

Notification Extension Example

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See also main SDK page.

NEE - Introduction

In this example we will show how to create custom notification target.

what is possible to extend

- **custom target** - extend configuration in Administration -> Notifications -> Targets

what will be shown in the example

1. how to create custom target - we will implement `custom-field-targets` target which will ensure that notifications will be sent to users with IDs found in certain custom field

NEE - Java API Workspace preparation

See section *Workspace preparation*

NEE - Creating project plugin

You can import already implemented example or read what steps are necessary to extend Polaron notification system.

NEE - Import of the example

Info: You must ensure that your plugin is compiled against your Polaron version. This example contains precompiled jar plugin. You can remove it before you start developing your plugin based on this example. The Eclipse ensure that new jar plugin will be created against your source code and Polaron version.

To import workflow project example to workspace, do these steps:

1. Select **File > Import...**
2. In the dialog that appears, select **Existing Project into Workspace** in **General** section and press **Next** button.
3. By pressing **Browse..** button, select the directory of examples (mostly in `C:\Polarion\polarion\SDK\examples\`). Submit it.
4. Select `com.polarion.example.notifications` and press **Finish**.

NEE - Extending Polaron notification system in own way

- Create new plug-in project. Fill Plug-In Properties and uncheck **Generate activator..**
- Create `META-INF` directory in `src` folder and `hivemodule.xml` file inside.
- In `hivemodule.xml` you can set one contribution point:
 1. `com.polarion.psvn.core.notifications.targets` to register new targetSee `hivemodule.xml` file included in example for syntax and more details.
- Open `MANIFEST.MF` and set `com.polarion.alm.tracker, com.polarion.platform.persistence, com.polarion.psvn.launcher` as a **Required Plug-in** in Dependencies card. As well, you should set at Build card the `src/` folder as the source folder that should be compiled into exported library.

```
### content of 'build.properties' file ###  
source.. = src/  
output.. = bin/  
bin.includes = META-INF/,\  
.
```

- See how to manually set targets for email notifications in the documented example code.

NEE - Deployment to Installed Polaron

See section *Deployment to Installed Polaron*

NEE - Execution from Workspace

See section *Execution from Workspace*

NEE - Configuration

After successful deployment of plug-in into Polaron, you can modify notification configuration to start using the new event and target:

1. Select the Repository or project view. Go to Administration perspective, choose Targets in the Notifications section.
2. Select the required event.
3. In the **Target** drop-down, select your custom notification target (`custom-field-targets` for SDK, for example). Assuming such field is defined (see the documented example code for `com.polarion.example.notifications.targets.CustomFieldTargets`), then in the optional field that appears, input additional information.

When you use `custom-field-targets` for the `workitem-commented` event, then users whose IDs are entered in the optional field on the right side from the drop-down will be notified when a new comment is added to a particular Work Item. NOTE: the IDs must be delimited by commas (,)

Requirements

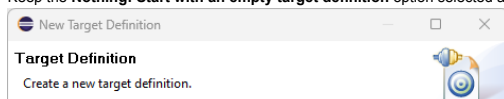
Development Environments

- [Eclipse IDE for Enterprise Java Developers](#) or any other Eclipse IDE with The Eclipse Plug-in Development Environment. (Go to Help > Install New Software... > Install Eclipse Plug-in Development Environment > Restart Eclipse)
- [Eclipse Temurin™ 17 \(LTS\) by Adoptium](#) for building and running your code.

Workspace Preparation

To start developing a Polaron Java API plug-in, you first need to perform following steps:

1. Start Eclipse, then select **Window > Preferences...**
2. In the dialog that appears, select **Plug-In Development > Target Platform**.
3. Click the **Add** button on the right.
4. Keep the **Nothing: Start with an empty target definition** option selected and click **Next**.



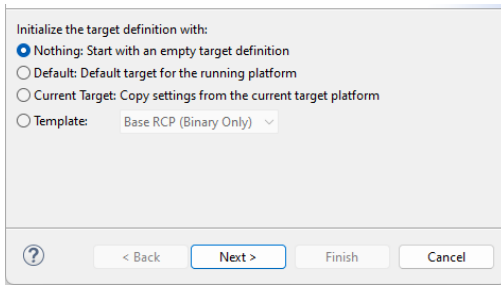


Figure WP-1: Starting with an Empty Target Definition

5. Enter a **Name** and click **Add**.
6. Select **Directory** and click **Next**.
7. Click **Browse** and select the C:\Polarion\polarion folder (*Windows*) or /opt/polarion/polarion (*Linux*). (One level above the *plugins* folder.)
8. Click **Next**.

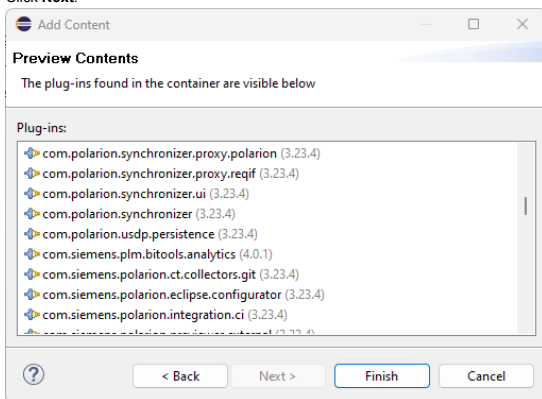


Figure WP-2: Currently Installed Polarion Plug-ins

9. A list of currently installed Polarion plug-ins appears. Click **Finish**.

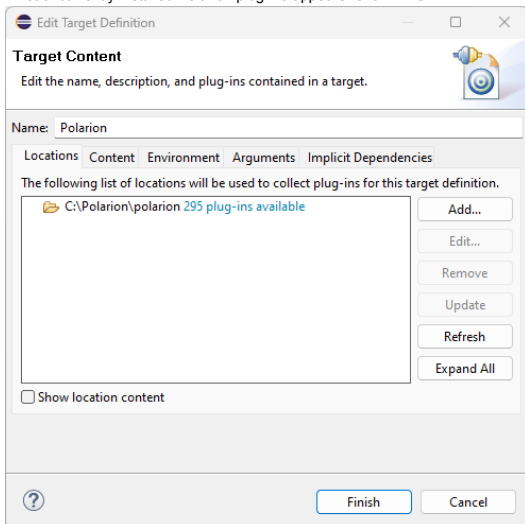


Figure WP-3: Confirm the Selected Path

10. The selected path and the number of discovered plug-ins available appear. Confirm that the path is correct and click **Finish**. (WP_4.png|description=Figure WP-4: Select the Target Platform)
11. Check the box beside the newly added path and click **Apply**.

Deployment to Installed Polarion

You can deploy a plugin to Polarion in two ways. First you can export a project as **Deployable Plugins and Fragments**. The second way is described in the following section *Execution from Workspace*. To export the plug-in, perform these steps:

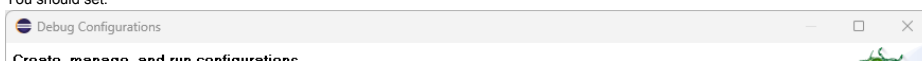
1. Select **File > Export...**
2. In the dialog that appears, select **Deployable Plugins and Fragments** in **Plug-in Development** section and click the **Next** button.
3. Mark your project (e.g. for **Servlet** example it will be `com.polarion.example.servlet`), and as the destination directory specify the `polarion` folder of your Polarion installation directory (usually in `C:\Polarion\polarion`)
4. At the **Options** card be sure, that **Package plug-ins as individual JAR archives** is unchecked. Click **Finish**.
5. Because this is a new polarion plug-in extension, you have to restart your Polarion server.

NOTE: Servlets loaded by Polarion are cached in: `[Polarion_Home]\data\workspace\.config`. If this folder is not deleted before deploying a servlet extension (plugin) and restarting Polarion, then either the servlets will not be properly loaded, or the old ones will be loaded.

Execution from Workspace

The second way to deploy the plug-in to Polarion is to launch Polarion directly from your Eclipse workspace. This method has the added advantage of debugging the code directly in Eclipse.

1. Select **Run > Open Debug Configurations...**
2. Create a new Eclipse application (double click on *Eclipse Application*)
3. You should set:



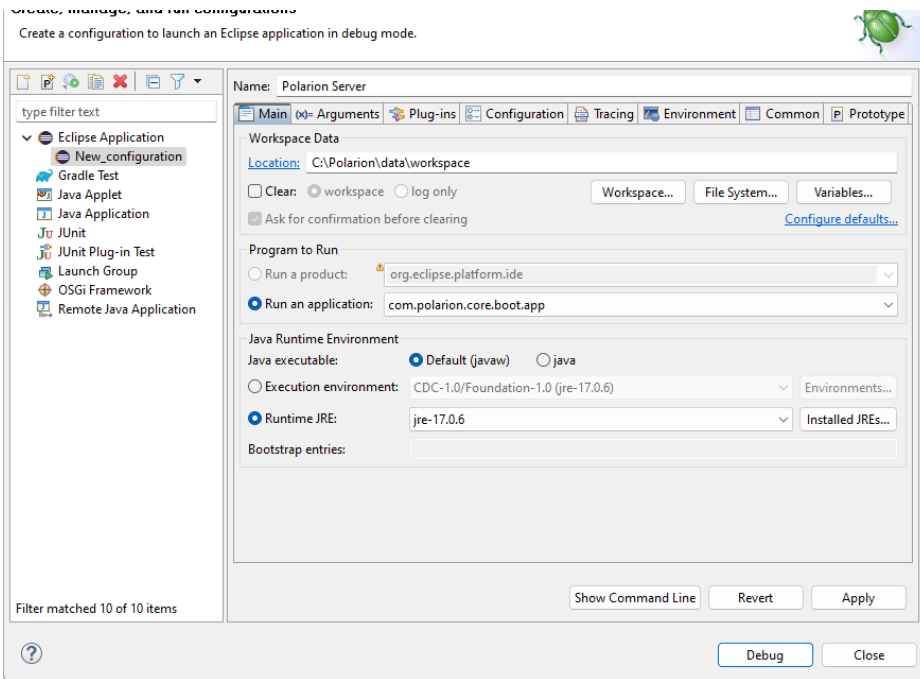


Figure EXEC-1: Debug - Main page

- Name to Polarion Server
- Workspace Data Location to C:\Polarion\data\workspace (assuming that your Polarion is installed in C:\Polarion\).
- Run an application to com.polarion.core.boot.app in the Program to Run section.

4. Finally set your Runtime JRE. On the second, "Arguments" tab, set the following arguments:

In the Program Arguments section:

Windows:

```
os win32 -ws win32 -arch x86 -appId polarion.server
```

Linux:

```
os linux -ws gtk -arch x86_64 -appId polarion.server
```

In the VM Arguments section:

Windows:

```
-Xms1g -Xmx1g
-Dcom.polarion.home=C:\Polarion\polarion
-XX:+UseBiasedLocking -XX:BiasedLockingStartupDelay=0
--add-opens=java.base/java.io=ALL-UNNAMED --add-opens=java.base/java.lang=ALL-UNNAMED --add-opens=java.base/java.lang.annotation=ALL-UNNAMED
--add-opens=java.base/java.lang.invoke=ALL-UNNAMED --add-opens=java.base/java.lang.module=ALL-UNNAMED --add-opens=java.base/java.lang.ref=ALL-UNNAMED
--add-opens=java.base/java.lang.reflect=ALL-UNNAMED --add-opens=java.base/java.math=ALL-UNNAMED --add-opens=java.base/java.net=ALL-UNNAMED
--add-opens=java.base/java.net.spi=ALL-UNNAMED --add-opens=java.base/java.nio=ALL-UNNAMED --add-opens=java.base/java.nio.channels=ALL-UNNAMED
--add-opens=java.base/java.nio.channels.spi=ALL-UNNAMED --add-opens=java.base/java.nio.charset=ALL-UNNAMED --add-opens=java.base/java.nio.charset.spi=ALL-UNNAMED
--add-opens=java.base/java.nio.file=ALL-UNNAMED --add-opens=java.base/java.nio.file.attribute=ALL-UNNAMED --add-opens=java.base/java.nio.file.spi=ALL-UNNAMED
--add-opens=java.base/java.security=ALL-UNNAMED --add-opens=java.base/java.security.cert=ALL-UNNAMED --add-opens=java.base/java.security.interfaces=ALL-UNNAMED
--add-opens=java.base/java.security.spec=ALL-UNNAMED --add-opens=java.base/java.text=ALL-UNNAMED --add-opens=java.base/java.text.spi=ALL-UNNAMED
--add-opens=java.base/java.time=ALL-UNNAMED --add-opens=java.base/java.time.chrono=ALL-UNNAMED --add-opens=java.base/java.time.format=ALL-UNNAMED
--add-opens=java.base/java.time.temporal=ALL-UNNAMED --add-opens=java.base/java.time.zone=ALL-UNNAMED --add-opens=java.base/java.util=ALL-UNNAMED
--add-opens=java.base/java.util.concurrent=ALL-UNNAMED --add-opens=java.base/java.util.concurrent.atomic=ALL-UNNAMED --add-opens=java.base/java.util.concurrent.locks=ALL-UNNAMED
--add-opens=java.base/java.util.function=ALL-UNNAMED --add-opens=java.base/java.util.jar=ALL-UNNAMED --add-opens=java.base/java.util.regex=ALL-UNNAMED
--add-opens=java.base/java.util.spi=ALL-UNNAMED --add-opens=java.base/java.util.stream=ALL-UNNAMED --add-opens=java.base/java.util.zip=ALL-UNNAMED
--add-opens=java.base/sun.nio.fs=ALL-UNNAMED --add-opens=java.base/sun.security.sasl=ALL-UNNAMED --add-opens=java.datatransfer/java.awt.datatransfer=ALL-UNNAMED
--add-opens=java.desktop/java.applet=ALL-UNNAMED --add-opens=java.desktop/java.awt=ALL-UNNAMED --add-opens=java.desktop/java.awt.color=ALL-UNNAMED
--add-opens=java.desktop/java.awt.desktop=ALL-UNNAMED --add-opens=java.desktop/java.awt.dnd=ALL-UNNAMED --add-opens=java.desktop/java.awt.dnd.peer=ALL-UNNAMED
--add-opens=java.desktop/java.awt.event=ALL-UNNAMED --add-opens=java.desktop/java.awt.font=ALL-UNNAMED --add-opens=java.desktop/java.awt.geom=ALL-UNNAMED
--add-opens=java.desktop/java.awt.im=ALL-UNNAMED --add-opens=java.desktop/java.awt.im.spi=ALL-UNNAMED --add-opens=java.desktop/java.awt.image=ALL-UNNAMED
--add-opens=java.desktop/java.awt.image.renderable=ALL-UNNAMED --add-opens=java.desktop/java.awt.peer=ALL-UNNAMED --add-opens=java.desktop/java.awt.print=ALL-UNNAMED
--add-opens=java.desktop/java.beans=ALL-UNNAMED --add-opens=java.desktop/java.beans.beancontext=ALL-UNNAMED --add-opens=java.desktop/javax.swing=ALL-UNNAMED
--add-opens=java.desktop/javax.swing.border=ALL-UNNAMED --add-opens=java.desktop/javax.swing.text=ALL-UNNAMED --add-opens=java.desktop/javax.swing.text.html=ALL-UNNAMED
--add-opens=java.desktop/sun.awt=ALL-UNNAMED --add-opens=java.desktop/sun.font=ALL-UNNAMED --add-opens=java.desktop/sun.java2d=ALL-UNNAMED
--add-opens=java.instrument/java.lang.instrument=ALL-UNNAMED --add-opens=java.logging/java.util.logging=ALL-UNNAMED --add-opens=java.management/java.lang.management=ALL-UNNAMED
--add-opens=java.prefs/java.util.prefs=ALL-UNNAMED --add-opens=java.rmi=ALL-UNNAMED --add-opens=java.rmi.dgc=ALL-UNNAMED
--add-opens=java.xml/com.sun.org.apache.xerces.internal.dom=ALL-UNNAMED --add-opens=java.xml/com.sun.org.apache.xerces.internal.jaxp=ALL-UNNAMED
--add-opens=java.xml/com.sun.org.apache.xerces.internal.parsers=ALL-UNNAMED --add-opens=java.xml/com.sun.org.apache.xerces.internal.util=ALL-UNNAMED
```

Linux

```
-Xms1g -Xmx1g
-Dcom.polarion.home=/opt/polarion/polarion -Dcom.polarion.propertyFile=/opt/polarion/etc/polarion.properties
-XX:+UseBiasedLocking -XX:BiasedLockingStartupDelay=0
--add-opens=java.base/java.io=ALL-UNNAMED --add-opens=java.base/java.lang=ALL-UNNAMED --add-opens=java.base/java.lang.annotation=ALL-UNNAMED
--add-opens=java.base/java.lang.invoke=ALL-UNNAMED --add-opens=java.base/java.lang.module=ALL-UNNAMED --add-opens=java.base/java.lang.ref=ALL-UNNAMED
--add-opens=java.base/java.lang.reflect=ALL-UNNAMED --add-opens=java.base/java.math=ALL-UNNAMED --add-opens=java.base/java.net=ALL-UNNAMED
--add-opens=java.base/java.net.spi=ALL-UNNAMED --add-opens=java.base/java.nio=ALL-UNNAMED --add-opens=java.base/java.nio.channels=ALL-UNNAMED
--add-opens=java.base/java.nio.channels.spi=ALL-UNNAMED --add-opens=java.base/java.nio.charset=ALL-UNNAMED --add-opens=java.base/java.nio.charset.spi=ALL-UNNAMED
--add-opens=java.base/java.nio.file=ALL-UNNAMED --add-opens=java.base/java.nio.file.attribute=ALL-UNNAMED --add-opens=java.base/java.nio.file.spi=ALL-UNNAMED
--add-opens=java.base/java.security=ALL-UNNAMED --add-opens=java.base/java.security.cert=ALL-UNNAMED --add-opens=java.base/java.security.interfaces=ALL-UNNAMED
--add-opens=java.base/java.security.spec=ALL-UNNAMED --add-opens=java.base/java.text=ALL-UNNAMED --add-opens=java.base/java.text.spi=ALL-UNNAMED
--add-opens=java.base/java.time=ALL-UNNAMED --add-opens=java.base/java.time.chrono=ALL-UNNAMED --add-opens=java.base/java.time.format=ALL-UNNAMED
--add-opens=java.base/java.time.temporal=ALL-UNNAMED --add-opens=java.base/java.time.zone=ALL-UNNAMED --add-opens=java.base/java.util=ALL-UNNAMED
--add-opens=java.base/java.util.concurrent=ALL-UNNAMED --add-opens=java.base/java.util.concurrent.atomic=ALL-UNNAMED --add-opens=java.base/java.util.concurrent.locks=ALL-UNNAMED
--add-opens=java.base/java.util.function=ALL-UNNAMED --add-opens=java.base/java.util.jar=ALL-UNNAMED --add-opens=java.base/java.util.regex=ALL-UNNAMED
--add-opens=java.base/java.util.spi=ALL-UNNAMED --add-opens=java.base/java.util.stream=ALL-UNNAMED --add-opens=java.base/java.util.zip=ALL-UNNAMED
--add-opens=java.base/sun.nio.fs=ALL-UNNAMED --add-opens=java.base/sun.security.sasl=ALL-UNNAMED --add-opens=java.datatransfer/java.awt.datatransfer=ALL-UNNAMED
--add-opens=java.desktop/java.applet=ALL-UNNAMED --add-opens=java.desktop/java.awt=ALL-UNNAMED --add-opens=java.desktop/java.awt.color=ALL-UNNAMED
--add-opens=java.desktop/java.awt.desktop=ALL-UNNAMED --add-opens=java.desktop/java.awt.dnd=ALL-UNNAMED --add-opens=java.desktop/java.awt.dnd.peer=ALL-UNNAMED
--add-opens=java.desktop/java.awt.event=ALL-UNNAMED --add-opens=java.desktop/java.awt.font=ALL-UNNAMED --add-opens=java.desktop/java.awt.geom=ALL-UNNAMED
--add-opens=java.desktop/java.awt.im=ALL-UNNAMED --add-opens=java.desktop/java.awt.im.spi=ALL-UNNAMED --add-opens=java.desktop/java.awt.image=ALL-UNNAMED
```

```

--add-opens=java.desktop/java.awt.image.renderable=ALL-UNNAMED --add-opens=java.desktop/java.awt.peer=ALL-UNNAMED --add-opens=java.desktop/java.awt.print=ALL-UNNAMED
--add-opens=java.desktop/java.beans=ALL-UNNAMED --add-opens=java.desktop/java.beans.beancontext=ALL-UNNAMED --add-opens=java.desktop/javax.swing=ALL-UNNAMED
--add-opens=java.desktop/javax.swing.border=ALL-UNNAMED --add-opens=java.desktop/javax.swing.text=ALL-UNNAMED --add-opens=java.desktop/javax.swing.text.html=ALL-UNNAMED
--add-opens=java.desktop/sun.awt=ALL-UNNAMED --add-opens=java.desktop/sun.font=ALL-UNNAMED --add-opens=java.desktop/sun.java2d=ALL-UNNAMED
--add-opens=java.instrument/java.lang.instrument=ALL-UNNAMED --add-opens=java.logging/java.util.logging=ALL-UNNAMED --add-opens=java.management/java.lang.management=ALL-UNNAMED
--add-opens=java.prefs/java.util.prefs=ALL-UNNAMED --add-opens=java.rmi/java.rmi=ALL-UNNAMED --add-opens=java.rmi/java.rmi.dgc=ALL-UNNAMED
--add-opens=java.rmi/java.rmi.registry=ALL-UNNAMED --add-opens=java.rmi/java.rmi.server=ALL-UNNAMED --add-opens=java.sql/java.sql=ALL-UNNAMED
--add-opens=java.xml/com.sun.org.apache.xerces.internal.dom=ALL-UNNAMED --add-opens=java.xml/com.sun.org.apache.xerces.internal.jaxp=ALL-UNNAMED
--add-opens=java.xml/com.sun.org.apache.xerces.internal.parsers=ALL-UNNAMED --add-opens=java.xml/com.sun.org.apache.xerces.internal.util=ALL-UNNAMED

```

5. You must now change the parameters to the Polarium server based on your installation. You can check the settings with the following screenshot:

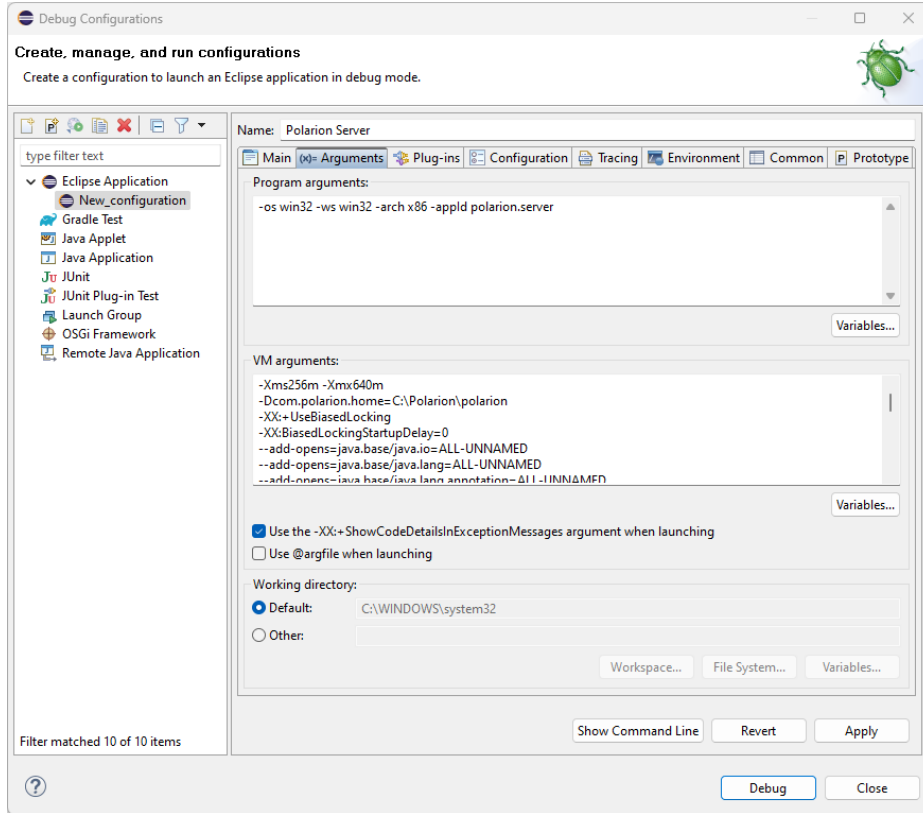


Figure EXEC-2: Debug - Arguments page

6. On the third "Plug-ins" tab, make sure, you have also selected "Target Platform" plugins.

7. Select all, and then click the **Validate Plug-ins** button. If there are some problems, uncheck the plugins which are in conflict.

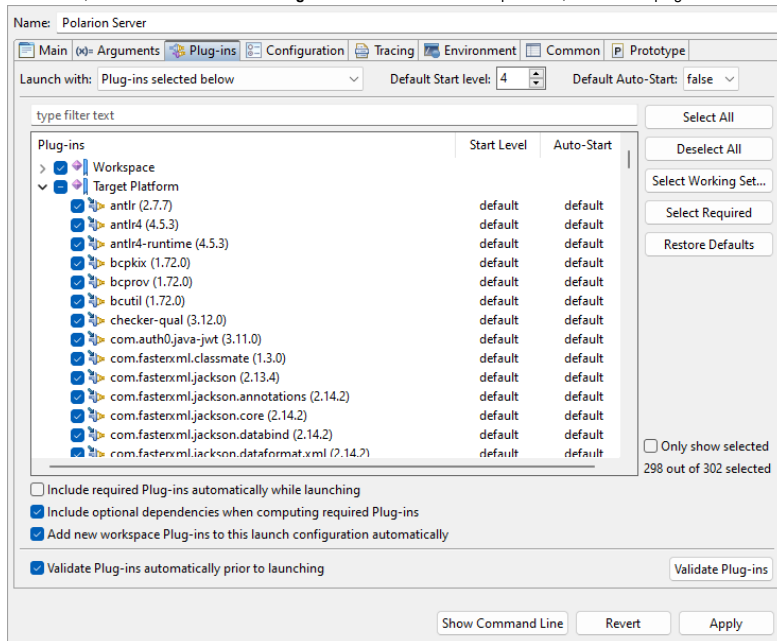


Figure EXEC-3: Debug - Plug-ins page

8. Other pages shouldn't be changed. Just click the **Debug** button, and go on with your new Polarium Server application.