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EPTF CLL StatReplay, User Guide

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# Introduction

## Revision history

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| Date | Rev | Characteristics | Prepared |
| 2007-11-30 | PA1 | First draft version | ENORPIN |
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## About this Document

### How to Read this Document

This is the User Guide for EPTF Statistics Replay of the Ericsson Performance Test Framework (TitanSim), Core Load Library (CLL). TitanSim CLL is developed for the TTCN-3 ‎[1] Toolset with TITAN ‎[2]. This document should be read together with the Function Description of the EPTF Statistics Replay feature ‎[6]. For more information on the TitanSim CLL please consult the Product Revision Information ‎[3], the Users Guide ‎[4] and the Function Specification ‎[5] of the TitanSim.

### References

1. ETSI ES 201 873-1 v3.2.1 (2007-02)  
   The Testing and Test Control Notation version 3. Part 1: Core Language
2. 1/198 17-CRL 113 200 Uen  
   User Guide for the TITAN TTCN-3 Test Executor
3. 109 21-CNL 113 512-2 Uen   
   TitanSim CLL for TTCN-3 toolset with TITAN, Product Revision Information
4. 155 17-CNL 113 512 Uen   
   TitanSim CLL for TTCN-3 toolset with TITAN, Function Specification
5. 198 17-CNL 113 512 Uen  
   TitanSim CLL for TTCN-3 toolset with TITAN, User Guide
6. 17/155 16-CNL 113 512  
   EPTF CLL StatReplay, Function Description
7. TitanSim CLL for TTCN-3 toolset with TITAN, Reference Guide  
   <http://ttcn.ericsson.se/products/libraries.shtml>
8. 109 21-CNL 113 472-4 Uen  
   TCC Useful Functions for TTCN-3 Toolset with TITAN,  
   Product Revision Information

### Abbreviations

CLL Core Load Library

EPTF Ericsson Load Test Framework, formerly TITAN Load Test Framework

TitanSim Ericsson Load Test Framework, formerly TITAN Load Test Framework

TTCN-3 Testing and Test Control Notation version 3 ‎[1]

GUI Graphical User Interface

### Terminology

*TitanSim Core (Load) Library(CLL)* is that part of the TitanSim software that is totally project independent. (I.e., which is not protocol-, or application-dependent). The TitanSim CLL is to be supplied and supported by the TCC organization. Any TitanSim CLL development is to be funded centrally by Ericsson

## System Requirements

In order to use the EPTF Statistics Replay feature the system requirements listed in TitanSim CLL User Guide ‎[5] should be fulfilled.

Additionally, this feature also uses the functionalities of TCC Useful Function product ‎[8].

# Statistics Replay

## Overview

The EPTF CLL StatReplay component is a fundamental component providing an implementation for statistics replay control in a load test environment.

The Statistics are captured by the EPTF Statistics Capture Control feature. Statistics can be grouped to capture groups and this capture groups can be printed to file.

The Statistics Replay feature provides us to display a given captured variable from the captured log files. The values will be visualized on the Runtime GUI.

## Description of files in this feature

The EPTF CLL StatReplay API includes the following files:

* EPTF\_CLL\_StatReplay\_Definitions.ttcnpp: This TTCN-3 module contains common type definitions that should be used in all Statistics Replay Controlling Components.
* EPTF\_CLL\_StatReplay\_Functions.ttcnpp: This TTCN-3 module contains the implementation of Statistics Replay Control functions.
* EPTF\_CLL\_Stat\_Capture\_ExternalFunctions.cc: This TTCN-3 module contains external functions for Statistics Replay Control.

## Description of required files from other features

The Statistics Replay feature is part of the TitanSim EPTF Core Load Library (CLL). It relies on several features of the CLL and the TCC Useful Functions. The user has to obtain the following products/files to use the Statistics Replay:

* Abstract Socket:
  + Abstract\_Socket.cc;
  + Abstract\_Socket.hh;
* Base:
  + EPTF\_CLL\_Base\_Definitions.ttcnpp;
  + EPTF\_CLL\_Base\_Functions.ttcnpp;
  + EPTF\_CLL\_Base\_ExternalFunctions.cc;
* Common:
  + EPTF\_CLL\_Definitions
  + EPTF\_CLL\_Admin\_Macros.ttcnin;
* FreeBusyQueue:
  + EPTF\_CLL\_QueueMgmt\_Definitions.ttcn;
  + EPTF\_CLL\_QueueMgmt\_Functions.ttcnpp;
  + EPTF\_CLL\_QueueMgmt\_PrivateFunctions.ttcnpp;
* HashMap:
  + EPTF\_CLL\_oct2int\_HashMap\_external.cc;
  + EPTF\_CLL\_oct2int\_HashMap.ttcn;
  + EPTF\_CLL\_str2int\_HashMap\_external.cc;
  + EPTF\_CLL\_str2int\_HashMap.ttcn;
* RedBlackTree
  + EPTF\_CLL\_FloatRBtree\_Functions.ttcnpp
  + EPTF\_CLL\_FloatRBtree\_PrivateFunctions.ttcnpp
  + EPTF\_CLL\_IntegerRBtree\_Functions.ttcnpp
  + EPTF\_CLL\_IntegerRBtree\_PrivateFunctions.ttcnpp
  + EPTF\_CLL\_RBtree\_Definitions.ttcn
  + EPTF\_CLL\_RBtree\_Functions.ttcnpp
  + EPTF\_CLL\_RBtree\_PrivateFunctions.ttcnpp
* RingBuffer:
  + EPTF\_CLL\_GenericRingBuffer\_Definitions.ttcnin;
  + EPTF\_CLL\_GenericRingBuffer\_Functions.ttcnin;
* Semaphore
  + EPTF\_CLL\_Semaphore\_Definitions.ttcn
  + EPTF\_CLL\_Semaphore\_Functions.ttcn
* UDP testport:
  + UDPasp\_PortType.ttcn;
  + UDPasp\_PT.cc;
  + UDPasp\_PT.hh;
  + UDPasp\_Types.ttcn;
* UIHandler:
  + EPTF\_CLL\_UIHandlerClient\_Definitions.ttcn;
  + EPTF\_CLL\_UIHandlerClient\_Functions.ttcn;
  + EPTF\_CLL\_UIHandler\_Definitions.ttcn;
  + EPTF\_CLL\_UIHandler\_Widget\_Functions.ttcn;
  + EPTF\_CLL\_UIHandler\_XTDPTemplateDefinitions.ttcn;
* Variable:
  + EPTF\_CLL\_Variable\_Definitions.ttcnpp;
  + EPTF\_CLL\_Variable\_Functions.ttcnpp;
  + EPTF\_CLL\_Variable\_ExternalFunctions.cc;
* XSD:
  + XSD.asn;
* XTDP testport:
  + lex.xtdp.c
  + xtdp.l
  + XTDP-EXER-EncDec.cc
  + XTDP\_PDU\_Defs.asn
  + XTDPasp\_PortType.ttcn
  + XTDPasp\_PT.cc
  + XTDPasp\_PT.hh
  + XTDPasp\_Types.ttcn
  + XUL\_XTDL.asn

From the TCC Useful Functions ‎[8]:

* + TCCFileIO.cc;
  + TCCFileIO\_Functions.ttcn;

## Installation

Since EPTF\_CLL\_ StatReplay is used as a part of the TTCN-3 test environment this requires TTCN-3 Test Executor to be installed before any operation of these functions. For more details on the installation of TTCN-3 Test Executor see the relevant section of ‎[2].

If not otherwise noted in the respective sections, the following are needed to use EPTF\_CLL\_StatReplay:

* Copy the files listed in section [‎0, ‎2.3] to the directory of the test suite or create symbolic links to them.
* Import the StatReplay demo or write your own application using StatReplay.
* Create Makefile or modify the existing one. For more details see the relevant section of ‎[2].
* Edit the config file according to your needs, see following section [‎2.5].

## Configuration

The executable test program behaviour is determined via the run-time configuration file. This is a simple text file, which contains various sections. The usual suffix of configuration files is .cfg. For further information on the configuration file see ‎[2].

This set of protocol modules defines TTCN-3 module parameters as defined in ‎[2] clause 4. Actual values of these parameters – when no default value or a different from the default actual value wished to be used – shall be given in the [MODULE\_PARAMETERS] section of the configuration file.

This protocol module defines the following module parameters:

**tsp\_EPTF\_CLL\_StatReplay\_debug**

This boolean type module parameter is defined in module EPTF\_CLL\_StatReplay\_Functions. It is used to enable the debug logging. This parameter is optional. By default, this parameter is set to false.

**tsp\_EPTF\_CLL\_StatReplay\_captureFile**

This charstring type module parameter is defined in module EPTF\_CLL\_StatReplay\_Functions. It is used to define the log file name, what the user want to visualize. This parameter is mandatory

**tsp\_EPTF\_CLL\_StatReplay\_groupName**

This charstring type module parameter is defined in module EPTF\_CLL\_StatReplay\_Functions. It is used to define the group name, where the visualized variable is. This parameter is mandatory.

**tsp\_EPTF\_CLL\_StatReplay\_variableName**

This charstring type module parameter is defined in module EPTF\_CLL\_StatReplay\_Functions. It is used to define the name of the variable, what we would like to display. This parameter is mandatory.

**tsp\_EPTF\_CLL\_StatReplay\_startLayout**

This charstring type module parameter is defined in module EPTF\_CLL\_StatReplay\_Functions. It is used to define Runtime GUI start layout. This parameter is mandatory.

**tsp\_EPTF\_CLL\_StatReplay\_windowSize**

This integer type module parameter is defined in module EPTF\_CLL\_StatReplay\_Functions. It is used to define the size of the slider window. This parameter is optional. By default, this size is set to 5.

There are three obligations to the tsp\_EPTF\_CLL\_StatReplay\_startLayout

1. All of the buttons have to be enabled.
2. The maxPoints of the trace have to be the same as the tsp\_EPTF\_CLL\_StatReplay\_windowSize.
3. The id of the buttons and the trace are fixed. These are the followings:

* The Shift Left Button Id: shift\_left
* The Shift Right Button Id: shift\_right
* The Shift Left Fast Button Id: shift\_left\_fast
* The Shift Right Fast Button Id: shift\_left\_fast
* The Trace Id: trace

## Usage

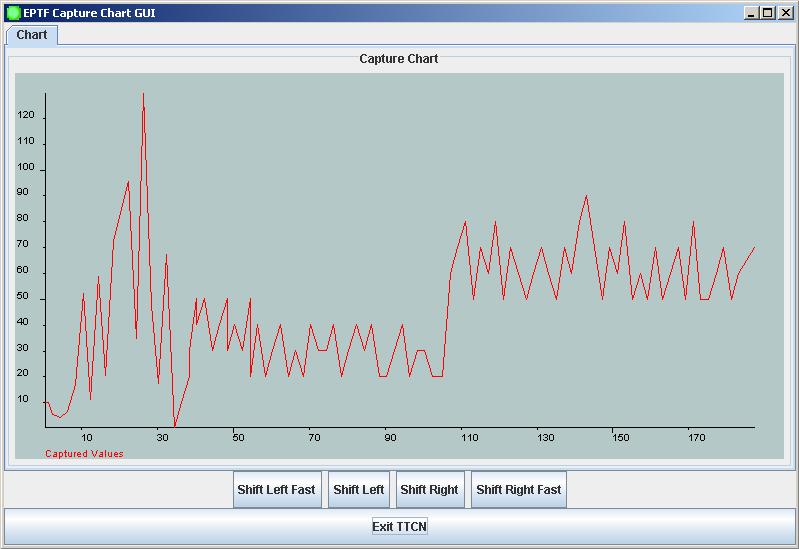


Figure 1: The StatReplay feature on the Runtime GUI

If we running the StatReplay feature on the Runtime GUI, after the start we will become the initialization screen [Figure 1]. There are 5 buttons on the GUI.

The functionality of the buttons is the following:

* The exit button: If the user presses the exit button, then the execution of the Statistics Replay will be ended.
* The Shift Left button: With this button can the user sliding the window one step left.
* The Shift Left Fast button: With this button can the user sliding the window more steps left (slider window size).
* The Shift Right button: With this button can the user sliding the window one step right.
* The Shift Right Fast button: With this button can the user sliding the window more steps right (slider window size).

# Error messages

Please note, that besides the below described error messages, error messages shown in ‎[2] or those of other used features or product may also appear.

**The <variable\_name> variable doesn't exist in the <group\_name> capture group in the file: <file\_name>.**

The given variable not exists.

**The value of the variable is neither float nor integer!**

The Statistics Replay feature support only integer and float value visualization.

**There is no defined startLayout!**

The user has to give stratLayout to the GUI.

# Warning messages

Please note, that besides the below described warning messages, warning messages shown in ‎[2] or those of other used features or product may also appear.

**The number of the values is fewer than the size of the slider window!**

The size of the slider window is too big. The missing values will be compensating with zero elements after the exist interval.

# Examples

The “demo” directory of the deliverable contains the following examples:

* StatReplay\_Demo.cfg
* StatReplay\_Demo.ttcn

## Configuration file

The used configuration file (main.cfg) is for the Statistics Replay example is placed in the demo directory.

[MODULE\_PARAMETERS]

tsp\_EPTF\_CLL\_StatReplay\_captureFile := "capturefile.txt"

tsp\_EPTF\_CLL\_StatReplay\_groupName := "capturegroup"

tsp\_EPTF\_CLL\_StatReplay\_variableName := "capturedvariable"

tsp\_EPTF\_CLL\_StatReplay\_windowSize := 5;

tsp\_EPTF\_CLL\_StatReplay\_debug := false;

tsp\_EPTF\_CLL\_StatReplay\_startLayout := "<window height=\"550.000000\" id=\"EPTF\_main\_Window\" orient=\"vertical\" title=\"EPTF Capture Chart GUI\" width=\"800.000000\">\n<tabbox>\n<tabs>\n<tab label=\"Chart\">\n</tab>\n</tabs>\n<tabpanels>\n<tabpanel orient=\"vertical\">\n<hbox orient=\"vertical\">\n<chart id=\"capturechart\" title=\"Capture Chart\" zoomable=\"false\" axisXType=\"linear\" axisYType=\"linear\" gridX=\"false\" gridY=\"false\" foregroundColor=\"Black\" backgroundColor=\"RGB:180:200:200\" gridColor=\"Black\">\n<trace id=\"trace1\" name=\"Captured Values\" maxPoints=\"5\" color=\"RGB:255:0:0\" />\n</chart>\n</hbox>\n</tabpanel>\n</tabpanels>\n</tabbox>\n<hbox orient=\"horizontal\">\n<spacer flex=\"2.000000\">\n</spacer>\n<button id=\"shift\_left\_fast\" label=\"Shift Left Fast\">\n</button>\n<spacer flex=\"0.000000\">\n</spacer>\n<button id=\"shift\_left\" label=\"Shift Left\">\n</button>\n<spacer flex=\"0.000000\">\n</spacer>\n<button id=\"shift\_right\" label=\"Shift Right\">\n</button>\n<spacer flex=\"0.000000\">\n</spacer>\n<button id=\"shift\_right\_fast\" label=\"Shift Right Fast\">\n</button>\n<spacer flex=\"2.000000\">\n</spacer>\n</hbox>\n<hbox orient=\"horizontal\">\n<button id=\"exit\_ttcn\" label=\"Exit TTCN\">\n</button>\n</hbox>\n</window>\n";

## Demo Module

The demo module (StatReplay\_demo.ttcn) illustrates a typical usage of the Statistics Replay feature.

**testcase** tc\_Demo() **runs** **on** StatReplayDemo\_CT **system** SYSTEM\_CT{

f\_EPTF\_CLL\_StatReplay\_init\_CT("StatReplay\_CT");

setverdict(pass);

}