Heliophysics Integrated Observatory

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HELIO Storage Service Developers Guide

Draft

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Editor:	**Dr Gabriele Pierantoni**, TCD
Contributors:	
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Revision History

Version	Date	Released by	Detail
0.1	25 June 2012	Dr. Gabriele Pierantoni	1st draft
0.2	01 October 2012	Dr. Gabriele Pierantoni	Minor Corrections

Note: Any notes here.

Table of Figures

Introduction

The HELIO Storage Service (HSS) is an interface to different storage resources that offers to HELIO two different kinds of storage: local and grid based.

At the moment being, HSS supports two different storage resources: a local file system accessible through an https server for small files and to show the results of the Processing Services through and HTTPS service and a larger grid resources based on the LFC gLite service.
According to its dual nature, the HSS can be deployed in two modalities as sketched in Figure 1.

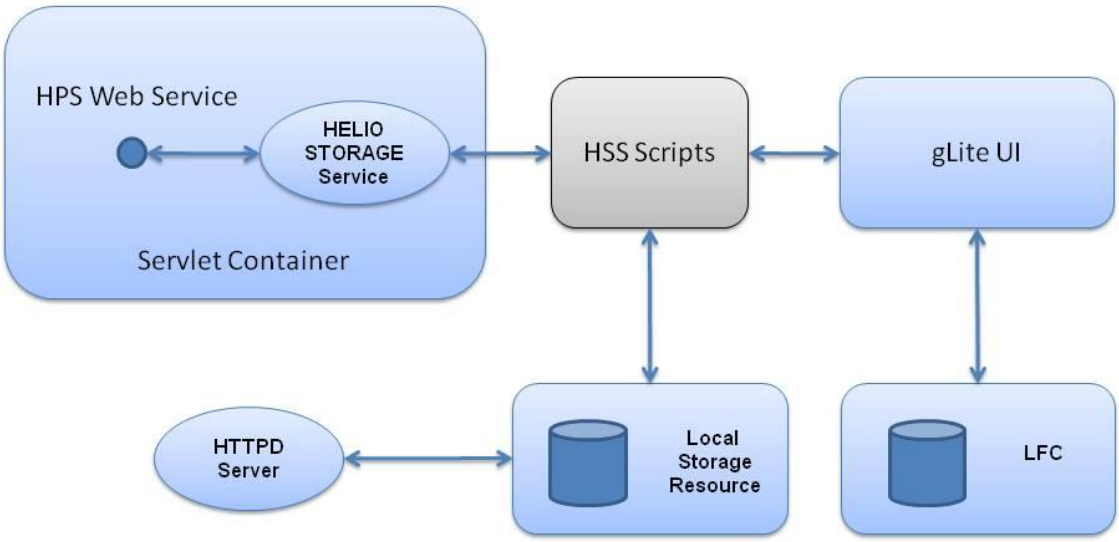

Figure 1, different deployment profiles of HSS

When the HSS only supports the local storage resource, its stack is described in Figure 2.

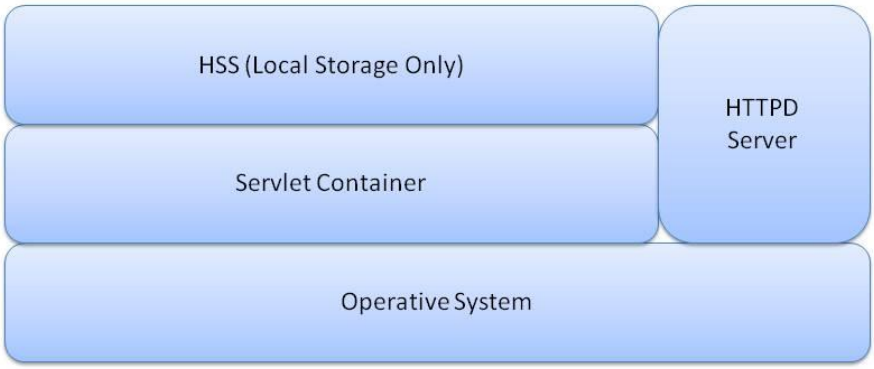

Figure 2, HSS stack in simple modality

In this case, the HPS simply consists of a web service application and an HTTPD Server to access the files stored in the local file system.

When a larger storage resource is required, the HSS can be used in conjunction with a gLite LFC service as sketched in Figure 3.

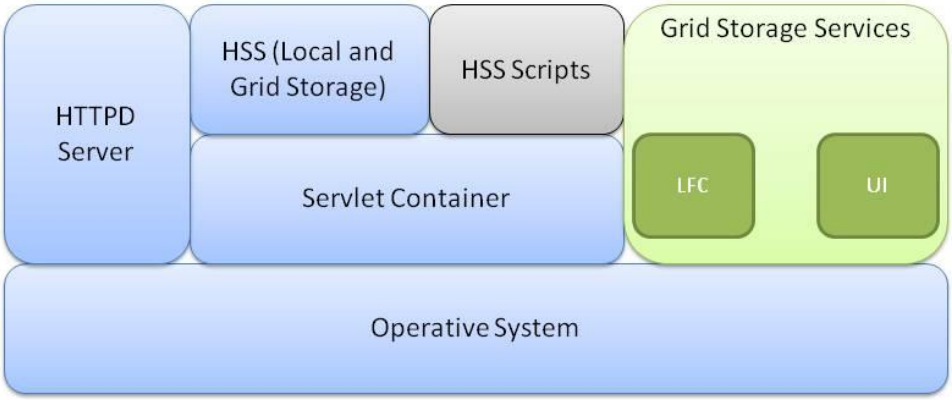

Figure 3, HSS stack in full modality

Suggested Reading

To build the service	
Java (compile service)	http://www.oracle.com/technetwork/java/javase/overview/index.html
Tomcat (web container to host the service)	http://tomcat.apache.org/
Maven (build system)	http://maven.apache.org/ (or use a plug-in to your development environment)
To install the service	
LFC (Main web page)	https://twiki.cern.ch/twiki/bin/view/LCG/LfcAdminGuide
gLite UI (Main page)	http://glite.web.cern.ch/glite/packages/R3.2/sl5_x86_64/deployment/glite-UI/3.2.1-0/glite-UI-3.2.1-0-update.html
gLite UI (Documentation page)	https://edms.cern.ch/document/722398/

System Requirements

- Java 1.6
- Servlet Container i.e. Tomcat greater than 5.5, GlassFish, JBOSS. For the purpose of this document, installation is in Tomcat.
- gLite LFC (Only if grid support is required)
- gLite 3.2 UI (Only if grid support is required)

Service Installation

HSS primary installation is in TCD, these instructions will create a mirror service. The service can be installed as simple (local only) storage or full (local and grid) storage.

Downloading the Source

- HELIO Storage Service is installed as a war file on a servlet container:

Building the Service

No building is necessary.

Installing the Service

It is assumed installation of a servlet container Tomcat.

Simple Installation

The simple installation requires that the war file is deployed in the servlet container.
The HSS configuration is contained in the HSS.conf file that must be deployed in the tomcat directory. When the HSS is deployed in simple modality, the HSS.conf file contains the following entries:

- The location of the output directory, a directory that will contain the output of the applications' execution. The output directory must be readable and writable by the TOMCAT user. Also this directory is usually exposed by a HELIO Processing Service (HPS).
- The directory of all the HSS scripts defined in the HSS.conf file be readeable and executable by the TOMCAT user but cannot be written.

Full Installation

In addition to the steps described in the Simple Installation section, requires that:

- An instance of a gLite UI 3.2 is installed on the machine as per https://twiki.cern.ch/twiki/bin/view/LCG/GenericInstallGuide320 and https://twiki.cern.ch/twiki/bin/view/LCG/GenericInstallGuide320#The_UI
- An instance of a LFC server is installed (as per https://twiki.cern.ch/twiki/bin/view/LCG/LfcAdminGuide) and can be reached by the machine hosting the HSS.

Structure of the Code

The HPS code is divided into different packages:

- ***helio-shared*** - Utilities classes shared among different components of HSS and other services are in the shared project,
- ***helio-hss-server-lib*** - This package contains all the core functionalities of the HSS server,
- ***helio-sps-server-ws*** – This package contains the web-service interface of the HSS
- ***helio-hss-client*** – This package contains the client to the web-service interface of the GPS

Dependencies

The HSS dependencies are managed by the maven project of HELIO. They are described package by package by their pom.xml files.

Logging

HSS logs to the ***catalina.out*** log file.

Maintaining & Extending the Service

Fixing problems

Contact mailto://helio-services@majordomo.mssl.ucl.ac.uk

Download, Build, Install

If the requirement is to view the source code to make an extension or correct a possible error, follow instructions below for building from the source code repository.

Downloading Source

The HSS source code is part of the HELIO-vo project in sourceforge. The main page is: http://sourceforge.net/projects/helio-vo/.
You can download the complete source code using svn issuing the command

svn co https://helio-vo.svn.sourceforge.net/svnroot/helio-vo helio-vo

Building HSS

HSS is built using Maven. It is recommended to issue a ***maven clean*** command before building with a ***maven package*** command. This will build a war file helio-hss-server/target directory.