

# General Procedure of Adding an Extension

This topic explains the basic procedure for extending Parasoft's built-in transports and message formats.

Sections include:

- [Adding an Extension](#)
- [Adding Multiple Extensions at Once](#)
- [API Documentation](#)
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## Adding an Extension

Use the following process to add support for all of the various message formats and transports your team is working with. All extension work is done using Java.

1. Add `[install dir]/plugins/com.parasoft.xtest.libs.web_[version]/root/com.parasoft.api.jar` to your Java project classpath. You can also create a new Java project that already has the .jar file added to its classpath:
  - a. Choose **File> New> Project**
  - b. Choose **SOAtest** or **Virtualize> Custom Development> SOAtest** or **VirtualizeJava Project**

### Building with Maven?

If you're building your Java project with Apache Maven, you can add the following to your project's pom.xml:

```
<project>
  ...
  <dependencies>
    <dependency>
      <groupId>com.parasoft.soavirt</groupId>
      <artifactId>com.parasoft.api</artifactId>
      <version>9.9.0</version> <!-- should match product version -->
      <scope>provided</scope>
    </dependency>
  </dependencies>
  ...
  <repositories>
    <repository>
      <id>ParasoftMavenPublic</id>
      <name>Parasoft Public Repository</name>
      <url>http://build.parasoft.com/maven/</url>
    </repository>
  </repositories>
  ...
</project>
```

2. Implement the appropriate interfaces. See the following sections for details on implementing the appropriate interfaces:

- a. [Interfaces to Implement for Custom Transports](#)

[Interfaces to Implement for Custom Message Formats in SOAtest](#)

[Interfaces to Implement for Custom Tools in SOAtest](#)

[Interfaces to Implement for Custom Listeners in Virtualize](#)

[Interfaces to Implement for Custom Message Formats in Virtualize](#)

[Interfaces to Implement for Custom Tools in Virtualize](#)

2. Create a `parasoft-extension.xml` file in the default package of your Java project and configure it as appropriate for the item (or items) you're adding.

- a. One `parasoft-extension.xml` file is expected for each Java project.

- b. If you want to add multiple extensions at once, you create one `parasoft-extension.xml` file that covers all of the extensions you're adding—and you use the top-level `<extensions>` element; see [Adding Multiple Extensions at Once](#) for details. Parasoft looks for `parasoft-extension.xml` files in its classpath under the default package, so each of your `parasoft-extension.xml` files need to be included on the classpath—by putting the directories each live in (or the jar files each are contained in) on the classpath in the System Properties preferences.

For details on how to configure this file for a specific type of extension in Virtualize, see:

[Defining parasoft-extension.xml for a Custom Message Format](#)

[Defining parasoft-extension.xml for a Custom Listener](#)

[Defining parasoft-extension.xml for a Custom Tool](#)

For details on how to configure this file for a specific type of extension in Virtualize, see:

[Defining parasoft-extension.xml for a Custom Transport](#)

[Defining parasoft-extension.xml for a Custom Message Format](#)

[Defining parasoft-extension.xml for a Custom Tool](#)

2. Build your Java project and add it to your system properties classpath area—either as a jar file, a Java project within your SOAtest or Virtualize workspace, or a class folder.
3. Restart SOAtest/Virtualize and verify that the extension appears in the appropriate area.

For details, see the following Virtualize sections for details:

[Verifying the New Listener](#)

[Verifying the New Message Format](#)

For details, see the following Virtualize sections for details:

[Verifying the New Transport](#)

[Verifying the New Message Format](#)

## Adding Multiple Extensions at Once

If your team is using a number of extensions, you might want to add multiple extensions at once—for example, a bundle that includes all of your custom message formats, custom transports, and message listeners.

To add multiple extensions at once:

1. Instead of creating multiple `parasoft-extension.xml` files (one for each extension), create one `parasoft-extension.xml` file in the project and ensure that it describes all of the extensions. Be sure to use the top-level xml element `<extensions>` and define the specific custom extensions as children of this top-level element.
2. Include all of the extensions in your Java project, build it, then add the resulting jar file, Java project, or class folder to the system properties classpath (as described in step #4 above).

For example, a single extension might have a `parasoft-extension.xml` file such as:

```
<?xml version="1.0" encoding="UTF-8"?>
<extension xmlns="urn:com/parasoft/extensibility-framework/v1/extension"
  type="tool"
  name='the name of your tool, appears in menus'
  description='A more detailed description'>
  <class>com.myCompany.MyTool</class> <!-- implements ICustomTool -->
  <version id='your version ID' updaterClass="com.myCompany.myUpdater"/>
  <tool xmlns="http://schemas.parasoft.com/extensibility-framework/v1/tool"
    ...
  </extension>
```

For a project that includes multiple extensions, you would have a `parasoft-extension.xml` file like:

```

<?xml version="1.0" encoding="UTF-8"?>
<extensions xmlns="urn:com:parasoft/extensibility-framework/v1/extension">
  <extension
    type="tool"
    name='the name of your tool, appears in menus'
    description='A more detailed description'>
    <class>com.myCompany.MyTool</class> <!-- implements ICustomTool -->
    <version id='your version ID' updaterClass="com.myCompany.myUpdater" />
    <tool xmlns="http://schemas.parasoft.com/extensibility-framework/v1/tool">
      ...
    </tool>
    ...
  </extension>
  <extension
    type="transport"
    name='The name of your transport, appears in the transports menu'
    description='A more detailed description'>
    <class>com.mycompany.MyTransport</class> <!-- implements ICustomTransport -->
    <form xmlns="urn:com:parasoft/extensibility-framework/gui">
      <!-- This describes the fields you wish to appear in your transport GUI -->
      <section label="field group 1">
        <field id="key 1" label="field 1"/>
        ...
        <field id="key n" label="field n"/>
      </section>
    </form>
  </extension>
  ...
</extension>
...
</extension>
</extensions>

```

## API Documentation

You can access documentation for the Extension framework API via the **Parasoft> Help** menu and look for the Parasoft SOAtest or Virtualize Extensibility API book.

## Additional Considerations

- Custom extensions can depend on Java libraries other than com.parasoft.api.jar. For details in SOAtest, see [Configuring External Dependencies](#). For details in Virtualize, see [Configuring External Dependencies](#).
- You can externalize any string displayed in the GUI to support different languages. For details in SOAtest, see [Localizing GUI Text](#). For details in Virtualize, see [Localizing GUI Text](#).

If you are using an existing extension and later create a new version of that extension that has a different set of GUI options, you can use a version updater to update your saved .tst (SOAtest) or .pva, .pvn (Virtualize) files to adapt them to the new set of options. For details on updating SOAtest artifacts, see [Updating GUI Fields for a New Version](#). For details on updating Virtualize artifacts, see [Updating GUI Fields for a New Version](#).