

# **VISHNU - SLURM - Tests report**



Copyright © 2011 SysFera SAS

This report is provided under the following conditions:

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

This software is governed by the CECILL licence under French law and abiding by the rules of distribution of free software. You can use, modify and/ or redistribute the software under the terms of the CeCILL license as circulated by CEA, CNRS and INRIA at the following URL "<http://www.cecill.info>".

As a counterpart to the access to the source code and rights to copy, modify and redistribute granted by the license, users are provided only with a limited warranty and the software's author, the holder of the economic rights, and the successive licensors have only limited liability.

In this respect, the user's attention is drawn to the risks associated with loading, using, modifying and/or developing or reproducing the software by the user in light of its specific status of free software, that may mean that it is complicated to manipulate, and that also therefore means that it is reserved for developers and experienced professionals having in-depth computer knowledge. Users are therefore encouraged to load and test the software's suitability as regards their requirements in conditions enabling the security of their systems and/or data to be ensured and, more generally, to use and operate it in the same conditions as regards security.

**COLLABORATORS**

	<i>TITLE :</i> VISHNU - SLURM - Tests report		
<i>ACTION</i>	<i>NAME</i>	<i>DATE</i>	<i>SIGNATURE</i>
WRITTEN BY	Daouda Traoré, Benjamin Depardon, Eugène Pamba Capo-Chichi, Kevin Coulomb, and Ibrahima Cissé	August 2011	

**REVISION HISTORY**

NUMBER	DATE	DESCRIPTION	NAME
1	09/08/2011	Deliverable version	SYSFERA SAS
2	22/12/2011	Add tests for T1.1-B2 and T1.1-B3	SYSFERA SAS

# Contents

<b>1</b>	<b>Introduction</b>	<b>1</b>
<b>2</b>	<b>Functional tests</b>	<b>2</b>
2.1	T1.1 - Submit a job . . . . .	2
2.2	T2.2 - Cancel a job . . . . .	2
2.3	T2.1 - Get job information . . . . .	2
2.4	T2.5 - Get jobs progression . . . . .	3
2.5	T2.6 - Get one job outputs . . . . .	3
2.6	T2.7 - Get all completed jobs outputs . . . . .	3
2.7	T2.3 - List job queues . . . . .	3
2.8	T2.4 - List jobs . . . . .	4
<b>3</b>	<b>Stress tests</b>	<b>5</b>
<b>4</b>	<b>Load tests</b>	<b>6</b>
<b>5</b>	<b>Performance tests</b>	<b>7</b>

---

# Chapter 1

## Introduction

Author of the test code : Ibrahima CISSE and Daouda Traoré

Author of the test report : Daouda Traoré

The tests which follows have been done in the following environment:

- Database used : PostgreSQL 8.4
  - OS used for the test : Ubuntu 10.10
  - Cmake version : V2.6
  - gcc version : V4.3.3
  - DIET version : V2.7.1
  - Batch scheduler : SLURM V2.2.1
  - RAM memory : 4Gb
-

## Chapter 2

# Functional tests

### 2.1 T1.1 - Submit a job

API command: *submitJob*

ID test	Description of the test cases	Output expected	Output gotten	Error
T1.1-B	Normal execution of submitJob	The job identifier is returned	The job identifier is returned	0
T1.1-B2	Normal execution of submitJob	The job output environment variables are returned	The job output environment variables are returned	0
T1.1-B3	Normal execution of submitJob	The job option working directory is correctly set	The job option working directory is correctly set	0
T1.1-E1	Bad session key	VishnuException	VishnuException	0
T1.1-E2	Bad machine Identifier	VishnuException	VishnuException	0
T1.1-E3	Bad script content	VishnuException	VishnuException	0
T1.1-E4	Bad script path	VishnuException	VishnuException	0

### 2.2 T2.2 - Cancel a job

API command: *cancelJob*

ID test	Description of the test cases	Output expected	Output gotten	Error
T2.2-B	Normal execution of cancelJob	The job is cancelled	The job is cancelled	0
T2.2-E1	Bad session key	VishnuException	VishnuException	0
T2.2-E2	Bad machine Identifier	VishnuException	VishnuException	0
T2.2-E3	Bad job identifier	VishnuException	VishnuException	0
T2.2-E4	Job canceling by a user who is not an administrator and not the owner of the job	VishnuException	VishnuException	0

### 2.3 T2.1 - Get job information

API command: *getJobInfo*

ID test	Description of the test cases	Output expected	Output gotten	Error
T2.1-B	Normal execution of getJobInfo	The job object is returned	The job object is returned	0

ID test	Description of the test cases	Output expected	Output gotten	Error
T2.1-E1	Bad session key	VishnuException	VishnuException	0
T2.1-E2	Bad machine Identifier	VishnuException	VishnuException	0
T2.1-E3	Bad job identifier	VishnuException	VishnuException	0

## 2.4 T2.5 - Get jobs progression

API command: *getJobProgress*

ID test	Description of the test cases	Output expected	Output gotten	Error
T2.5-B	Normal execution of getJobProgress	The job progression object is returned	The job progression object is returned	0
T2.5-E1	Bad session key	VishnuException	VishnuException	0
T2.5-E2	Bad machine Identifier	VishnuException	VishnuException	0
T2.5-E3	Bad job identifier	VishnuException	VishnuException	0

**Remarks T2.5-B :** when the job is not on running state, there is no progression.

## 2.5 T2.6 - Get one job outputs

API command: *getJobsOutput*

ID test	Description of the test cases	Output expected	Output gotten	Error
T2.6-B	Normal execution of getJobsOutput	The job output files are returned	The job output files are returned	0
T2.6-E1	Bad session key	VishnuException	VishnuException	0
T2.6-E2	Bad machine Identifier	VishnuException	VishnuException	0
T2.6-E3	Bad job identifier	VishnuException	VishnuException	0
T2.6-E4	Identifier of job not terminated	VishnuException	VishnuException	0

## 2.6 T2.7 - Get all completed jobs outputs

API command: *getCompletedJobsOutput*

ID test	Description of the test cases	Output expected	Output gotten	Error
T2.7-B	Normal execution of getCompletedJobsOutput	The job output files of all completed jobs are returned	The job output files of all completed jobs are returned	0
T2.7-E1	Bad session key	VishnuException	VishnuException	0
T2.7-E2	Bad machine Identifier	VishnuException	VishnuException	0

## 2.7 T2.3 - List job queues

API command: *listQueues*

ID test	Description of the test cases	Output expected	Output gotten	Error
T2.3-B	Normal execution of listQueues	The list of queues is returned	The list of queues is returned	0
T2.3-E1	Bad session key	VishnuException	VishnuException	0

ID test	Description of the test cases	Output expected	Output gotten	Error
T2.3-E2	Bad machine Identifier	VishnuException	VishnuException	0

**Remarks T2.3-B :** to make this test, you must have administrator rights on the batch scheduler for adding a new queue.

## 2.8 T2.4 - List jobs

*API command: listJobs*

ID test	Description of the test cases	Output expected	Output gotten	Error
T2.4-B	Normal execution of listJobs	The list of jobs is returned	The list of jobs is returned	0
T2.4-E1	Bad session key	VishnuException	VishnuException	0
T2.4-E2	Bad machine Identifier	VishnuException	VishnuException	0



## Chapter 3

### Stress tests

ID test	Date	Test description	Command(s) tested	Results
STR-SERV-DOWN	09/08/11	The tms sed is stopped and restarted	submitJob	Success - normal job submission
STR-AGENT-DOWN	09/08/11	The SysFera-DS Agent is stopped and restarted		failure
STR-BATCH-DOWN	09/08/11	The batch scheduler is stopped and the command submitJob is launched	submitJob	Success - the corresponding error message is returned

## Chapter 4

### Load tests

ID test	Date	Test description	Command(s) tested	Results
LOAD-2.1-submitJob	09/08/11	Simultaneous launch of 100 commands	submitJob	Success - normal execution of all commands launched
LOAD-2.1-listJobs	09/08/11	Success - Simultaneous launch of 100 commands	listJobs	Success - normal execution of all commands launched
LOAD-2.1-listQueues	09/08/11	Simultaneous launch of 100 commands	listQueues	Success - normal execution of all commands launched

**LOAD-2.1-submitJob** : To allow 100 simultaneous ssh connexion, we have changed the default value of *MaxStartups* to *50:50:200* in */etc/ssh/sshd\_config*.

## Chapter 5

### Performance tests

ID test	Test description	Command(s) tested	VISHNU execution time	SSH execution time	Results
CDP-3.1-submitJob	comparison with " ssh localhost sbatch "	submitJob	0,28s	0,18s	Failure
CDP-3.1-cancelJob	comparison with " ssh localhost scancel "	cancelJob	0,36s	0,18s	Failure
CDP-3.1-listJobs	comparison with " ssh localhost squeue "	listJobs	0,09s	0,18s	Success
CDP-3.2.1-listQueues	execution time less than "ssh localhost scontrol show partition"	listQueues	0,09s	0,17s	Success

ID test	Test description	Command(s) tested	Memory consumption	Results
CDP-3.2.2-submitJob	CPU consumption	submitJob	5% of the CPU used	Success
CDP-Memserver	Memory consumption of tms server running during 24 hours	tms server	0,5% of the RAM memory	Success