

# HP Service Virtualization

For the Windows® operating system

Software Version: 2.01

---

## Installation Guide

Document Release Date: May 2012

Software Release Date: May 2012

## Legal Notices

### Warranty

The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

The information contained herein is subject to change without notice.

### Restricted Rights Legend

Confidential computer software. Valid license from HP required for possession, use or copying. Consistent with FAR 12.211 and 12.212, Commercial Computer Software, Computer Software Documentation, and Technical Data for Commercial Items are licensed to the U.S. Government under vendor's standard commercial license.

### Copyright Notice

© Copyright 2011-2012 Hewlett-Packard Development Company, L.P.

### Trademark Notices

Adobe™ is a trademark of Adobe Systems Incorporated.

Internet Explorer®, SQL Server®, Microsoft®, Windows®, Windows® XP and Windows 7® are U.S. registered trademarks of Microsoft Corporation.

Oracle and Java are registered trademarks of Oracle and/or its affiliates.

IBM® and WebSphere® are trademarks or registered trademarks of International Business Machines Corporation, IBM, in the United States and in other countries.

TIBCO® is either the registered trademark or the trademark of TIBCO Software, Inc. and/or its subsidiaries in the United States and /or other countries.

Intel® is trademark of Intel Corporation in the U.S. and other countries.

## Documentation Updates

The title page of this document contains the following identifying information:

- Software Version number, which indicates the software version.
- Document Release Date, which changes each time the document is updated.
- Software Release Date, which indicates the release date of this version of the software.

To check for recent updates or to verify that you are using the most recent edition of a document, go to:

**<http://h20230.www2.hp.com/selfsolve/manuals>**

This site requires that you register for an HP Passport and sign in. To register for an HP Passport ID, go to:

**<http://h20229.www2.hp.com/passport-registration.html>**

Or click the **New users - please register** link on the HP Passport login page.

You will also receive updated or new editions if you subscribe to the appropriate product support service. Contact your HP sales representative for details.

# Support

Visit the HP Software Support Online web site at:

**<http://www.hp.com/go/hpsoftwaresupport>**

This web site provides contact information and details about the products, services, and support that HP Software offers.

HP Software online support provides customer self-solve capabilities. It provides a fast and efficient way to access interactive technical support tools needed to manage your business. As a valued support customer, you can benefit by using the support web site to:

- Search for knowledge documents of interest
- Submit and track support cases and enhancement requests
- Download software patches
- Manage support contracts
- Look up HP support contacts
- Review information about available services
- Enter into discussions with other software customers
- Research and register for software training

Most of the support areas require that you register as an HP Passport user and sign in. Many also require a support contract. To register for an HP Passport ID, go to:

**<http://h20229.www2.hp.com/passport-registration.html>**

To find more information about access levels, go to:

**[http://h20230.www2.hp.com/new\\_access\\_levels.jsp](http://h20230.www2.hp.com/new_access_levels.jsp)**

---

# Contents

Installation Guide.....	1
Contents.....	5
Service Virtualization Deployment.....	6
Prerequisites.....	7
Installation.....	9
Command Line Installation.....	11
HTTP Port Configuration.....	15
How to Install Self-Signed Certificate.....	15
How to Install Custom Certificate.....	16
HP Service Virtualization Server.....	18
Service Virtualization Server Configuration.....	18

## Service Virtualization Deployment

Service Virtualization consists of the following applications:

- **HP Service Virtualization Designer**

A client application enabling users to model their composite applications, and record, simulate and change learned behavior of services.

- **HP Service Virtualization Server**

A server application which hosts running virtual services. See "[HP Service Virtualization Server](#)" on page 18 for more information

These applications can be installed together on a single machine or separately as a distributed application. For standard installation steps see "[Installation](#)" on page 9

To manually configure HTTP Ports, see "[HTTP Port Configuration](#)" on page 15.

# Prerequisites

## **Hardware**

Minimal Hardware Configuration:

With a minimal HW configuration you will be able to perform all functional testing scenarios and some basic performance test scenarios in standalone configuration that don't create too much load on virtualized services.

Service Virtualization can be installed in two modes: embedded server and standalone sever. In embedded mode, the designer, virtualization server and database is installed on one physical machine. The standalone server assumes the Service Virtualization Server and SQL Server are installed on a different machine than the designer.

The following minimal recommendations are examples and similar hardware can be used.

### **Embedded installation**

- 32-bit Windows 7
- 4GB physical memory
- Intel ® Core 2 Duo T7500 @ 2.2GHz
- 50GB of free physical disk space storage

### **Standalone installation**

#### *Server*

- 32-bit Windows
- 4GB physical memory
- Intel ® Xeon 5140 @ 2.33GHz
- 5GB of free physical disk space storage

#### *Designer*

- 32-bit Windows 7
- 4GB physical memory
- Intel ® Core 2 Duo T7500 @ 2.2GHz
- 60GB of free physical disk space storage

#### *SQL Server database*

- 4GB physical memory
- Intel ® Xeon 5140 @ 2.33GHz
- 60GB of free physical disk space storage

Virtualization hardware sizing is complicated and may include many factors. For detailed sizing recommendations or recommendations for highly loaded virtualized services, contact HP support. See "[Support](#)" on page 4.

#### **Software**

Before installing, please contact Customer Support to check if software updates are available. See "Support" on page 4.

User must have administration rights to install Service Virtualization. Service Virtualization requires Microsoft SQL Server 2008 R2 database. You can use your existing instance of Microsoft SQL Server 2008 R2 or install a new instance of SQL Server Express edition by running setup.exe in the Microsoft SQL Server 2008 Express folder.

**Note:** Any user needs administrator rights to run the program for the first time in order to initialize their database.

#### *Supported Operating Systems:*

- MS Windows Server 2008 64-bit Intel
- MS Windows Server 2003 32-bit (SP2) and 64-bit Intel (SP2)
- MS Windows 7 32-bit and 64-bit Intel
- MS Windows Server 2008 R2 64-bit Intel
- MS Windows XP 32-bit (SP3) Intel

#### *Port Availability:*

The Virtualization Server agents require ports 6070, 6071, 6075 and 6076.

The Virtualization Designer agents require ports 7200, 7201, 7205 and 7206.

REST Management requires ports 6080 and 7280

**Tip:** The *httpcfg* tool must be installed on Windows XP and Windows 2003 for HTTP port configuration.

- *httpcfg* prerequisite for Windows XP:  
Windows XP Service Pack 2 Support Tools - Complete Installation  
<http://www.microsoft.com/download/en/details.aspx?id=18546>
- *httpcfg* prerequisite for Windows 2003:  
Windows Server 2003 Service Pack 2 32-bit Support Tools  
<http://www.microsoft.com/download/en/details.aspx?id=15326>

**Tip:** The *certutil* tool must be installed on Windows XP for SSL certificate configuration.

- *certutil* prerequisite for Windows XP:  
Windows Server 2003 Administration Tools Pack  
<http://www.microsoft.com/download/en/details.aspx?id=16770>

**Tip:** To reconfigure agent ports, see "Supported Technologies And Environments" in the User Guide. To reconfigure REST ports, edit the `VirtualServiceDesigner.exe.config` file for the Designer and see "HP Service Virtualization Server" on page 18 for the Server.



# Installation

## To Install Service Virtualization:

1. Execute `setup.exe` in the *HP Service Virtualization 2.00* folder and follow the installation instructions. The prerequisites Microsoft .NET 4.0, MSI 4.5, MS Access Database Engine 2007, Microsoft Visual C++ 2008 Redistributable and Microsoft Visual C++ 2010 Redistributable are validated and installed if required.

**Caution:** The installation requires the installation of Microsoft .NET update KB2468871. This is normally applied with the automatic .NET updates, but in cases that the installation computer is not connected to the Internet, a manual installation of this update may be required. The update can be found at <http://www.microsoft.com/download/en/details.aspx?id=3556>.

2. Installation of Service Virtualization starts automatically.
3. During installation user selects components to be installed. There are three components available for installation:
  - Designer (optional, preselected) – Virtualization UI with embedded server.
  - Server (optional, preselected) – Standalone server. See "HP Service Virtualization Server" on [page 18](#) for more information.
  - Demos (optional, preselected) – Set of demo applications and projects.

Optional: User may change the default installation directories by clicking **Change...** and entering an alternate location.

**Note:** Default location of the Designer and the Server are different from that of the Demos.

Select the required components and click **Next**.

3. Both the embedded and standalone servers require SQL Server database connection details. User is required to fill-in the details with option of testing the connection.

**Caution:** If installing both embedded and standalone server, ensure that database names are different.

Database Setup Options:

**Server:** Name or network address of database server used by embedded/standalone server.

**Instance:** Name of database instance used by embedded/standalone server. Leave it blank to use a default instance on a server.

**Properties:** Additional database connection properties. The specified properties are added to the connection string as the additional parameters just after the server and instance parameters. The entire connection string can be checked by clicking on button **Connection String**.

Examples:

```
,1433; use database port 1433
```

```
,1433;Encrypt='true'; use database port 1433 and SSL connection
```

`;Encrypt='true'; use SSL connection`

**Name:** Name of database used by server.

**Authentication:** Select the type of authentication to database server.

**User:** User name for SQL authentication.

**Password:** User password for SQL authentication.

**Test Connection:** Test the database connection. If successful the confirmation dialog is shown. In case the test fails the error dialog is shown with the error details.

**Connection String:** Shows the database connection string. This is the actual connection string which is used later during the installation when the database is created.

When correct, click **Next**.

4. **Installation Options** allows you to apply optional extra functionality to your installation.

#### ***Performance Monitor Remote Access***

To create a new user with privileges to read the performance monitor, select the checkbox **Create performance monitor user** in the Application Add-ons dialog and set the user credentials. This user account can be used for remote access to the application's performance monitor counters.

Click **Next**.

5. The installation is now ready to proceed. You can click **Back** to make any changes or click **Install** to continue.
6. Click **Finish** to complete the installation.

## Command Line Installation

The installer can be executed from command line with **msiexec** with the following properties:

**Note:** Command Line Installation does not make a prerequisites check.

Property	Component	Description	Values	Default	Defined in UI
EMBEDDED_SERVER_DB_SERVER	Designer	Database server host name. Use localhost for local database		localhost	YES
EMBEDDED_SERVER_DB_INSTANCE	Designer	Database instance. Must be blank in case of default instance.		SQLExpress_SV	YES
EMBEDDED_SERVER_DB_PROPERTIES	Designer	Additional connection properties like port and SSL. Example: ,1234;Encrypt='true';			YES
EMBEDDED_SERVER_DB_NAME	Designer	Database name		username + embedded	YES
EMBEDDED_SERVER_DB_AUTHENTICATION	Designer	Database authentication uses either Windows or database credentials	WinAuth / SqlAuth	WinAuth	YES
EMBEDDED_SERVER_DB_USERNAME	Designer	Database user name. Used only in case of authentication by database credentials			YES
EMBEDDED_SERVER_DB_USERPASS	Designer	Database user password. Used only in case of authentication by database credentials			YES
EMBEDDED_SERVER_HTTP_PORT	Designer	Non-secure port number for HTTP Gateway on Embedded Server		7200	NO
EMBEDDED_SERVER_HTTP_PROXY_PORT	Designer	Non-secure port number for HTTP Proxy on Embedded Server		7201	NO
EMBEDDED_SERVER_HTTPS_PORT	Designer	SSL port number for HTTPS Gateway on Embedded Server		7205	NO
EMBEDDED_SERVER_REST_PORT	Designer	Management Service port number for Embedded Server		7280	NO

Property	Component	Description	Values	Default	Defined in UI
PORT					
STANDALONE_SERVER_DB_SERVER	Standalone	Database server host name. Use <code>localhost</code> for local database		localhost	YES
STANDALONE_SERVER_DB_INSTANCE	Standalone	Database instance. Must be blank in case of default instance.		SQLExpress_SV	YES
STANDALONE_SERVER_DB_PROPERTIES	Standalone	Additional connection properties like port and SSL. Example: <code>,1234;Encrypt='true';</code>			YES
STANDALONE_SERVER_DB_NAME	Standalone	Database name		username + standalone	YES
STANDALONE_SERVER_DB_AUTHENTICATION	Standalone	Database authentication uses either Windows or database credentials	WinAuth / SqlAuth	WinAuth	YES
STANDALONE_SERVER_DB_USERNAME	Standalone	Database user name. Used only in case of authentication by database credentials			YES
STANDALONE_SERVER_DB_USERPASS	Standalone	Database user password. Used only in case of authentication by database credentials			YES
STANDALONE_SERVER_HTTP_PORT	Standalone	Non-secure port number for HTTP Gateway on Standalone Server		6070	NO
STANDALONE_SERVER_HTTP_PROXY_PORT	Standalone	Non-secure port number for HTTP Proxy on Standalone Server		6071	NO
STANDALONE_SERVER_HTTPS_PORT	Standalone	SSL port number for HTTPS Gateway on Standalone Server		6075	NO
STANDALONE_SERVER_REST_PORT	Standalone	Management Service port number for Standalone Server		6080	NO
INSTALLLOCATION	Both	Installation target directory.		c:\Program Files\HP\HP Service Virtualization\	YES

Property	Component	Description	Values	Default	Defined in UI
IGNORE_DB_ERROR	Both	Set <i>true</i> to install product despite database errors. Set <i>false</i> to fail installation on database error	true/false	false	NO
CREATE_USER_ENABLE	Both	Set true to create new local user for remote Performance Monitor access.	true / false	FALSE	YES
PERFORMANCE_MONITOR_USERNAME	Both	Login name of Performance Monitor user.		SVMonitor	YES
PERFORMANCE_MONITOR_USERPASS	Both	Password of Performance Monitor user.			YES
CREATE_SERVER_SERVICE	Standalone	Create service HP Service Virtualization Server	true / false	TRUE	YES
INSTALL_DESKTOP_DESIGNER_SHORTCUT	Designer	Create desktop icon for Designer	true / false	TRUE	YES

The installer allows you to install the following components. When installing from the command line, the components to be installed must be specified in a comma separated list in the parameter `ADDLOCAL` using their component IDs.

Component Name	Component ID	Component Description	Defined in UI	Default
<b>Designer</b>	Designer	HP Service Virtualization Designer with the embedded server.	Yes	Yes
<b>Server</b>	StandaloneServer	HP Service Virtualization Server	Yes	Yes
<b>Demos</b>	Demos	The demo applications and examples of service virtualization	Yes	Yes

Below is an example of a quiet installation (without wizard). Output is logged to file `installer.log`:

- Windows authentication on Designer's embedded database.
- SQL authentication on standalone Server database.
- Create Performance Monitor user.

- Install all components:
  - Designer
  - Server
  - Demos

```
msiexec /i ServiceVirtualizationSetup.msi /l*v "installer.log"  
/passive
```

```
EMBEDDED_SERVER_DB_SERVER=localhost
```

```
EMBEDDED_SERVER_DB_INSTANCE=SQLExpress_SV
```

```
EMBEDDED_SERVER_DB_AUTHENTICATION=WinAuth
```

```
STANDALONE_SERVER_DB_SERVER=czb240
```

```
STANDALONE_SERVER_DB_INSTANCE=""
```

```
STANDALONE_SERVER_DB_PROPERTIES=",1433;"
```

```
STANDALONE_SERVER_DB_AUTHENTICATION=SqlAuth
```

```
STANDALONE_SERVER_DB_USERNAME="guest"
```

```
STANDALONE_SERVER_DB_USERPASS="guest"
```

```
ADDLOCAL=Designer,StandaloneServer,Demos
```

```
CREATE_USER_ENABLE="true"
```

```
PERFORMANCE_MONITOR_USERNAME="SVMonitor"
```

```
PERFORMANCE_MONITOR_USERPASS="changeit"
```

## HTTP Port Configuration

Service Virtualization provides a set of tools to ease the configuration of HTTP ports that are used by the application.

These tools help the user to enable/disable HTTP ports, create a self-signed certificate, import a certificate (self-signed or custom) to the certificate store, and register certificates to HTTP port and applications.

"How to Install Self-Signed Certificate" below

"How to Install Custom Certificate" on next page

## How to Install Self-Signed Certificate

### Installing Self-Signed Certificate

To configure HTTP ports and to install a self-signed SSL certificate use the `configureHttpAgent.bat` tool. This script is installed into *ConfigurationTools* sub-directory in the HP Service Virtualization installation directory. This script is executed during the product installation using the default ports.

Running this script manually from the command line generates a self-signed certificate and installs for the HP Service Virtualization application listening on the SSL Port. ACLs are added for `user=Everyone` to allow listening on the HTTP ports. The script also allows listening on default or specified HTTP ports and adds Windows Firewall exceptions for HP Service Virtualization applications and HTTP Proxy ports. The script should be run from its directory.

### Syntax

```
configureHttpAgent.bat [-log] -Option [Parameter]
```

### Options

`-log`: Log outputs to a log file in the temporary directory `%TEMP%\configureHttpAgent.xx.log`

`-es`: Allow/disallow HTTP ports, add firewall exceptions and install certificate used by Designer's embedded server

`-ss`: Allow/disallow HTTP ports, add firewall exceptions and install certificate used by standalone server

`-d`: Allow/disallow HTTP ports used by Demos

`-u`: Uninstall

`-esHttpPort [Port Number]`: Non-secure port number for HTTP Gateway on Designer's embedded server; default is 7200

`-esHttpProxyPort [Port Number]`: Non-secure port number for HTTP Proxy on Designer's embedded server; default is 7201

`-esHttpsPort [Port Number]`: SSL port number for HTTPS Gateway on Designer's embedded server; default is 7205

*-esRestPort [Port Number]*: Management Service port number for Designer's embedded server; default is 7280

*-ssHttpPort [Port Number]*: Non-secure port number for HTTP Gateway on standalone Server; default is 6070

*-ssHttpProxyPort [Port Number]*: Non-secure port number for HTTP Proxy on standalone Server; default is 6071

*-ssHttpsPort [Port Number]*: SSL port number for HTTPS Gateway on standalone Server; default is 6075

*-ssRestPort [Port Number]*: Management Service port number for standalone Server; default is 6080

*-h [Host Name]*: Host computer name

### **Example 1**

Install certificate, add firewall exceptions and allow the default HTTP ports for both servers (for Designer embedded server and standalone Server) and for Demos and log output.

```
configureHttpAgent.bat -log -es -ss -d
```

### **Example 2**

Uninstall certificate, remove firewall exceptions and disallow all default HTTP ports.

```
configureHttpAgent.bat -u -es -ss -d
```

## **How to Install Custom Certificate**

### **Installing Custom Certificate**

Running the `addCustomCertificate.bat` script manually from the command line installs the provided custom certificate for HP Service Virtualization application listening on the SSL Port. ACLs are added for `user=Everyone` to allow listening on the HTTP ports. The script should be run from its directory.

### **Syntax**

```
addCustomCertificate.bat [-log] -Option [Parameter]
```

### **Options**

*-log*: Log outputs to a log file in the temporary directory `%TEMP%\addCustomCertificate.xx.log`

*-es*: Add custom certificate on SSL port used by Designer's embedded server

*-ss*: Add custom certificate on SSL port used by standalone Server

*-esHttpsPort [Port Number]*: SSL port number for HTTPS Gateway on Designer's embedded server; default is 7205

*-ssHttpsPort [Port Number]*: SSL port number for HTTPS Gateway on standalone Server; default is 6075

*-certificate [Thumbprint]*: Thumbprint of the custom certificate to be used on SSL ports. The certificate must be installed in credential store.



**Example 1**

This command adds a custom certificate on SSL port 6161 used by standalone Server and logs output.

```
addCustomCertificate.bat -log -ss -ssHttpsPort 6161 -certificate  
1021c70be806baebefc53b728d6bfd3dc1708eec
```

**Example 2**

This command adds a custom certificate on default SSL ports used by standalone Server and Designer's embedded server.

```
addCustomCertificate.bat -es -ss -certificate  
1021c70be806baebefc53b728d6bfd3dc1708eec
```

## HP Service Virtualization Server

HP Service Virtualization Server is a version of the runtime that is completely separate from the Designer. It can perform everything the Embedded Server running in Designer does, such as create and learn services and simulate using learned rules or rules provided by the user, but without the need to run the Designer.

Being separate from the Designer means that the Service Virtualization Runtime is no longer limited to use by one designer; it can be used by multiple HP Service Virtualization Designers or even by custom 3rd party tools, as it uses its own database separate from the Designer database.

The Service Virtualization Server is managed using the provided REST API, exposed by default on the address `http://localhost:6080/management`. REST API service operations have their own help that can, by default, be accessed on `http://localhost:6080/management/help`.

Service Virtualization Server is installed by the installer as a Windows Service, but can also be run on demand as a console application by running the same .exe file associated with the Windows Service.

**Note:** Every deployed virtual service requires 4-5 database connections.

See "Service Virtualization Server Configuration" below.

## Service Virtualization Server Configuration

### Configuration File

As the Service Virtualization Server is a .NET application, it can be configured by editing the standard `.config` file. The only relevant entry the user should customize is the address of the management endpoint. As Windows Communication Foundation framework is exposing the management API, the address can be easily changed by editing the corresponding WCF section of the configuration file. For example, to change the address to `http://localhost:7700/hpsv`, the corresponding entry in `.config` file should look like this:

```
<configuration>
  ...
  <system.serviceModel>
    ...
    <services>
      <!-- Service name must match bean id of WCF REST service. -->
      <service name="StandaloneServer">
        <host>
          <baseAddresses>
            <add baseAddress="http://localhost:7700/hpsv"/>
          </baseAddresses>
        </host>
        <endpoint binding="webHttpBinding"
contract="ServerManagement.IRestClient"
bindingConfiguration="RestServiceBinding"
behaviorConfiguration="restDispatchBehavior"/>
      </service>
    </services>
  </system.serviceModel>
</configuration>
```

```
</services>
...
</system.serviceModel>
...
</configuration>
```

#### Command Line Parameters

Service Virtualization Server also accepts command line parameters. Currently, the only supported command line parameter option is the ability to recreate the database used by Service Virtualization Server. This can be useful when testing the application, as it enables the user to quickly wipe the database without the need to manually remove each service from the Designer. To recreate the Service Virtualization Server database, add `recreateDatabase=true` to the command line when running the Server as in the following example:

```
HP.SV.StandaloneServer.exe recreateDatabase=true
```

#### Agent Configuration

While the configuration of the Agents in the Designer is managed by the UI, you have to manually edit a XML file when using HP Service Virtualization Server. This configuration file is located on the path `Agents\AgentConfigurations.xml` relative from the Server root directory. This file must be edited only when the Server is not running. See "Supported Technologies And Environments" in the User Guide for more information.