

3rd Party Developer Tools

Installation Guide

V2.10

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1. Introduction

HMRC has traditionally supported third party developers primarily through its TPVS (Third Party Validation Service) environment. This does however require developers to wait for the TPVS release slots for functionality to be delivered. This will still continue, but there is a requirement to be more agile and deliver services earlier if possible. To this end a number of downloadable applications have been developed that should support more frequent releases of code and business rules to third party developers.

These tools are supported by the Software Developer Support Team (SDST):

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1.1 Terms and Conditions

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2. Components & Tools

There are currently four tools available for developers:

- *Local Test Service (LTS)*
 - A standalone application for validating XML submissions against the relevant XML schema and business rules.
- *LTS Update Manager (LTS-UM)*
 - A support tool used to download and install service packs for use in the LTS.
- *Outgoing XML Generator (OXG)*
 - A tool for generation of XML test cases to support DPS (Data Provisioning Service) testing.
- *LTS Injector (Injector / Batch Processor)*
 - A tool for sequentially submitting XML documents to the LTS for validation.

Detailed instructions on how to **install**, **configure** and **run** each of these components can be found in the following sections.

3. Requirements

A working Java Software Development Kit (SDK) needs to be installed and working on machines where any of the applications are to be run. This should be version 5, which is available at http://java.sun.com/javase/downloads/index_jdk5.jsp.

Note that the Java 5 Runtime Environment (JRE) is not sufficient; although a JRE is automatically installed when the SDK is installed.

Once installed the JAVA_HOME environment variable should be set to the home directory of Java as illustrated in the following examples:

Windows

```
set JAVA_HOME=C:\Program Files\Java\jre1.5.0u10
```

Linux/UNIX/Mac (bourne/bash shell)

```
JAVA_HOME=/opt/java/jre1.5.0_10;export JAVA_HOME
```

UNIX C Shell (csh and tcsh) Global Environment Variable

```
setenv JAVA_HOME=/opt/java/jre1.5.0_10
```

This should then be included in the PATH environment variable so that Java can be run from any location.

The user that will be running the application(s) should be able to open a command prompt or shell window and type the following:

```
java -version
```

That should result in something similar to the following:

```
java version "1.5.0_10"  
Java(TM) SE Runtime Environment (build 1.5.0_10-b03)  
Java HotSpot(TM) Client VM (build 1.5.0_10-b03, mixed mode, sharing)
```

If the user gets a “Command not found” type error, Java is not installed correctly and the user needs to review the above steps.

4. Local Test Service (LTS)

This web application replicates *most* of the functionality found in the TPVS environment for various services. This includes schema validation, business rule validation and IR Mark checking. Support for the GovTalk protocol and attachment checking is not included. Note that this application is a framework, which is configured by the LTS Update Manager (LTS-UM) to support selected services; without configuration the LTS does not support any service “out-of-the-box”.

Initially, only *PAYE In-year Movements* and *SA* services are supported, but more will be added over time.

The first submission to the LTS will take a few seconds longer than subsequent submissions. This is a normal feature, common to many web-driven applications.

4.1. Install

Extract the entire contents of the ZIP file to any desired location, e.g. /opt; referred to as: [extraction path].

4.2. Configure

The following environment variable is a mandatory requirement of the LTS application (and also the LTS Update Manager tool):

- `LTS_HOME` - Absolute path to the LTS directory.
This should be equivalent to: [extraction path]/HMRCTools/LTS

E.g.

Windows

```
set LTS_HOME=[drive]:\[extraction path]\HMRCTools\LTS
```

Linux/UNIX/Mac (bourne/bash shell)

```
LTS_HOME=/[extraction path]/HMRCTools/LTS;export LTS_HOME
```

UNIX C Shell (csh and tcsh) Global Environment Variable

```
setenv=/[extraction path]/HMRCTools/LTS
```

(Note: [extraction path] points to the LTS directory from root)

Optionally, modify the following XML configuration file as required (further instructions contained within the file):

- [extraction path]/HMRCTools/LTS/resources/config/UserConfigurable/LTSConfig.xml

4.3. Run

Execute the following script:

Windows

```
[drive]:\[extraction path]\HMRCTools\LTS\RunLTSStandalone.bat
```

Linux/UNIX/Mac

```
[extraction path]/HMRCTools/LTS/RunLTSStandalone.sh
```

Note: It will be necessary to assign the appropriate permissions for this file before attempting to execute it.

E.g. `chmod 755 RunLTSStandalone.sh`

4.4. Usage

There are THREE ways in which to use the *LTS*:

1. **File Upload**

Enter the following the URL into an Internet Browser and follow on-screen instructions to upload a single file:

<http://localhost:5665/LTS>

2. **Batch Processing**

Process multiple files at once using the *LTS Injector* tool. [See *LTS Injector* section below for details]

3. **HTTP POST**

HTTP POST to the following URL programmatically using application/x-binary mime type:

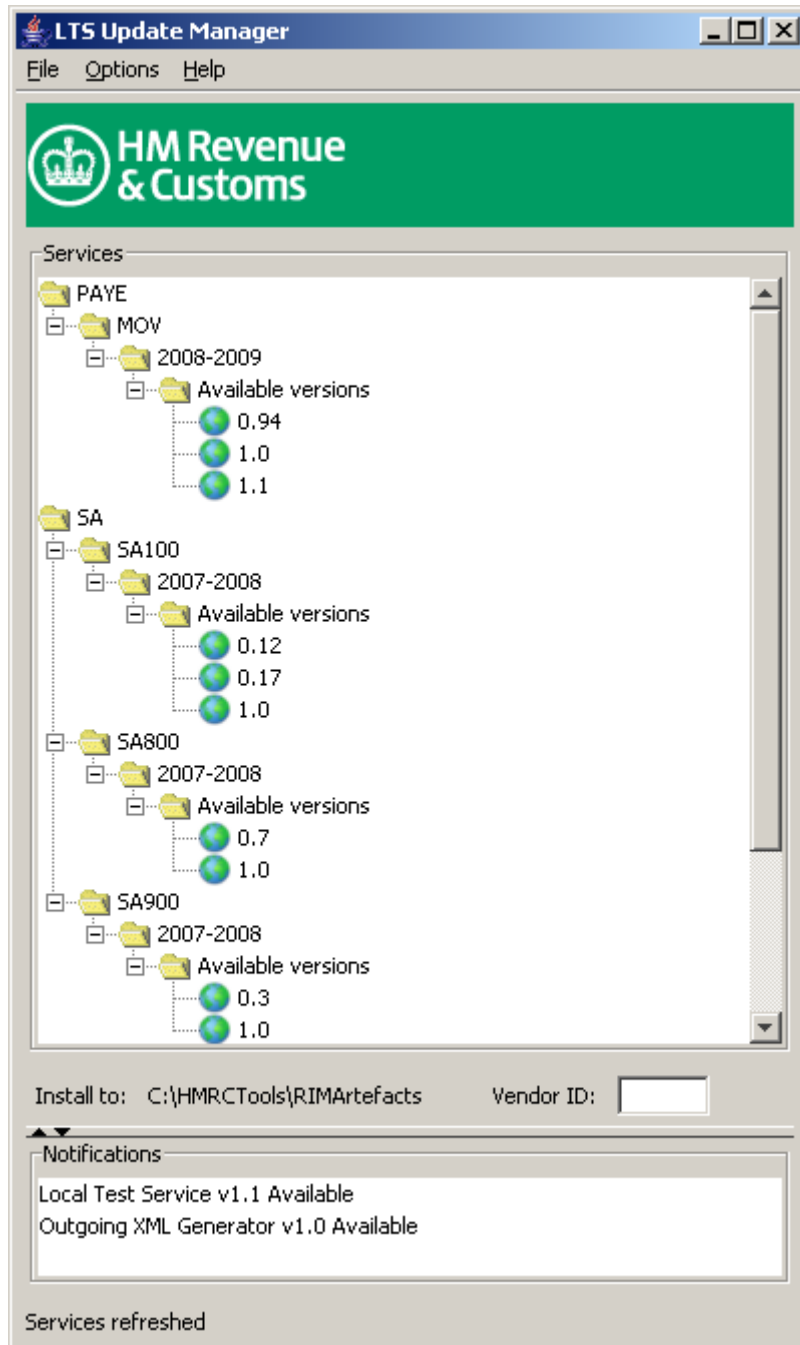
<http://localhost:5665/LTS/LTSPostServlet>

4.5. Testing

A test service is included by default in the initial installation of the LTS, called the RIM100 service. This can be used to prove the installation of the LTS by using one of the methods above to submit a RIM100 test file, found in the [extraction path]/HMRCTools/TestData directory.

5. LTS Update Manager (LTS-UM)

This GUI application is used to manage the services installed into the LTS framework and the configuration file of the LTS itself. It also displays important notification messages, such as the release of new versions of the LTS components. The content displayed is available via HMRC servers.



5.1. Install

This tool comes bundled within the *LTS Application* and is installed along with it as standard.

5.2. Basic Configuration

The following environment variable is a mandatory requirement of the LTS Update Manager tool (and also the LTS application):

- `LTS_HOME` - Absolute path to the LTS directory.
This should be equivalent to: `[extraction path]/HMRCTools/LTS`

E.g.

Windows

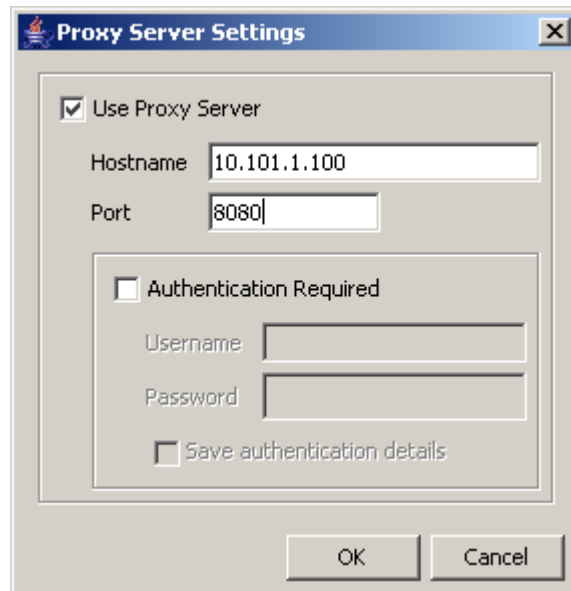
```
set LTS_HOME=[drive]:\[extraction path]\HMRCTools\LTS
```

Linux/UNIX/Mac

```
LTS_HOME=[extraction path]/HMRCTools/LTS;export LTS_HOME
```

5.3. Proxy Server Configuration

It maybe necessary to use Update Manager via a Proxy Server. In most cases this is due to a client of the vendor's internal network accessing the Internet via a proxy server for security / web caching purposes. To configure the Update Manager to point to the proxy choose: **'Options'** → **'Settings'** from the menu bar to reveal the following dialog:



Check **'Use Proxy Server'** and set the **'Hostname'** and **'Port'** of your proxy (sample shown). Some proxy servers may require authentication, check the **'Authentication Required'** checkbox to enable the **'Username'** and **'Password'** fields. Click **'OK'**. This configuration is now set to use the proxy. The settings will be saved when exiting Update-Manager.

5.4. Run

Execute the following script:

Windows

```
[drive]:\[extraction path]\HMRCTools\LTSUM\RunUpdateManager.bat
```

Linux/UNIX/Mac

```
[extraction path]/HMRCTools/LTSUM/RunUpdateManager.sh
```

Note: It will be necessary to assign the appropriate permissions for this file before attempting to execute it.

E.g. `chmod 755 RunUpdateManager.sh`

6. Outgoing XML Generator (OXG)

This tool helps in the production of XML test cases for the DPS (Data Provisioning Service).

The screenshot shows the HMRC Outgoing XML Generator application window. The title bar reads "HMRC Outgoing XML Generator". The menu bar contains "File" and "Help". The main area features the HM Revenue & Customs logo and the text "HM Revenue & Customs". Below this, there are input fields for "Got:", "Employer Reference:", "More Data:" (set to "true"), and "Vendor ID:". A tabbed interface shows "P6" selected, with other tabs for "P9", "SL1", "SL2", "AR", and "NOT". There are two "Browse" buttons: one for "P6 / P6B Input File:" and one for "Output File:". A "Generate" button is located at the bottom right.

6.1. Install

Extract the entire contents of the ZIP file to any desired location, e.g. /opt; referred to as: [extraction path].

6.2. Configure

Before using the OXG to generate XML submissions, it should first be supplied appropriate sample datasets, with which it can then populate the XML documents with sensible and valid data.

The following folder contains example templates for a selection of known submission types:

```
[extraction path]/HMRCtools/OXG/xls
```

These files can be directly modified and populated with appropriate data as required.

6.3. Run

Execute the following script:

Windows

```
[extraction path]\HMRCtools\OXG\RunXMLGenerator.bat
```

Linux/UNIX/Mac

```
[extraction path]/HMRCtools/OXG/RunXMLGenerator.sh
```

3rd Party Developer Tools - Installation Guide

Note: It will be necessary to assign the appropriate permissions for this file before attempting to execute it.
E.g. `chmod 755 RunXMLGenerator.sh`

7. LTS Injector (Injector / Batch Processor)

Automates the process of uploading multiple XML submission files to the *LTS*.

7.1. Install

This tool comes bundled within the *LTS Application* and is installed along with it as standard. The *LTS Injector* has been designed to run under Windows only as an example of how a product can use the *LTS* for handling validation.

7.2. Configure

By default, this utility expects the following two directories to exist:

- [extraction path]/HMRCTools/LTS/InjectorUtility/**source**
 - XML submission files to upload to the *LTS Application*
- [extraction path]/HMRCTools/LTS/InjectorUtility/**dest**
 - XML result files returned by the *LTS Application*

The 'Run' script may be modified to specify alternate locations for either of these directories.

If the default configuration of the *LTS* has been changed to use a custom URL (hostname and/or port number), the 'Run' scripts must also be changed to reflect this.

7.3. Run

Execute the following script:

Windows

```
[extraction path]\HMRCTools\LTS\InjectorUtility\RunInjectorUtility.bat
```

7.4. Usage

Place XML submission files in the *source* directory and then run the utility to upload ALL of the files to the *LTS*.

8. Frequently Asked Questions (FAQ)

The instructions in this document should provide all the information required to get the *LTS* and its related components up and running. However, if guidance is required on a specific task or problem then this FAQ provides a quick reference for most of the common issues.

Contents

1. How to configure the hostname and/or port number used to access the LTS.
2. What configuration options exist for the validation engine?
3. Error message: “You Must set the LTS_HOME environment variable, please consult the Install guide”
4. Error message: “Exception in thread "main" java.lang.NoClassDefFoundError: xxxx”

1. How to configure the hostname and/or port number used to access the LTS.

This is configured within the following file:

```
[extraction path]/HMRCTools/LTS/resources/config/UserConfigurable/LTSConfig.xml
```

Instructions for modifying this configuration file are given within the file itself.

After changing the default configuration of the hostname or port number, if you wish to use the Injector Utility it will be necessary to update its configuration to reflect these changes. This involves modifying the Windows ‘Run’ script for the Injector Utility to use the new hostname/port details.

Within this Run script you will find two `java` commands. The first one starts the Injector Utility using the default URL for the LTS (<http://localhost:5665/LTS>). The second, which is commented out, provides an example of how you can specify a custom hostname and/or port number as a command line argument.

2. What configuration options exist for the validation engine?

The LTS Update Manager manages **ALL** of the configuration for the validation engine. No part of the `validatorConfig.xml` file should be modified manually.

If you wish to make changes to the validation engine (i.e. the rules used to validate against) then you must use the LTS Update Manager to perform these changes. Manual configuration is not supported and is likely to cause unexpected results.

3. Error message: “You Must set the LTS_HOME environment variable, please consult the Install guide”

The LTS application and the LTS-UM tool both require that an environment variable with the name `LTS_HOME` exist and be correctly configured with the absolute pathname of the LTS directory.

The value of this environment variable should be equal to the following:

```
[extraction path]/HMRCTools/LTS
```

If this is not the case then you will experience problems when trying to use the LTS or LTS-UM.

4. Error message: “Exception in thread “main” java.lang.NoClassDefFoundError: xxxx”

This error occurs when the `LTS_HOME` environment variable has been assigned a value that contains spaces but the value has not been wrapped in quotes (“...”).

To confirm this, you should recognise some or all of the “xxxx” section of the message as being part of the `LTS_HOME` value.

To rectify the problem, re-assign the `LTS_HOME` environment variable such that its value is enclosed in quotes.