Frame-VM 1.1.0 Migration

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Frame-VM version 1.1.0 contains a number of changes that break direct compatibility with older versions. This document describes the changes required to make code designed for version 1.0.0 work with this newer version. Besides the changes described in this document, the VM specification is also updated with a lot of new information on machine design, helper functions, new instructions and Roger.

Stack limits

Previously Stacy had unbounded sizes for the stack embedded in its control frames. Starting from version 1.1.0, this is no longer the case. As an effect, the maximum stack size has to be specified when a control frame is created. This size is given on the first line of the initial block of the new control frame. Any block used after the initial block uses the same stack limits (stack limits are control frame local, not block local). An example of how this works is shown in the figure below.

```
MAIN:
    stack := 1
    call FUNC END

FUNC:
    stack := 2
    ipush 1
    ipush 2
    addi
    return
END:
    rget
    print
    ipush 0
    return
```

From flat

When using the `stc-from-flat` function to generate your code, these new stack limits have to be specified too. The way you do this is by giving a tuple `(FVM_Label(name), stack-size)` instead of just the label. Using just a label is still possible, but does not set any stack limits for that block.

Imports

Since the last update, the project structure changed a lot. Instead of three projects (stacy, roger and core), there are only two projects now. `framevm-core` only contains the Java stretegies used for

execution of the code and `framevm` contains the main project. This change of structure implies that some imports will be in different locations.

Project

As the version number and package name changed, these need to be updated in both the `pom.xml` and the `metaborg.yaml` files. The updated dependencies look like this:

```
<dependencies>
  <dependency>
        <groupId>org.metaborg.lang</groupId>
        <artifactId>framevm</artifactId>
        <version>1.1.0</version>
        <scope>runtime</scope>
        <type>spoofax-language</type>
  </dependency>
</dependencies>
```

```
dependencies:
  source:
  - org.metaborg.lang:framevm:1.1.0
```

Stratego

The names of a number of files changed from version 1.0.0 to 1.1.0. The name changes that you will likely encounter are:

- `stc-util` → `fvm-util`

- `stc-pp` → `fvm-pp`

- `stc-common` → `fvm-common`

- signatures/framevm-stacy-sig →
  signatures/fvm-stacy-sig and signatures/framevm-sig

  Some rules also changed their signatures:

- `pp-framevm-stacy` → `pp-framevm`

Stdlib

The location of the stdlib changed from `framevm-stacy.lib` to `framevm.lib`. As an effect you need to re-link the library folder to your project. You only need to do this when you had it linked in the previous version.

From version 1.1.0 onwards, you also have to provide both the Stacy and Roger version of any function you want to see added to the library.