# instrmix user manual

| Title | instrmix (Instruction mix extraction pass for Machine SUIF) |
|---|---|
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| **v1.1.1** | 2014-09-23<br>Updated headers in all source code files. Added File Listing section in README; new files AUTHORS, LICENSE and VERSION. |
| **v1.1.0** | 2014-02-24<br>Changed documentation format to RestructuredText. |
| **v1.0.0** | 2004-07-18<br>Initial release. |

## 1. Introduction

`instrmix` is an analysis pass that generates the SUIFvm (SUIF virtual machine) in-struction mix for a given input source file. A textual report is written to file `instr_mix_report.rpt`.
Instructions are categorized as follows:

**arithmetic:** ADD, SUB, NEG, ABS, MIN, MAX, MOV, LDC, LDA;

**logical:** NOT, AND, IOR, XOR;

**comparison:** SEQ, SNE, SL, SLE; (set instructions)

**shift:** ASR, LSL, LSR, ROT;

**division:** DIV, REM, MOD;

**multiply:** MUL;

**load:** LOD;

**store:** STR;

**ubr:** JMP, JMPI; (unconditional branch/jump)

**cbr:** BFALSE, BTRUE, BEQ, BNE, BGE, BGT, BLE, BLT; (cond. branch/jump)

**call:** CAL;

**return:** RET;

**other:** any instruction not fitting into the previous categories.

This pass works for the SUIF virtual machine instruction set (SUIFvm). Also, the `instrmix` pass has been tested with MachSUIF 2.02.07.15.

## 2. File listing

The `instrmix` distribution includes the following files:

| /instrmix | Top-level directory |
|-----------|---------------------|
| AUTHORS | List of `instrmix` authors. |
| LICENSE | The modified BSD license governs `instrmix`. |
| README.rst | This file. |
| README.html | HTML version of README. |
| README.pdf | PDF version of README. |
| VERSION | Current version of the project sources. |
| instrmix.cpp | Implementation of the `instrmix` pass. |
| instrmix.h | C++ header file containing declarations and prototypes for the above. |
| rst2docs.sh | Bash script for generating the HTML and PDF versions of the documentation (README). |
| suif_main.cpp | Entry point for building the standalone program `do_instrmix` that implements the pass. |
| suif_pass.cpp | Define the SUIF pass built as the dynamically loadable library `libinstrmix.so`. |
| suif_main.h | C++ header file for the above. |
| utils.h | C header file with implementations of auxiliary functions. |

## 3. Installation

Unpack the instrmix archive wherever you like, e.g. in `$MACHSUIFHOME/instrmix`. You don't need to modify anything in the Makefile, if you have a working MachSUIF 2 installation.

The program binary (`do_instrmix`) will be installed at `$NCIHOME/bin` and the shared library (`libinstrmix.so`) at `$NCIHOME/solib`, where NCIHOME is the SUIF 2 top-level directory.

# 4. Usage details

The pass accepts an input file in CFG form to operate. You don't have to define any output files since their naming convention has been hardwired.

Usage synopsys:

```
$ ./do_instrmix test.cfg
```