

HP Service Virtualization

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Installation Guide

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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 17](#)) 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 8](#))

To manually configure HTTP Ports, see "[HTTP Port Configuration](#)" ([on page 14](#)).

Prerequisites

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 MSSQL 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" \(on page 1\)](#). To reconfigure REST ports, edit the `VirtualServiceDesigner.exe.config` file for the Designer and see ["HP Service Virtualization Server" \(on page 17\)](#) 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.
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" \(on page 17\)](#) 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: <code>,1234;Encrypt='true';</code>			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

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Command Line Installation

Property	Component	Description	Values	Default	Defined in UI
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

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Command Line Installation

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
Designer	Designer	HP Service Virtualization Designer with the embedded server.	Yes	Yes
Server	StandaloneServer	HP Service Virtualization Server	Yes	Yes
Demos	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" \(on page 14\)](#)

["How to Install Custom Certificate" \(on page 15\)](#)

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 be by default 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.

See ["Service Virtualization Server Configuration" \(on page 17\)](#).

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>
```

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](#)" (on page 1) for more information.