEMGEN_ServiceContext (const stdair::RandomSeed_T&);
00139         TRADEMGEN_ServiceContext ();
00143         TRADEMGEN_ServiceContext (const TRADEMGEN_ServiceContext&);
00147
00148         ~TRADEMGEN_ServiceContext ();
00152
00153         void reset();
00157
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_TRADEMGENSEVICECONTEXT_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 &iStructure)`

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 &iStructure) [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 <iostream>
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     protected:
00031         TRADEMGEN_Abstract () {}
00033         TRADEMGEN_Abstract (const TRADEMGEN_Abstract
00034 &) {}
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&
00051 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&
00079 ioStructure) {
00079     // Fill Bom object with input stream
00080     ioStructure.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
00037     class TRADEMGEN_ServiceContext;
00038     struct DemandStreamKey;
00039
00040     class TRADEMGEN_Service {
00041     public:
00042         // ////////////////////////////////// Constructors and Destructors //////////////////////////////////
00043         TRADEMGEN_Service (const stdair::BasLogParams&, const
00044             stdair::BasDBParams&, const stdair::RandomSeed_T&);
00045
00046         TRADEMGEN_Service (const stdair::BasLogParams&, const
00047             stdair::RandomSeed_T&);
00048
00049         TRADEMGEN_Service (stdair::STDAIR_ServicePtr_T,
00050             SEVMGR::SEVMGR_ServicePtr_T,
00051             const stdair::RandomSeed_T&);
00052
00053         void parseAndLoad (const DemandFilePath&);
00054
00055         ~TRADEMGEN_Service();
00056
00057     public:
00058         // ////////////////////////////////// Business support methods //////////////////////////////////
00059         void buildSampleBom();
00060
00061         void clonePersistentBom ();
00062
00063         void buildComplementaryLinks (stdair::BomRoot&);
00064
00065         stdair::BookingRequestStruct
00066         buildSampleBookingRequest (const bool isForCRS =
00067             false);
00068
00069         void displayAirlineListFromDB() const;
00070
00071         const stdair::Count_T& getExpectedTotalNumberOfRequestsToBeGenerated
00072             () const;

```

```

00265
00280     const stdair::Count_T& getActualTotalNumberOfRequestsToBeGenerated
00281     () const;
00281
00296     const bool
00297     stillHavingRequestsToBeGenerated (const
00298     stdair::DemandStreamKeyStr_T&,
00298                                     stdair::ProgressStatusSet&,
00299                                     const stdair::DemandGenerationMethod&)
00299     const;
00300
00313     stdair::Count_T
00314     generateFirstRequests (const
00315     stdair::DemandGenerationMethod&) const;
00315
00330     stdair::BookingRequestPtr_T
00331     generateNextRequest (const stdair::DemandStreamKeyStr_T&
00332     ,
00333                         const stdair::DemandGenerationMethod&) const;
00333
00341     bool hasDemandStream (const stdair::DemandStreamKeyStr_T&)
00341     const;
00342
00359     stdair::ProgressStatusSet popEvent (stdair::EventStruct&) const;
00360
00369     bool isQueueDone() const;
00370
00374     bool generateCancellation (const
00375     stdair::TravelSolutionStruct&,
00376                               const stdair::PartySize_T&,
00377                               const stdair::DateTime_T&,
00378                               const stdair::Date_T&) const;
00378
00383     void reset() const;
00384
00388     const stdair::ProgressStatus& getProgressStatus () const;
00389
00394     const stdair::ProgressStatus& getProgressStatus (const
00395     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     &);
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     ;
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 <trademngen/TRADEMGEN_Service.hpp>
00031 #include <trademngen/config/trademngen-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
00048 ("trademngen.log");
00052 const stdair::Filename_T K_TRADEMGEN_DEFAULT_INPUT_FILENAME
00053 (STDAIR_SAMPLE_DIR
00054 /rds01/demand05.csv");
00058 const stdair::DemandGenerationMethod
00059 K_TRADEMGEN_DEFAULT_DEMAND_GENERATION_METHOD
00060 =
00061 stdair::DemandGenerationMethod::POI_PRO;
00065 const char K_TRADEMGEN_DEFAULT_DEMAND_GENERATION_METHOD_CHAR
00066 =
00067 K_TRADEMGEN_DEFAULT_DEMAND_GENERATION_METHOD
00068 .getMethodAsChar();
00071 const stdair::RandomSeed_T K_TRADEMGEN_DEFAULT_RANDOM_SEED
00072 =
00073 stdair::DEFAULT_RANDOM_SEED;
00077 const NbOfRuns_T K_TRADEMGEN_DEFAULT_RANDOM_DRAWS
00078 = 1;
00083 const bool K_TRADEMGEN_DEFAULT_BUILT_IN_INPUT
00084 = false;
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> lSeparatorList("
00128     .,;|+~*/_=#$%`~^&(){}[]?'<>\"");
00129
00129     // Initialise the phrase to be tokenised
00130     Tokeniser_T lTokens (iPhrase, lSeparatorList);
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
00139 & iWordList) {
00140     std::ostringstream oStr;
00141
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 }
00162
00163 int readConfiguration (int argc, char* argv[], bool&
00164 ioIsBuiltin,
00165                      stdair::RandomSeed_T& ioRandomSeed,
00166                      stdair::Filename_T& ioInputFilename,
00167                      stdair::Filename_T& ioOutputFilename,
00168                      stdair::Filename_T& ioLogFilename,
00169                      stdair::DemandGenerationMethod& ioDemandGenerationMethod
00170 ) {
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
00179 // Declare a group of options that will be allowed only on command line
00180 boost::program_options::options_description generic ("Generic options");
00181 generic.add_options()
00182     ("prefix", "print installation prefix")
00183     ("version,v", "print version string")
00184     ("help,h", "produce help message");
00185
00186 // Declare a group of options that will be allowed both on command
00187 // line and in config file
00188 boost::program_options::options_description config ("Configuration");
00189 config.add_options()
00190     ("builtin,b",
00191      "The sample BOM tree can be either built-in or parsed from an input file.
00192      That latter must then be given with the -i/--input option")
00193     ("seed,s",
00194      boost::program_options::value<stdair::RandomSeed_T>(&ioRandomSeed)->
00195      default_value(K_TRADEMGEN_DEFAULT_RANDOM_SEED),
00196      "Seed for the random generation")
00197     ("demandgeneration,G",
00198      boost::program_options::value< char >(&lDemandGenerationMethodChar)->
00199      default_value(K_TRADEMGEN_DEFAULT_DEMAND_GENERATION_METHOD_CHAR
00200 ),
00201      "Method used to generate the demand (i.e., the booking requests): Poisson
00202      Process (P) or Order Statistics (S)")
00203     ("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 // //////////////////////////////////////
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
00421     // Call the command-line option parser
00422     const int lOptionParserStatus =
00423         readConfiguration (argc, argv, isBuiltin, lRandomSeed,
00424                             lInputFilename, lOutputFilename, lLogFilename,
00425                             lDemandGenerationMethod);
00426
00427     if (lOptionParserStatus == K_TRADEMGEN_EARLY_RETURN_STATUS) {
00428         return 0;
00429     }
00430
00431     // Set the log parameters
00432     std::ofstream logOutputFile;
00433     // Open and clean the log outputfile
00434     logOutputFile.open (lLogFilename.c_str());
00435     logOutputFile.clear();
00436
00437     // Set up the log parameters
00438     const stdair::BasLogParams lLogParams (stdair::LOG::DEBUG, logOutputFile);
00439
00440     // Initialise the TraDemGen service object
00441     TRADEMGEN::TRADEMGEN_Service trademgenService (
00442         lLogParams, lRandomSeed);
00443
00444     // Check whether or not a (CSV) input file should be read
00445     if (isBuiltin == true) {
00446         // Create a sample DemandStream object, and insert it within the BOM tree
00447         trademgenService.buildSampleBom();
00448         lDefaultDemandStreamKey = "SIN-BKK 2010-Feb-08 Y";
00449     } else {
00450         // Create the DemandStream objects, and insert them within the BOM tree
00451         const TRADEMGEN::DemandFilePath lDemandFilePath (
00452             lInputFilename);
00453         trademgenService.parseAndLoad (lDemandFilePath);
00454         lDefaultDemandStreamKey = "SIN-BKK 2009-Feb-09 Y";
00455     }
00456 }

```

```

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         ();
00474         //lCurrentInteractiveEventType =
00475         lCurrentInteractiveEventStruct.getEventType ();
00476
00477         // Prompt
00478         std::ostream oPromptStr;
00479         oPromptStr << "trademgen " << "> ";
00480         // <<
00481         stdair::EventType::getTypeLabelAsString(lCurrentInteractiveEventType)
00482         // << " / " << lCurrentInteractiveDateTime << "> ";
00483         // Call read-line, which will fill the list of tokens
00484         TokenList_T lTokenListByReadline;
00485         lUserInput = lReader.GetLine (oPromptStr.str(), lTokenListByReadline,
00486                                     EndOfInput);
00487
00488         // The history can be saved to an arbitrary file at any time
00489         lReader.SaveHistory (lHistoryBackupFilename);
00490
00491         // The end-of-input typically corresponds to a CTRL-D typed by the user
00492         if (EndOfInput) {
00493             std::cout << std::endl;
00494             break;
00495         }
00496
00497         // Interpret the user input
00498         lCommandType = extractCommand (lTokenListByReadline);
00499
00500         switch (lCommandType) {
00501
00502             // ////////////////////////////////// Help //////////////////////////////////
00503             case Command_T::HELP: {
00504                 std::cout << std::endl;
00505                 std::cout << "Commands: " << std::endl;
00506                 std::cout << " help" << "\t\t" << "Display this help" << std::endl;
00507                 std::cout << " quit" << "\t\t" << "Quit the application" << std::endl;
00508                 std::cout << " list_event" << "\t\t"
00509                 << "List all the events in the queue" << std::endl;
00510                 std::cout << " list_demand_stream" << "\t\t"
00511                 << "List the streams used to generate demand" << std::endl;
00512                 std::cout << " reset" << "\t\t" << "Reset the service (including the "
00513                 << "event queue)" << std::endl;
00514                 std::cout << " generate_first_br" << "\t\t" << "Generate the first booking
00515 "
00516                 << "request for each demand stream and add it to the event
00517 queue"
00518                 << std::endl;
00519                 std::cout << " generate_next_br" << "\t\t" << "Generate the next event for
00520 "
00521                 << "the specified demand stream and add it to the event queue"
00522                 << "\n\t\t\tFor instance:"
00523                 << "\n\t\t\t 'generate_next_br " << lDefaultDemandStreamKey
00524                 << "' " << std::endl;
00525                 std::cout << " generate_all_br" << "\t\t" << "Generate all the events for "
00526                 << "the specified demand stream and add it to the event queue"
00527                 << "\n\t\t\tFor instance:"
00528                 << "\n\t\t\t 'generate_all_br " << lDefaultDemandStreamKey
00529                 << "' " << std::endl;
00530                 std::cout << " delete_first" << "\t\t"
00531                 << "Pop the next event from the queue"
00532                 << std::endl;
00533                 std::cout << " \nDebug Commands" << std::endl;
00534                 std::cout << " json_list" << "\t\t"
00535                 << "List events in the queue in a JSON format"
00536                 << std::endl;
00537                 std::cout << std::endl;
00538                 break;
00539             }
00540         }
00541     }

```

```

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 // //////////////////////////////////
00581 case Command_T::GENERATE_NEXT_BR: {
00582
00583     // Retrieve the corresponding demand stream key
00584     const stdair::DemandGeneratorKey_T lDemandStreamKey =
00585         toString(lTokenListByReadline);
00586
00587     // Check that such demand stream exists
00588     const bool hasDemandStream =
00589         trademgenService.hasDemandStream(lDemandStreamKey);
00590
00591     if (hasDemandStream == false) {
00592         // DEBUG
00593         std::ostringstream oNoDemandStreamStr;
00594         oNoDemandStreamStr << "Wrong demand stream key: '"
00595             << lDemandStreamKey << "'."
00596             << "\nExisting demand streams are:\n"
00597             << trademgenService.displayDemandStream();
00598         std::cout << oNoDemandStreamStr.str() << std::endl;
00599         STDAIR_LOG_DEBUG (oNoDemandStreamStr.str());
00600         break;
00601     }
00602     assert (hasDemandStream == true);
00603
00604     stdair::ProgressStatusSet lProgressStatusSet (stdair::EventType::BKG_REQ)
00605 ;
00606
00607     const bool stillHavingRequestsToBeGenerated =
00608         trademgenService.stillHavingRequestsToBeGenerated (lDemandStreamKey,
00609             lProgressStatusSet,
00610             lDemandGenerationMethod);
00611
00612     if (stillHavingRequestsToBeGenerated == false) {
00613         // DEBUG
00614         std::ostringstream oNoMoreEventToGenerateStr;
00615         oNoMoreEventToGenerateStr << "No more events to generate for the demand
00616
00617             << "stream: '" << lDemandStreamKey << "'.";
00618         std::cout << oNoMoreEventToGenerateStr.str() << std::endl;
00619         STDAIR_LOG_DEBUG (oNoMoreEventToGenerateStr.str());
00620         break;
00621     }

```

```

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 =
toString(lTokenListByReadline);
00647
00648     // Check that such demand stream exists
00649     const bool hasDemandStream =
trademgenService.hasDemandStream(lDemandStreamKey);
00650
00651     if (hasDemandStream == false) {
00652         // DEBUG
00653         std::ostringstream oNoDemandStreamStr;
00654         oNoDemandStreamStr << "Wrong demand stream key: '"
<< lDemandStreamKey << "'."
<< "\nExisting demand streams are:\n"
<< trademgenService.displayDemandStream();
00655         std::cout << oNoDemandStreamStr.str() << std::endl;
00656         STDAIR_LOG_DEBUG (oNoDemandStreamStr.str());
00657         break;
00658     }
00659     assert (hasDemandStream == true);
00660
00661     stdair::ProgressStatusSet lProgressStatusSet (stdair::EventType::BKG_REQ)
;
00662     bool stillHavingRequestsToBeGenerated =
trademgenService.stillHavingRequestsToBeGenerated (lDemandStreamKey,
lProgressStatusSet,
lDemandGenerationMethod);
00663
00664     if (stillHavingRequestsToBeGenerated == false) {
00665         // DEBUG
00666         std::ostringstream oNoMoreEventToGenerateStr;
00667         oNoMoreEventToGenerateStr << "No more events to generate for the demand
"
00668                                     << "stream: '" << lDemandStreamKey << "'.";
00669         std::cout << oNoMoreEventToGenerateStr.str() << std::endl;
00670         STDAIR_LOG_DEBUG (oNoMoreEventToGenerateStr.str());
00671         break;
00672     }
00673     assert (stillHavingRequestsToBeGenerated == true);
00674
00675     stdair::Count_T lNumberOfRequests = 0;
00676     while (stillHavingRequestsToBeGenerated == true) {
00677         lNumberOfRequests++;
00678         trademgenService.generateNextRequest (lDemandStreamKey,
lDemandGenerationMethod);
00679         stillHavingRequestsToBeGenerated =
trademgenService.stillHavingRequestsToBeGenerated (lDemandStreamKey,
lProgressStatusSet
,
lDemandGenerationMethod);
00680
00681     }
00682 }
00683
00684 stdair::Count_T lNumberOfRequests = 0;
00685 while (stillHavingRequestsToBeGenerated == true) {
00686     lNumberOfRequests++;
00687     trademgenService.generateNextRequest (lDemandStreamKey,
lDemandGenerationMethod);
00688     stillHavingRequestsToBeGenerated =
trademgenService.stillHavingRequestsToBeGenerated (lDemandStreamKey,
lProgressStatusSet
,
lDemandGenerationMethod);
00689
00690 }
00691
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     break;
00703 }
00704 }
00705 // ////////////////////////////////// Next //////////////////////////////////
00706 case Command_T::NEXT: {
00707     //
00708     std::cout << "Next" << std::endl;
00709     if (trademngenService.isQueueDone() == true) {
00710         // DEBUG
00711         std::ostringstream oEmptyQueueStr;
00712         oEmptyQueueStr << "The event queue is empty: no event can be popped
out.";
00713         std::cout << oEmptyQueueStr.str() << std::endl;
00714         STDAIR_LOG_DEBUG (oEmptyQueueStr.str());
00715         //
00716         break;
00717     }
00718     // Get the next event from the event queue
00719     trademngenService.popEvent (lCurrentInteractiveEventStruct);
00720     // DEBUG
00721     std::ostringstream oEventStr;
00722     oEventStr << "Popped event: '"
00723     << lCurrentInteractiveEventStruct.describe() << "'.";
00724     std::cout << oEventStr.str() << std::endl;
00725     STDAIR_LOG_DEBUG (oEventStr.str());
00726     //
00727     break;
00728 }
00729 // ////////////////////////////////// JSoN Event List
00730 // //////////////////////////////////
00731 case Command_T::JSON_LIST: {
00732     //
00733     std::cout << "JSON Event List" << std::endl;
00734     std::ostringstream lMyCommandJSONstream;
00735     lMyCommandJSONstream << "{ \"event_list\": "
00736     << "{ \"event_type\": \"" << "all"
00737     << "\" } }";
00738     // Delegate the call to the dedicated service
00739     const stdair::JSONString lJSONCommandString (lMyCommandJSONstream.str());
00740     const std::string& lCSVEventListDump =
00741     trademngenService.jsonHandler (lJSONCommandString);
00742     // DEBUG: Display the events queue JSON string
00743     std::cout << lCSVEventListDump << std::endl;
00744     STDAIR_LOG_DEBUG (lCSVEventListDump);
00745     break;
00746 }
00747 // ////////////////////////////////// Default / No value //////////////////////////////////
00748 case Command_T::NOP: {
00749     break;
00750 }
00751 case Command_T::LAST_VALUE:
00752 default: {
00753     // DEBUG
00754     std::ostringstream oStr;
00755     oStr << "That command is not yet understood: '" << lUserInput
00756     << "' => " << lTokenListByReadline;
00757     STDAIR_LOG_DEBUG (oStr.str());
00758     std::cout << oStr.str() << std::endl;
00759 }
00760 }
00761 }
00762 // 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 throwned), 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 }
```