

ruby-debug-ide protocol

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***ruby-debug-ide* protocol**

This file contains specification of the protocol used by *ruby-debug-ide*.

1 Summary

This document describes protocol used by *ruby-debug-ide* for communication between debugger engine and a frontend. It is a work in progress and might, and very likely will, change in the future. If you have any comments or questions please [send me](#) an email.

The communication has two parts/sides. First ones are *commands* sent from a frontend to the debugger engine and the second is the opposite way, *answers* and *events* sent from the debugger engine to the frontend.

commands are almost the same as the ones used by CLI *ruby-debug*. So you might want to contact [the *ruby-debug-ide* document](#).

answers and *events* are sent in XML format described in the specification [\(undefined\)](#) [Specification], page [\(undefined\)](#).

Specification is far from complete. Will be completed as time permits. In the meantime, source code is always the best spec.

2 Specification

Terms:

- *Command* is what frontend sends to the debugger engine
- *Answer* is what debugger engine sends back to the frontend
- *Example* shows simple example

2.1 Commands

2.1.1 Adding Breakpoint

Command:

```
break <script>:<line_no>
```

Answer:

```
<breakpointAdded no="<id>" location="<script>:<line_no>" />
```

Example:

```
C: break test.rb:2
A: <breakpointAdded no="1" location="test.rb:2" />
```

2.1.2 Deleting Breakpoint

Command:

```
delete <breakpoint_id>
```

Answer:

```
<breakpointDeleted no="<id>" />
```

Example:

```
C: delete 2
A: <breakpointDeleted no="2" />
```

2.1.3 Enabling Breakpoint

Supported **since** *ruby-debug-ide* **0.2.0**

Command:

```
enable <breakpoint_id>
```

Answer:

```
<breakpointEnabled bp_id="<id>" />
```

Example:

```
C: enable 2
A: <breakpointEnabled bp_id="2" />
```

2.1.4 Disabling Breakpoint

Supported **since** *ruby-debug-ide* **0.2.0**

Command:

```
disable <breakpoint_id>
```

Answer:

```
<breakpointDisabled bp_id="<id>" />
```

Example:

```
C: disable 2
A: <breakpointDisabled bp_id="2" />
```

2.1.5 Setting Condition on Breakpoint

Supported **since** *ruby-debug-ide* **0.2.0**

Command:

```
condition <script>:<line_no>
```

Answer:

```
<conditionSet bp_id="<id>"/>
```

Example:

```
C: condition 1 x>5    # Stop on breakpoint 1 only if x>5 is true.
A: <conditionSet bp_id="1"/>
```

2.1.6 Exception Breakpoint

Command:

```
catch <exception_class_name>
```

Answer:

```
<catchpointSet exception="<exception_class_name>"/>
```

Example:

```
C: catch ZeroDivisionError
A: <catchpointSet exception="ZeroDivisionError"/>
```

2.1.7 Threads Listing

Command:

```
thread list
```

Answer:

```
<threads>
  <thread id="<id>" status="<status>"/>
  ....
</threads>
```

Example:

```
C: thread list
A: <threads>
  <thread id="1" status="run"/>
  <thread id="2" status="sleep"/>
</threads>
```

2.1.8 Frames Listing

Command:

```
where
```

Answer:

```
<frames>
  <frame no="<frame_no>" file="<script>" line="<line_no>" current="<boolean>"/>
  <frame no="<frame_no>" file="<script>" line="<line_no>"/>
  ...
</frames>
```

Example:

```
C: where
A: <frames>
  <frame no="1" file="/path/to/test2.rb" line="3" current="true" />
  <frame no="2" file="/path/to/test.rb" line="3" />
</frames>
```

2.1.9 Variables Listing

2.1.9.1 Local Variables

Example:

```
C: var local
A: <variables>
    <variable name="array" kind="local" value="Array (2 element(s))" type="Array" hasChildren="true" objectId="-0x2418a904"/>
  </variables>
```

2.1.9.2 Instance Variables

Example:

```
C: var instance some_array
A: <variables>
    <variable name="[0]" kind="instance" value="1" type="Fixnum" hasChildren="false" objectId="+0x3"/>
    <variable name="[1]" kind="instance" value="2" type="Fixnum" hasChildren="false" objectId="+0x5"/>
  </variables>

C: var instance some_object
A: <variables>
    <variable name="@y" kind="instance" value="5" type="Fixnum" hasChildren="false" objectId="+0xb"/>
  </variables>
```

2.2 Events

2.2.1 Breakpoint

Event example:

```
<breakpoint file="test.rb" line="1" threadId="1"/>
```

2.2.2 Suspension

Event example:

```
<suspended file="/path/to/test.rb" line="2" threadId="1" frames="1"/>
```

2.2.3 Exception

Event example:

```
<exception file="/path/to/test.rb" line="2" type="ZeroDivisionError" message="divided by 0" threadId="1"/>
```

2.2.4 Message

Event example:

```
<message>some text</message>
<message debug='true'>some debug text</message>
```

3 Changes

Mentions also related changes in the *ruby-debug-ide* gem implementation.

3.1 Changes between 0.4.9 and 0.4.10

- Fixes possible NoSuchMethodException

3.2 Changes between 0.4.5 and 0.4.6

- added Debugger::start_server (ticket #25972)

3.3 Changes between 0.4.4 and 0.4.5

- possibility to remove catchpoints
- bugfix: syntax error with Ruby 1.9

3.4 Changes between 0.4.3 and 0.4.4

- bugfix: print out backtrace when debuggee fails

3.5 Changes between 0.4.2 and 0.4.3

- depends on the "> 0.10.3.x", rather than on 0.10.3 exactly to be compatible with future ruby-debug-base 0.10.3.x releases

3.6 Changes between 0.4.1 and 0.4.2

- Dependency changed to ruby-debug-base-0.10.3 which fixes various bugs and contains bunch of RFEs

3.7 Changes between 0.4.0 and 0.4.1

- '-stop' switch: stop at the first line when the script is loaded. Utilized by remote debugging
- Making '-x' switch actually work. Commenting out sending of <trace> elements to the debugger. To be decided. There are large amount of such events. For now serves rather for ruby-debug-ide developers.
- ensure 'file' attribute contains absolute path
- fixing CLI verbose when -d is used. Some unused code

3.8 Changes between 0.3.1 and 0.4.0

- Support for debug attribute in message element. Emitted by backend when --xml-debug (new since 0.4.0) option is used.
- More robust failures handling in DebugThread

3.9 Changes between 0.3.4 and 0.3.5

- bugfix: syntax error with Ruby 1.9