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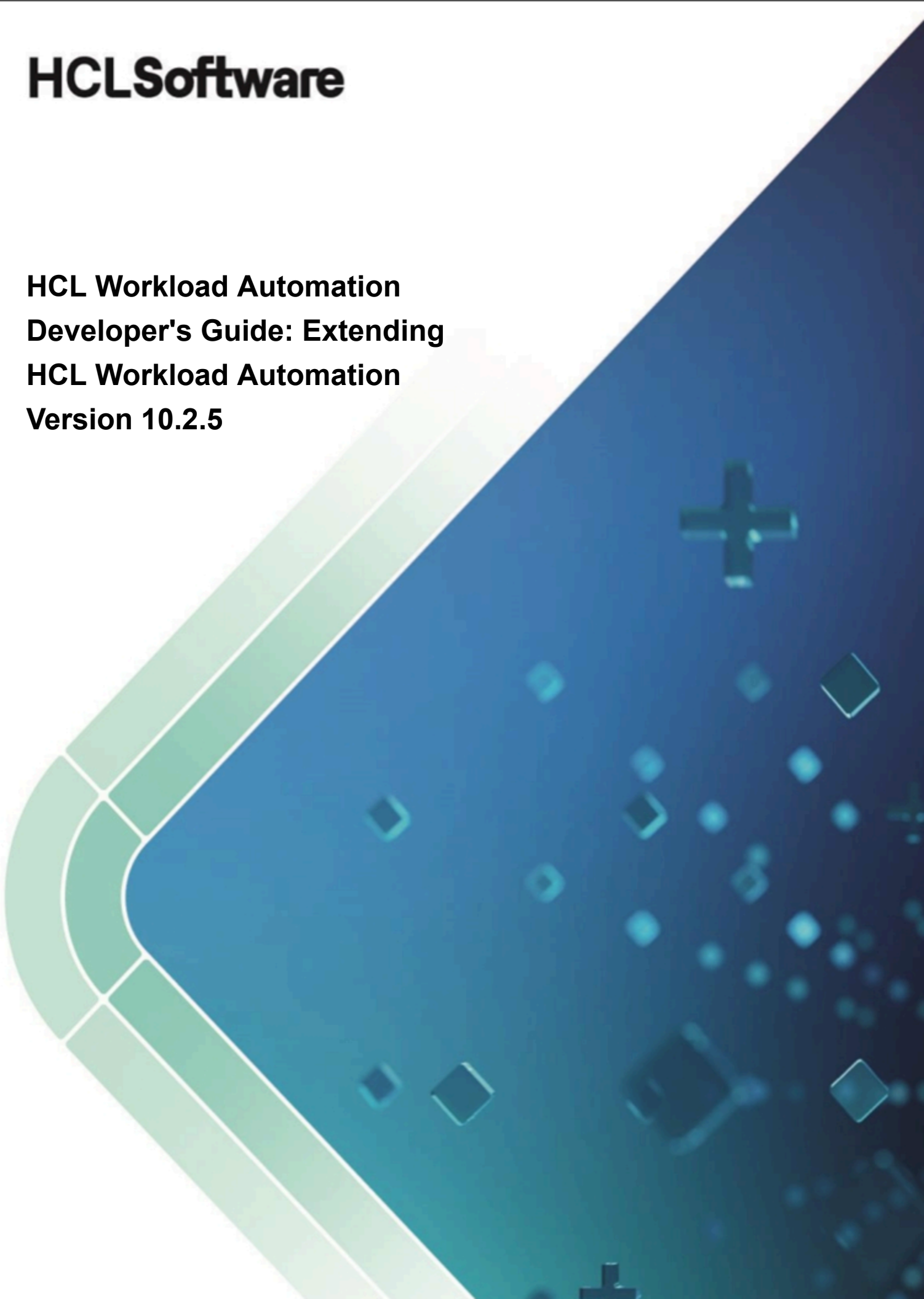
HCL Workload Automation Developer's Guide: Extending HCL Workload Automation Version 10.2.5



Note

Before using this information and the product it supports, read the information in Notices on page xi.

This edition applies to version 10, release 2, modification level 5 of HCL Workload Automation (program number 5698-T09) and to all subsequent releases and modifications until otherwise indicated in new editions.

Contents

About this publication

Developer's Guide: Extending HCL Workload Automation describes how to extend HCL Workload Automation by creating plug-ins that add functionalities relevant to your business activities.

What is new in this release

Learn what is new in this release.

For information about the new or changed functions in this release, see *Overview*, section *Summary of enhancements*.

New or changed content is marked with revision bars.

Who should read this publication

This publication provides information about how to add functionality to HCL Workload Automation products by creating Java™ plug-ins.

The reader of this book should be an *application programmer* expert in Java™, who has a reasonable understanding of the HCL Workload Automation infrastructure and its inter-component interactions. Alternatively, it should be the manager of such a person, who wants to better understand what you can achieve using plug-ins.

The publication assumes that the application programmer is experienced at creating and working with plug-ins and Java™. It also assumes that any product knowledge required to program the API or the web services interface is obtained from the product documentation. This publication does not attempt to explain any of the HCL Workload Automation concepts, procedures, and practices to which it refers.

This book also contains information useful to the *IT administrator* and the *HCL Workload Automation IT administrator*, for planning purposes.

Accessibility

Accessibility features help users with a physical disability, such as restricted mobility or limited vision, to use software products successfully.

With this product, you can use assistive technologies to hear and navigate the interface. You can also use the keyboard instead of the mouse to operate all features of the graphical user interface.

For detailed information, see the appendix about accessibility in the *HCL Workload Automation User's Guide and Reference*.

Chapter 1. Introduction to extending HCL Workload Automation

Provides an overview and introduction to how you can extend HCL Workload Automation.

You can extend HCL Workload Automation by creating plug-ins that add functionalities relevant to your business activities.

- Creating custom plug-ins to extend HCL Workload Automation.
- Java jobs that implement a Java project that you create on the target workstation.

Creating custom plug-ins

In the previous versions of the product, you can create a custom plug-in using the Integration Workbench to generate a plug-in project. The Integration Workbench is now deprecated, but you can create custom plug-ins using the Workload Automation, Lutist Development Kit.

Once your custom plug-in has been created, you can publish it on Automation Hub and share it with the Workload Automation community.

Creating new plug-ins, you contribute to improve the integration's world and cover all the business automation needs.

Java jobs

When you define a new scheduling job in HCL Workload Automation or HCL Workload Automation for Z, one of the job types you can choose is "Java". For each Java job you choose to define, you identify:

- A jar containing the Java classes and methods you want to run on the target workstation (on which the dynamic agent must be installed)
- A set of parameters to be used as input to those classes and methods

The Java project to be run can do more or less what you want it to, but to make this option effective you must follow a set of rules, which are described in this publication.

Chapter 2. Creating custom plug-ins

This topic provides an overview and introduction to how you can extend HCL Workload Automation.

In the previous versions of the product, you could create a custom plug-in using the Integration Workbench to generate a plug-in project. The Integration Workbench is now deprecated, but you can create custom plug-ins using the Workload Automation, Lutist Development Kit.

Before you create a new plug-in, check if the plug-in that you are looking for already exists on Automation Hub.

Automation Hub is a new automation command center that empowers your HCL Workload Automation by continuously delivering new plug-ins.

If you do not find what you need, you can access the Workload Automation, Lutist Development Kit through at Automation Hub.

The Workload Automation, Lutist Development Kit is a maven-based project that enables you to easily and quickly create new plug-ins.

Once your custom plug-in has been created, you can publish it on Automation Hub and share it with the Workload Automation community.

Chapter 3. Defining Java jobs

Describes how to create Java jobs which extend the capability of HCL Workload Automation.

About this task

To define a job that runs a Java job by using the Dynamic Workload Console, perform the following procedure.

1. From the Design menu, click Workload Designer page.
2. Specify an engine name, either distributed or z/OS. The Workload Designer page opens.
3. Select **Create new**, click **Job definition** and then select **Java** in the **Database and Integrations** section.
4. In the properties panel, specify the attributes for the job definition you are creating. You can find detailed information about all the attributes in the contextual help.
5. Click **Save** to save the job definition in the database.

What to do next

When you define a job of this type, you supply the following:

- A jar prepared by you, containing the classes and methods you want to implement when the job is run
- A set of parameters which provide runtime information to the job

The following sections tell you how to prepare the .jar. They also describe how you can use the **Get Class Information** button, which is displayed on the interface, to obtain information about the classes in the selected jar.

Creating Java job jar

Describes how to create the jar used with a Java job.

A Java job can use any jar that is created according to the following rules and procedure.

1. Include HCL Workload Automation jar in build path

The class that implements the Dynamic Workload Console interface is in the following jar:

On the server

`<TWA_home>/TWA/TWS/applicationJobPlugIn/com.ibm.scheduling.agent.java_<version>.jar`

On a dynamic agent

`<TWA_home>/TWA/TWS/JavaExt/eclipse/plugins/com.ibm.scheduling.agent.java_<version>.jar`

where `<version>` is the HCL Workload Automation version related to the latest fix pack applied.

This jar must be included in your Java build path.

2. Create your class which implements TWSExecutable

Create a class which implements a class called `TWSExecutable`, which has a signature as follows:

```
public abstract interface TWSExecutable
{
```

```
  public abstract void validateParameters(Parameters paramParameters)
    throws Exception;

  public abstract void execute(Parameters paramParameters)
    throws Exception;
}
```

Note: This class can be used on agents either at V8.5.1 Fix pack 1 or V8.6.

This class implements two methods:

validateParameters

This is the method which is called first when a Java job is executed. It validates the parameters input when the job was defined. If an exception occurs it is written to the job log.

execute

This is the method which actually runs the job.

The following are methods of the `validateParameters` class:

getParameter

Supplied with the argument of one of the parameters, it returns the actual value.

getParameterList

Returns a list of all the parameters defined as name/value pairs.

getOutputFile

Returns the path of the output job log.

Note: If you want to write to the log you must always remember to close it.

3. Optionally supply information to the person defining the job

The interface includes a button **Get Class Information**. To implement this button use the class `TWSExecutableInformation`, which has a signature as follows:

```
public abstract interface TWSExecutableInformation
{
  public abstract String getInformation();
}
```

Note: This class can be used only on V8.6.

This class is implemented when the user clicks the **Get Class Information** button, so you can use it to supply help information about the job in the jar that the user has selected.

4. Include any required libraries

If your Java job requires any libraries or other files, copy them to the folder where you have saved the jar. When the person defining the job identifies the jar, the product loads not just the jar, but also everything else in the folder on the agent.

Example

The following is an example of the code discussed in this topic:

```
package com.test.Trial;

import java.io.BufferedWriter;
import java.io.FileWriter;

import com.ibm.scheduling.agent.java.jobexecutor.TWSExecutable;
import com.ibm.scheduling.agent.java.jobexecutor.TWSExecutableInformation;
import com.ibm.scheduling.agent.java.parametersdomain.Parameters;

public class Trial implements TWSExecutable, TWSExecutableInformation{

  /*
   * Writes the parameter "parm1" to the log
   */

 @Override
 public void execute(Parameters arg0) throws Exception {
  String parm1 = arg0.getParameter("parm1");
  String filename = arg0.getOutputFile();

  BufferedWriter out = new BufferedWriter(new FileWriter(filename));
  out.write(parm1);
  out.close();

 }

  /*
   * Validates the parameter "parm1", throwing the exception to the log
   */

 @Override
 public void validateParameters(Parameters arg0) throws Exception {
  String parm1 = arg0.getParameter("parm1");
  if(parm1.equals("XXX"))
   throw new Exception("The parameter parm1 is not correct");

 }

  /*
   * Tells the user of the interface who has clicked the Get Class
   * Information button what the class does.
   */

 @Override
 public String getInformation() {
  String msg = "This class writes the parm1 parameter in the output log";

  return msg;
 }

}
```

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