

Dump Threads

Contact Support...

Show Log in Finder

Collect Troubleshooting Information

Compress Logs and Show in Finder

Change Memory Settings

Edit Custom Properties...

**Edit Custom VM Options...**

Debug Log Se

Data Sharing C

Debug Seca

**Open VM Options;  
alternative:  
bin/mps.vmoptions**

com.mbeddr.r

```
-Xverify:none
```

```
-Dmps.internal=true
```







```
-agentlib:jdwp=transport=dt_socket,server=y,suspend=n,address=5019
```

**Add this line & SAVE; Close MPS**

# JetBrains / MPS

master 23 branches 149 tags

Go to file Add file Code


|   |  |
|---|--|
|  mvvolkov1 Merge | <b>Download MPS Sources (Optional)</b> |
|  .idea         | Merge branch '2021.1'                  |
|  .mps          | Merge remote-tracking branch 'or       |
|  IdeaPlugin    | Drop ApplicationPluginHolder hac       |
|  bin           | Log4j configuration: proper separ      |
|  build         | Update.xml for MPS 2021.1 RC1          |


**Clone** ⓘ

HTTPS SSH GitHub CLI

`https://github.com/JetBrains/MPS.git` ⓘ

Use Git or checkout with SVN using the web URL.

 **Open with GitHub Desktop**

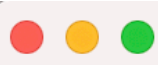
 **Download ZIP**

```
tree clean
% git clone -b 2019.3 --single-branch https://github.com/JetBrains/MPS.git
```



**MPS major branch**

**About 7 GB**



# Welcome to IntelliJ IDEA

 IntelliJ IDEA  
2020.3.1

- [New Project](#)
- [Open](#)
- [Get from VCS](#)

Projects

Customize

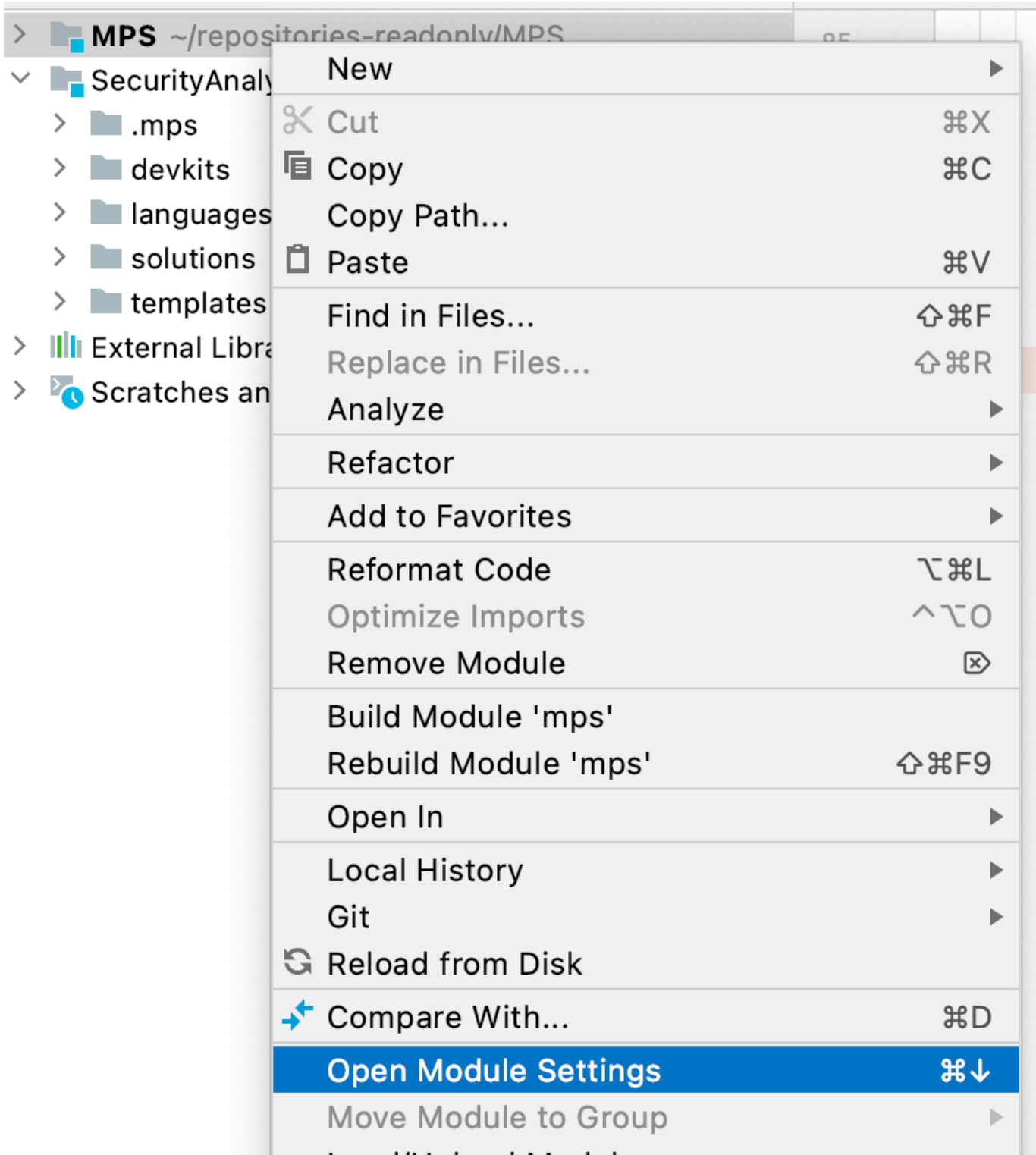
Plugins

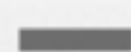
 MPS  
~/repositories-readonly/MPS

xdiagram  
~/repositories/seca/xdiagram

**Open MPS-Sources  
IntelliJ-Projct  
(contains mps.iml file)**







Add



New Module



Import Module

Framework

## New Module

Java

Maven

Gradle

Android

IntelliJ Platform Plugin

Groovy

Module SDK: Project SDK JB JDK 11

Additional Libraries and Frameworks:

Groovy

Kotlin/JVM

Select JetBrains JDK  
(can be downloaded  
from Nexus)

Use library: [No library selected]

Create...

! Error: library is not specified

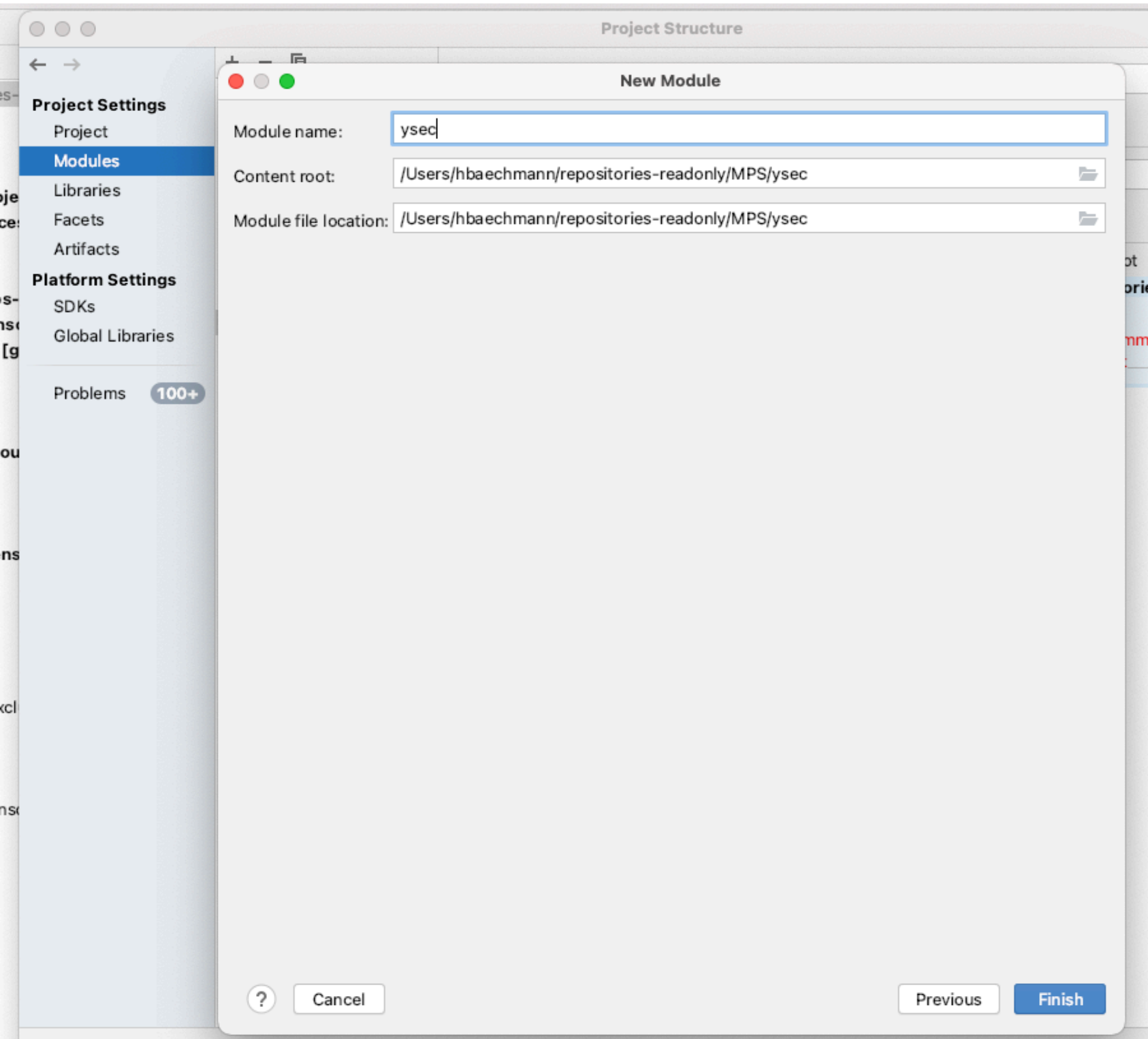


Cancel

Previous

Next





Project Structure

New Module

Module name:

Content root:

Module file location:

Project Settings

Project

Modules

Libraries

Facets

Artifacts

Platform Settings

SDKs

Global Libraries


Problems 100+



Cancel

Previous

Finish

s  Excluded

+ Add Content Root

**/Users/.../MPS/ysec**



...e checkin

**Source Folders**

src

**Delete content root**

Remove co

Name:

Sources

Paths

Dependencies

Language level:

Mark as:  Sources  Tests  Resources  Test Resources  Excluded

**+ Add Content Root**

**Then add new Content Root**

## Project Structure

## Project Settings

Project

Modules

Libraries

Facets

Artifacts

## Platform Settings

SDKs

Global Libraries

Problems

100+

- ant
- core
- editor
- languages
- plugins
- workbench
- gensources

Name: ysec

Sources Paths Dependencies

Language level: Project default (9 - Modules, private methods in interfaces etc.)

Mark as: Sources Tests Resources Test Resources Excluded

Add Content Root

## Favorites

hbaechm...

Desktop

Trash

Applicati...

Movies

dv

Downloads

T

seca

audi

git

Documents

## iCloud

iCloud Dri...

SecurityAnalyst Search

| Name      | Date Modified     | Size | Kind   |
|-----------|-------------------|------|--------|
| languages | 28.04.2021, 21:15 | --   | Folder |
| devkits   | 27.04.2021, 16:47 | --   | Folder |
| solutions | 26.04.2021, 09:37 | --   | Folder |
| templates | 29.01.2021, 06:39 | --   | Folder |

**Select Project folder  
(contains hidden  
".mps" folder)**

New Folder

Cancel

Open

?

Cancel

Apply

OK

Project Structure



Project Settings

Project

Modules

Libraries

Facets

Artifacts

Platform Settings

SDKs

Global Libraries

Problems

100+



- > ant
- > core
- > editor
- > languages
- > plugins
- > workbench
  - gensources
  - instrumentation
  - misc-tests
  - mps
  - mps-console
  - mps-httplibsupport
  - mps-idea-plugin
  - mps-project-excludes
  - startup
  - startup-util
  - testbench
  - tools
  - ysec

Name: ysec

Sources Paths Dependencies

Language level: Project default (9 - Modules, private methods in interfaces etc.)

Mark as: Sources Tests Resources Test Resources Excluded

- ▼ /Users/hbaechmann/repositories/seca/SecurityAnalyst/code/S
  - ▼ .mps
    - runConfigurations
    - devkits
  - ▼ languages
    - > cft
    - > com.mbeddr.mpsutil.delegatingScopeProvider
    - > com.mbeddr.mpsutil.graphstream
    - > com.moraad.assessmentcatalog.descriptor
    - > com.moraad.components
    - > com.moraad.core
    - > com.moraad.editor.button
    - > com.moraad.editor.button.sandbox
    - > com.moraad.projectinfo
    - > com.moraad.propagation
    - > com.moraad.reports
    - > com.moraad.safety.suggestions
    - > com.moraad.sequences
    - > com.moraad.suggestions
    - > com.moraad.tests.cachedAEDPRL
    - > com.moraad.tests.utils
    - > com.moraad.tutorial.language
    - > com.moraad.userScripts
    - > de.itemis.mps.buildextensions
    - > de.itemis.mps.common
    - > de.itemis.mps.editor.freetext
    - > de.itemis.mps.inheritance

+ Add Content Root

/Users/.../code/SecurityAnalyst

Source Folders

- languages/...generator/source\_gen
- solutions/.../source\_gen
- languages/...runtime/source\_gen
- solutions/.../source\_gen
- languages/...generator/source\_gen
- languages/.../source\_gen
- solutions/.../source\_gen
- languages/.../source\_gen
- languages/...generator/source\_gen
- languages/...runtime/source\_gen
- solutions/.../source\_gen
- solutions/.../source\_gen
- languages/.../source\_gen
- languages/...generator/source\_gen
- languages/...runtime/source\_gen
- solutions/devhelpers2/source\_gen
- languages/.../source\_gen
- languages/.../source\_gen
- languages/...generator/source\_gen
- solutions/.../source\_gen
- s/.../source\_gen
- es/.../source\_gen
- s/.../source\_gen

Press "Apply" & "OK"

Exclude files



Cancel

Apply

OK

- >  **MPS** ~/repositories-readonly/MPS
- >  SecurityAnalyst [ysec] ~/repositories/seca/SecurityAnalyst
- >  External Libraries
- >  Scratch

**You Should see  
something like this**

E.md [mps]



Update gensources.iml and compiler.xml



Edit Configurations...



Util



MPS



MPS (2nd inst.)



Tests from IDE



ParallelGenera



PerformanceTe



MPS Plug-in



MPS Remote



MPS Remote 5

**At the top:  
Select Debug  
Configuration "MPS  
Remote" or Create it  
under "Edit  
Configurations..."**

full develop  
multiple target

, se  
e.

# Run/Debug Configurations



- > Application
- > JUnit
- > Plugin
- > Remote JVM Debug
  - MPS Remote**
  - MPS Remote 5071
- > Templates

Create Debug Configuration

Name:

Allow parallel run  Store as project file

Configuration Logs

Debugger mode:

Host:

Port:

Check Port

Command line arguments for remote JVM: JDK 9 or later

Copy and paste the arguments to the command line when JVM is started

Use module classpath:

First search for sources of the debugged classes in the selected module classpath

Before launch

There are no tasks to run before launch



Show this page  Activate tool window



Cancel Apply **OK**



```
15  -Xmx128m  
16  -XX:+HeapDumpOnOutOfMemoryError  
17  -Xverify:none  
18  -Dmps.internal=true  
19  -agentlib:jdwp=transport=dt_socket,server=y,suspend=n,address=5093
```

**Recheck the Port in the  
"VM Options"**



README.md



RLCalculator.java

```
85 // is not structured in methods cause of perfor
86 // This can be a possible source, if we detect
87
88 // let the brainfuck begin
89
90
91
92 boolean newRLisMoreRisky = false;
93 boolean newRLisHigher = rl != null && (maxRL =
94 if (newRLisHigher) {
95 // new RL is higher
96 newRLisMoreRisky = true;
97 } else {
98 boolean oldRLisHigher = maxRL != null && max
99 if (!(oldRLisHigher)) {
```

**Set a breakpoint in your project sources, e.g. BL-class, behavior, editor-cell's "show if", checking-rule, ...**





MPS Remote



Git:



**Start the Debugger  
in IntelliJ**

Debug 'MPS Remote' ^D

! 36

! 9

! 4

DP

```
Connected to the target VM, address: 'localhost:5093', transport: 'socket'
```

View Breakpoints... ⌘F8

**Adapt your  
breakpoint settings**

View and manage all breakpoints and watchpoints

## Breakpoints

+ - [ ] [ ] [ ]

- Java Line Breakpoints
- RLCalculator.java:92
- Java Exception Breakpoints
  - Any exception

Add a new breakpoint,  
e.g. fetch Exceptions

### RLCalculator.java:92

- Enabled
- Suspend:  All  Thread

Condition:

Log:  "Breakpoint hit" message  Stack trace

Evaluate and log:

Remove once hit

Disable until hitting the following breakpoint:

<None>

After hit:  Disable again  Leave enabled

Instance filters:

Class filters:

Pass count:

Caller filters:

```
92  boolean newRLisMoreRisky = false;  
93 boolean newRLisHigher = rl != null && (maxRL == null || maxRL < rl);  
94 if (newRLisHigher) {
```



Done



- ◆ 1. Java Method Breakpoints
- 🎯 2. Java Field Watchpoints
- ⚡ 3. Java Exception Breakpoints**
- 🎯 4. Kotlin Field Watchpoints



## Enter Exception Class

Search by Name

Project

No matches found in project

Nullpointer



NullPointerException (java.lang)

< JB JDK 11 >



Cancel

OK

# Breakpoints

+ - [ ] [ ] [C]

- ✓ Java Line Breakpoints
  - ✓ RLCalculator.java:92
- Java Exception Breakpoints
  - Any exception
  - 'com.moraad.core.runtime.propagation.NoRiskModelException'**

## 'com.moraad.core.runtime.propagation.NoRiskModelException'

- ✓ Enabled
- ✓ Suspend:  All  Thread
- Condition:

Log:  "Breakpoint hit" message  Stack trace

Evaluate and log:

Disable until hitting the following breakpoint:

<None>

After hit:  Disable again  Leave enabled

Catch class filters:

Instance filters:

Class filters:

Pass count:

Caller filters:

Notifications

- ✓ Caught exception
- ✓ Uncaught exception

Done



## Security Chunk Security Objectives

RL Details  -  +

### Security Objective S0.1 : Integrity of Switch Headlamp Off

<no description> [Edit](#)

{


Instantiates I: Integrity

Concerns OffFunc: Switch Headlamp Off

Depends on <none>

Damage Scenarios DS.1: Headlamp Off

Threatened by AS.2

 Damped by <none>

}

### Security Objective S0.3 : Integrity of Switch Headlamp On

<no description> [Edit](#)

{

Instantiates I: Integrity

Concerns OnFunc: Switch Headlamp On

Depends on <none>

Damage Scenarios DS.2: Headlamps turns on unexpectedly

Threatened by TS.1

Damped by <none>

}

### Security Objective S0.2 : Availability of Switch Headlamp Off

|                            |     |        |
|----------------------------|-----|--------|
| <input type="checkbox"/> + | IL  | Severe |
|                            | AFL | Medium |
|                            | RL  | 4      |

**Open MPS again and trigger an action, e.g. open a root-Node**

|  |     |        |
|--|-----|--------|
|  | AFL | Medium |
|  | RL  | 3      |

```

> MPS ~/repositories-readonly/MPS
  SecurityAnalyst [ysec] ~/repositories/seca/SecurityAnalyst
    .mps
    devkits
    languages
    solutions
    templates
  External Libraries
  Scratches and Consoles
89 // this can probably be simplified, but
90 // that RL/DP==NULL is considered "low"
91 // and AE==NULL is considered "high"
92 boolean newRLisMoreRisky = false;
93 boolean newRLisHigher = rL != null &
94 if (newRLisHigher) {
95     // new RL is higher
96     newRLisMoreRisky = true;
97 } else {
98     boolean oldRLisHigher = maxRL != null &
99     if (!(oldRLisHigher)) {
100         boolean newDPisHigher = dp != null &
101         if (newDPisHigher) {
102             // new DP is higher
103             newRLisMoreRisky = true;
104         } else {
105             boolean oldDPisHigher = maxDP != null &
106             if (!(oldDPisHigher)) {
107                 boolean newAEisLower = ae != null &
108                 if (newAEisLower) {
109                     // new AE is lower
110                     newRLisMoreRisky = true;
111                 }
112             }
113         }
114     }
115 }

```

And now you can debug

Debug: MPS Remote

Debugger Console

| Frames             | Variables   |
|--------------------|---|
| calculate:92, RLCa | > this = {RLCalculator@22548}   |
| getRL_id13\$fz2Sh  | > localAttackPaths = {AEDTPaths@22549} "AEDTPaths [=== AE: Medium Paths: SO |
| invokeSpecial0:32  | > propagatedDPs = {ListSequence@22550} size = 1                             |
| invokeSpecial:358  | > minAE = {MultiTuple\$_2@22551} "[Medium, AE: Medium Paths: SO.1, AS.2]"   |
| invokeNonVirtualC  | maxRL = null  |
| invokeNonVirtual:2 | > propagatedDP = {LocalDP@22552} "LocalDP from SO.1"                        |
| invoke:243, BaseB  | > attackPaths = {HashMap\$KeySet@22553} size = 1                            |
| invoke0:151, SMetl | > path = {CombinedAEDTPath@22554} "AE: Medium Paths: SO.1, AS.2"            |
| invoke:126, SMeth  | > calculatedDP = {DPCalculator\$DPDuringCalculation@22555} "DP from SO.1"   |
| getRL_idc6vnJWK    | > dp = {SNode@22556} "Sev"  |
| invokeSpecial0:31  | > aeInfo = {AEInfo@22557} "AE"  |
|                    | > ae = {SNode@22558} "Medium"   |