Installation Guide for Conformance Software

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6 July 2018

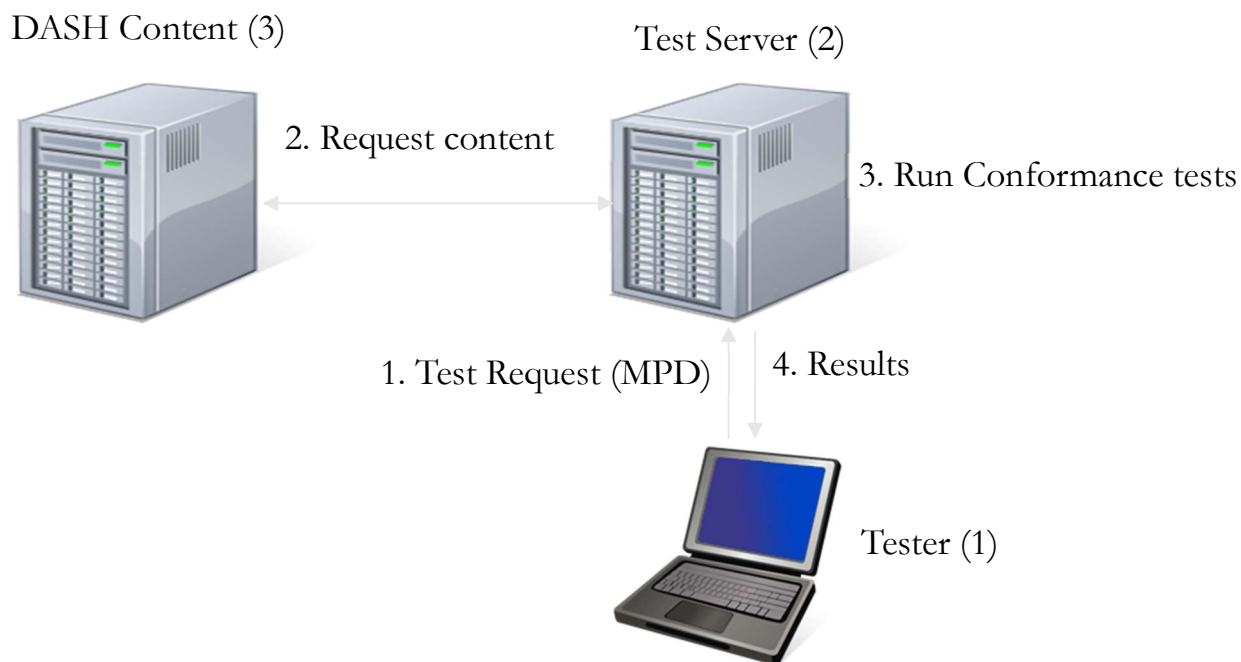# Table of Contents

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1 Introduction

This document provides necessary information on the Test setup for the Conformance Software on a local machine. The document provides the steps to setup the software including the various dependent software packages and libraries. In addition, the version requirements of various software packages are provided.

2 Test realization architecture

Figure 1 shows the functional block diagram of how the DASH conformance software has been realized.

- The conformance software resides on the "Test Server".
- The "Tester" is a web-client, e.g. Google Chrome browser that accesses the conformance software on the Test Server.
- The Tester provides the MPD (either as an uploaded file, or points to the MPD location on the web) to the conformance software.
- Based on this information, the conformance software accesses the "DASH Content".
- Conformance testing is done on the Test Server.
- The report of the conformance testing is provided back to the Tester.

DASH Content (3)   Test Server (2)

2. Request content

3. Run Conformance tests

1. Test Request (MPD)   4. Results

Tester (1)

Figure 1 Functional block diagram of realization architecture

3   Requirements

This section provides the software requirements and the version numbers to be used to setup the Conformance Software.

3.1   Test Server

Table 1 below lists all the software requirements for the Test Server setup

Table 1 Software requirements

Package	Version
Operation System	Ubuntu 16.04.4 LTS, 64-bit **
PHP	5.6 or above
Java	1.8.0_171
Apache server	2.4

Python	2.7

** The conformance server is implemented on this OS and the support check for other OS versions or types is out of scope.

3.2 Tester

Tester is a web-client and Google Chrome ** has been used as the regular browser in the testing environment.

** Firefox can also be used, but additional support if required, is out of scope.

3.3 Test server program

The program code for the Conformance Software which should be downloaded to Test Server are uploaded on Github and the general syntax of the locations are provided below. Frontend code is sufficient to run the software, backend code is for reference.

Frontend code: https://github.com/*<username>*/*<Repository_Frontend>*
Backend code: https://github.com/*<username>*/*<Repository_Backend>*

4   Installation steps

This section provides the necessary commands and instructions for setting up the Test Server.

1. Install PHP

    PHP 7.0 is the default package for Ubuntu 16.04

    sudo apt-get install php php-dev php-curl php-xdebug libapache2-mod-php

2. Install Java

    Manually download the newest Oracle (Sun) Java directly from the link https://www.java.com/en/download/linux_manual.jsp choose the *.tar.gz* version, unpack them and place at a desired place.

    Afterwards setup the java path with the following commands:

sudo update-alternatives --install "/usr/bin/java" "java" "path_to_java" 1
sudo update-alternatives --install "/usr/bin/javaws" "javaws" "path_to_javaws" 1

The paths are located in the bin folder of the unpacked package, which is usually called jre1.8.0_version, so the path_to_java could be e.g. /opt/jre1.8.0_version/bin/java.

Ensure that you also have a java compiler (JRE). This can be verified by using:
javac -version

Also, ensure that javac and java use the same version. This can be verified by comparing the two commands:
java -version
javac -version

If there is no javac present, install the same version as java. For example, the javac 1.8 version could be installed by:
sudo apt-add-repository ppa:webupd8team/java
sudo apt-get update
sudo apt-get install oracle-java8-installer

3. Apache server

   Apache 2.4 is recommended, the root folder is /var/www/html/.
   sudo apt-get install apache2 apache2-doc

4. Configure Apache

   Go to the root folder, copy or move the web contents (DASH/DVB frontend code) there, or make a softlink of the projects.

   Rename or move the index.html, so that the user defined contents are shown in http://localhost/

   If you want to change the root location, then modify the file /etc/apache2/sites-available/000-default.conf

   When there is no error with the root location, please check if the user or group have corresponding rights. Check the settings by ' *ls -l* '.

   Make sure that you are in the group www-data and add write permission to the users in this group by:
   sudo chmod -R 0777 /var/www/

(Sometimes addition to the sudoers list is needed. Run "sudo visudo" and add these lines at the end: *www-data ALL=(ALL) NOPASSWD:ALL*)

After any configuration change, a restart of apache service is necessary:
sudo service apache2 restart

5. Install python
    a. *sudo apt-get install python2.7*
    b. *sudo apt-get install python-pip*
    c. *sudo apt-get install python-matplotlib*

6. Possible additional installations
    1. Install 'ant', required to run MPD validator in Conformance-Software.
        sudo apt-get install ant
    2. XML extension of PHP
        sudo apt-get install php-xml
    3. Stdc++ package
        sudo apt-get install libstdc++6:i386

7. If everything works correctly, you should be able to be open the Frontend conformance software in your browser by navigating to:
    http://localhost/<Repository_Frontend>/webfe/conformancetest.php