HP Service Virtualization

For Windows ®

Software Version: 2.30

Installation Guide

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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:

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

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

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- 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

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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

Contents

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. The Designer is used for design and validation of virtual services within the same desktop environment, and includes an embedded server.

- **HP Service Virtualization Server**

  A standalone server application which hosts running virtual services. The Service Virtualization Server is optimized for performance, can contain many more services than the Designer, and can be accessed by several Designers. For more information on the standalone server, see " HP Service Virtualization Server" on page 20

You can choose to install the Designer alone, or both the Designer and the standalone Server. These applications can be installed together on a single machine or separately as a distributed application. For standard installation steps see " Installation" on page 10

To manually configure HTTP Ports, see " HTTP Port Configuration" on page 17.

Prerequisites

Hardware

Minimal Hardware Configuration:

The HP Service Virtualization Server 2.30 and HP Service Virtualization Designer 2.30 can run on any hardware configuration that is using a supported operating system and has at least 1GB of physical memory installed and available for each product.

With the minimal hardware configuration, you can perform all functional testing scenarios and some basic performance testing scenarios, provided that they do not create too much load on virtualized services.

Recommended Hardware Configuration:

Virtualization hardware sizing is complicated and may include many factors. For detailed sizing recommendations, contact HP Customer Support. For contact information, see "Support" on page 4.

The following hardware configurations provide a good performance balance for normal usage scenarios, where each product is installed on a separate machine.

HP Service Virtualization Designer 2.30

- Intel® Core™2 Duo T7500 @ 2.2GHz or similar

- 4GB physical memory

- Free physical disk storage space

> The Designer typically uses less than 1GB of space for installation and all Service Virtualization projects, as follows:
>
> - 250 MB for the Designer installation
>
> - 10 MB for each service, where this figure can grow as recorded traffic increases
>
> Use the following calculation to calculate your required size:
>
> $15*MSG\_SIZE*MSG\_COUNT$
>
> where:
>
> MSG_SIZE = learned message size in kilobytes
>
> MSG_COUNT = the number of unique messages learned during the learning process

HP Service Virtualization Server 2.30 (32-bit edition)

- Intel® Xeon® 5140 @ 2.33GHz or similar

- 4GB physical memory

- Free physical disk storage space:

- 250 MB for the Server installation.

- The Server does not maintain any data on the local disk. Data are loaded from and saved to the Database Server.

HP Service Virtualization Server 2.30 (64-bit edition)

- Intel® Xeon® 5140 @ 2.33GHz or similar

- 8GB physical memory

- Free physical disk storage space:

  - 250 MB for the Server installation.

  - The Server does not maintain any data on the local disk. Data are loaded from and saved to the Database Server.

Database Server

- Intel® Xeon® 5140 @ 2.33GHz or similar

- 8GB physical memory

- Database storage:

> The database typically requires 1GB of disk space, but this figure can grow as recorded traffic increases.
>
> Use the following calculation to calculate your required size:
>
> 30*MSG_SIZE*MSG_COUNT
>
> where:
>
> MSG_SIZE = learned message size in kilobytes
>
> MSG_COUNT = the number of unique messages learned during the learning process

Software

Before installing this product, it is recommended to contact HP Customer Support to check for any available software updates. For contact information, see .

Supported Operating Systems

- Microsoft® Windows® XP (Service Pack 3 or higher) (x86)

- Microsoft® Windows® 7 (x86 and x86-64)

- Microsoft® Windows Server® 2003 (Service Pack 2 or higher) (x86 and x86-64)

- Microsoft® Windows Server® 2008 (x86-64)

- Microsoft® Windows Server® 2008 R2 (x86-64)

Database Server

- Microsoft® SQL Server® 2008 R2

- Microsoft® SQL Server® 2008 R2 Express

Access Rights

- Any user running HP Service Virtualization Server 2.30 requires administrator rights.

- Any user running HP Service Virtualization Designer 2.30 needs administrator rights for the first run only in order to initialize the database.

Installation

When you insert the HP installation DVD into your drive, the Welcome screen should display automatically. If it does not, navigate to the DVD root folder and run **autorun.exe**.

The installation Welcome screen enables you to install the following products:

- HP Service Virtualization Server 2.30

- HP Service Virtualization Designer 2.30

- Microsoft® SQL Server® 2008 R2 Express

> **Note:**
>
> - Installation of Microsoft® SQL Server® 2008 R2 Express is required only if no other database is available for the HP Service Virtualization installation.
>
> - SQL Server must be installed by an admin user, or by a user with the following user rights:
>
>   - Backup files and directories
>
>   - Debug Programs
>
>   - Manage auditing and security log
>
>   Details can be found at http://support.microsoft.com/kb/2000257.
>
> - To run the installation, you must have Administrator access rights.

Select an option to start the installation. Follow the installation wizard instructions to install the product and all required prerequisites that are not yet installed.

Service Virtualization Server: A valid product license is required to start the application. The installation wizard installs a 30-day trial license. After successful server installation,see "License Installation" on page 21 for the additional steps required for license installation.

Installation Wizard Options

The following section describes the options available during installation:

- **Installation destination folder**. In the Feature Selection page, you can change the installation destination folder using the **Change** button.

- **Database configuration parameters**. Fill in values for the following parameters. If the database does not exist, the installation wizard creates it with the name you specify.

> **Caution:**
>
> -Each HP Service Virtualization product must use a unique database configuration. Sharing of the same database by multiple products is not supported.
>
> -The HP Service Virtualization Designer requires a separate database for each user. The database is mainly used by the embedded server running inside the Designer, and also for caching recent projects.

Name	Description
Server	The name or network address of the SQL server.
Instance	The name of the database instance. Leave this blank to use the default instance.
Properties	**Optional:** Additional database connection properties. The properties you specify are appended to the connection string after the server and instance parameters. For more details, see "Common database configuration properties" below
Name	The database name.
Create	Creates the database during product installation and removes the database when the product is uninstalled. Clear the Create checkbox to use the existing database. **Note:** In order to install the product successfully, the database user must have the proper privileges. If you select the option to create the database automatically during installation, the database user must have sufficient privileges to create the database – the SQL server roles `dbcreator` and `public`, and the database role `db_owner`. If you are using an existing database, the database user must have sufficient privileges to create the database schema -- the SQL server role `public` and the database role `db_owner`.
Authentication	The database server authentication type.
User	The database server authentication user. For SQL authentication only.
Password	The database server authentication password. For SQL authentication only.

- **Common database configuration properties**

Value	Description
,1433;	Use database port 1433.
,1433;Encrypt='true';	Use database port 1433 and SSL connection to database server.
;Encrypt='true';	Use SSL connection to database server.

- **Additional options**

Name	Description
Test Connection	Tests the database connection.
Connection String	The complete database connection string.

- The following options are available when installing the Service Virtualization Server:
  - **Performance Monitor Remote Access.** To create a new user with privileges to remotely read the performance monitor, select **Create performance monitor user**. This account can be used for remote access to the application's performance monitor counters.

  - **Server Windows Service.** Installs the Windows service that starts the Service Virtualization Server with each computer startup.

  - **Server Authentication.** Prevents unauthorized service management of the Service Virtualization Server, and encrypts the communication between the Service Virtualization Server and clients using TLS/SSL security. For more details on server authentication, see "Server Authentication" on page 21.

    Note: Working with a secured HP Service Virtualization Server is not supported for integrations with some older versions of HP Service Test or HP LoadRunner.

Command Line Installation

The installers can be executed from the command line by running **msiexec** with the following properties:

> **Note:**
>
> • Command Line Installation does not verify prerequisites.
>
> • Each property may apply to the Service Virtualization Designer, Server, or to both.
>
> • In order to install the product successfully, the database user must have the proper privileges. If you use the DB_CREATE property to create the database automatically during installation, the database user must have sufficient privileges to create the database – the SQL server roles `dbcreator` and `public`, and the database role `db_owner`. If you are using an existing database, the database user must have sufficient privileges to create the database schema -- the SQL server role `public` and the database role `db_owner`.

Property	Installer	Description	Defined in UI
DB_SERVER	Both	Database server host name. Use **localhost** for local database. **Default:** localhost	YES
DB_INSTANCE	Both	Database instance. Must be blank in case of default instance. **Default:** SQLExpress_SV	YES
DB_PROPERTIES	Both	Additional connection properties such as port and SSL. Example: `,1234;Encrypt='true';`	YES
DB_NAME	Both	Database name. **Default:** • Designer installation: **<username>_designer** • Server installation: **<username>_server**	YES
DB_CREATE	Both	Create database. Set to **true** to create the database during product installation, and remove the database when the product is uninstalled. Set to **false** to use the existing database. **Values:** true/false **Default:** true	YES

Property	Installer	Description	Defined in UI
DB_ AUTHENTICATION	Both	Database authentication uses either Windows or database credentials. **Values:** WinAuth / SqlAuth **Default:** WinAuth	YES
DB_USERNAME	Both	Database user name. Used only when using database credentials mode of authentication.	YES
DB_USERPASS	Both	Database user password. Used only when using database credentials mode of authentication.	YES
INSTALLLOCATION	Both	Installation target directory. **Default:** ● **Designer:** c:\Program Files\HP\HP Service Virtualization Designer (On a 64-bit Windows systems, replace "Program Files" with "Program Files (x86)") ● **Server (32-bit):** c:\Program Files\HP\HP Service Virtualization Server (On a 64-bit Windows systems, replace "Program Files" with "Program Files (x86)") ● **Server (64-bit):** c:\Program Files\HP\HP Service Virtualization Server	YES
IGNORE_DB_ ERROR	Both	● Set *true* to install product despite database errors. ● Set *false* to fail installation in the event of a database error. **Values:** true/false **Default:** false	NO
CREATE_USER_ ENABLE	Both	Set true to create new local user for remote Performance Monitor access. **Values:** true/false **Default:** false	YES
PERFORMANCE_ MONITOR_ USERNAME	Both	Login name of Performance Monitor user. **Default:** SVMonitor	YES

Property	Installer	Description	Defined in UI
PERFORMANCE_ MONITOR_ USERPASS	Both	Password of Performance Monitor user.	YES
CREATE_SERVER_ SERVICE	Server	Create service HP Service Virtualization Server. **Values:** true/false **Default:** true	YES
MANAGEMENT_ ENDPOINT_AUTH	Server	Set authentication on HP Service Virtualization Server management endpoint. **Values:** true/false **Default:** true	YES
INSTALL_ DESKTOP_ DESIGNER_ SHORTCUT	Designer	Create desktop icon for Designer. **Values:** true/false **Default:** true	YES
CULTURE	Both	Set installation language. **Values:** Supported values correspond to product localization variants. **Default:** en	NO

Below are examples of quiet installations:

Quiet Server installation with the following parameters:

- Installs 32-bit Server with SQL database authentication

- Creates Performance monitor user and Windows Service Virtualization

- Sets Management endpoint authentication.

- Logs installer output in the **installer-server-x86.log** file

msiexec /i HPServiceVirtualizationServer-x86.msi /l*V "installer-server-x86.log" /passive DB_ SERVER=czb240 DB_INSTANCE="" DB_PROPERTIES=",1433;Encrypt='false';" DB_ AUTHENTICATION=SqlAuth DB_USERNAME="guest" DB_USERPASS="guest" CREATE_ USER_ENABLE="true" PERFORMANCE_MONITOR_USERNAME="SVMonitor" PERFORMANCE_MONITOR_USERPASS="changeit"

Quiet Designer installation with the following parameters:

- Installs Designer with Windows database authentication

- Logs installer output in the **installer-designer.log** file

msiexec /i HPServiceVirtualizationDesigner.msi /l*V "installer-designer.log" /passive DB_
SERVER=localhost DB_INSTANCE=SQLExpress_SV DB_PROPERTIES=";Encrypt='false';"
DB_AUTHENTICATION=WinAuth

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.

This chapter includes:

How to Install a 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 in the *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 a 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 Service Virtualization Designer. It provides the same functionality as the Embedded Server running in the Designer, such as creating and learning services and simulating the use of learned rules or rules provided by the user, 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.

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.

This chapter includes:

License Installation

A valid license must be installed in order to work with HP Service Virtualization Server. The license must be installed on the same machine on which the Service Virtualization Server is installed. You install the new license using the License Utility.

You receive your license from the HP License Delivery Center, either in a **.dat** file or a license key. You then install the license using the License Utility. In addition, the License Utility enables you to view all installed licenses. It also displays the Host ID required for product licensing.

To install a new license:

1. To run the License Utility, from the Windows Start menu, select All Programs > HP Service Virtualization > Server > License Utility.

2. In the License Utility window, click **Install New Licenses**. The New License dialog box opens.

3. To install the license from a **.dat** license file:

   a. Select **Install licenses using a license file**.

   b. Click **Browse** to navigate to and select your .dat license file.

   c. If your license file contains multiple licenses, click **View License File Content** to display all available licenses. Select the desired licenses.

4. To install the license as a text string:

   a. Select **Install a license using a license key**.

   b. Copy your License Key string and paste it into the **License Key** box.

5. In the New License dialog box, click **Install** to install the license.

6. Click **Close** to close the Install License dialog box. The new license is displayed in the License Utility window.
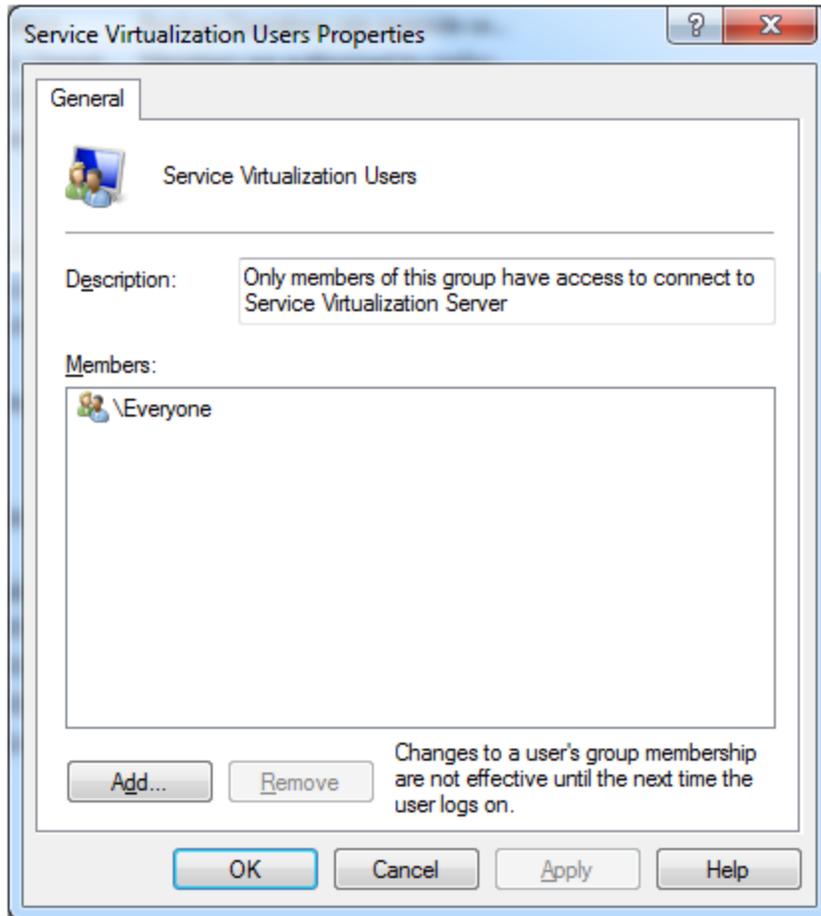
Server Authentication

To prevent unauthorized service management of the HP Service Virtualization Server, you can limit access to the server through user authentication.

The Service Virtualization Designer accesses the Service Virtualization Server using HTTP Basic Authentication, over HTTPS. The Server grants access to the Designer based on one of the following:

- A local Windows users account, located on the Server machine.

- A Windows domain account in a trusted domain, or in the same domain as the Service Virtualization Server.

During installation of the Service Virtualization Server, the Windows group called **Service Virtualization Users** is created. By default, the Windows **Everyone** group is a member of the Service Virtualization Users group. To limit access, remove the **Everyone** group and add only specific user accounts or other Windows groups to the Service Virtualization Users group.

- Every authenticated Windows users has access to /ping and /info resources. This does not depend on Service Virtualization authentication.

- The group is created regardless of whether the Server Authentication option is selected during the Server installation. This enables you to reconfigure at a later stage.

- Uninstalling or reinstalling Service Virtualization does not affect this group. Your changes to the group membership are maintained between installations.

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 you 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>
     ...
       <service name="RestManagementService"
behaviorConfiguration="unsecured">
         <host>
           <baseAddresses>
             <add baseAddress="http://localhost:7700/hpsv"/>
             <!--<add baseAddress="https://localhost:6085/management"/>-->
           </baseAddresses>
         </host>
         <endpoint binding="webHttpBinding"
contract="ServerManagement.IRestClient"
             bindingConfiguration="unsecured"
             behaviorConfiguration="restDispatchBehavior"/>
       </service>
         ...
   </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 an XML file when using HP Service Virtualization Server. This configuration file is located in the path `Agents\AgentConfigurations.xml` relative from the Server root directory. This file must be edited only when the Server is not running. For more information, see the "Supported Technologies And Environments" section in the User Guide.

Changing Security Settings on the Standalone Server

If you choose to change security settings after installing the Standalone Server, you must manually edit the **HP.SV.StandaloneServer.exe.config** configuration file. The file is located in the **<HPService Virtualization Server installation directory>\bin** subdirectory. By default, the Server installation path is **C:\Program Files\Hp\HP Service Virtualization Server\Server**. In the system.serviceModel configuration section, you must edit the settings for the exposed REST management service.

This section includes:

- REST management service configuration for disabled authentication
- REST management service configuration for enabled authentication

REST management service configuration for disabled authentication

To disable authentication, set the following:

1. Under the **service** element, set the **behaviorConfiguration** attribute to **unsecured**.

2. Under the **endpoint** element, set the **bindingConfiguration** attribute to **unsecured**.

3. Make sure that the **HTTP** address is not commented out, and the **HTTPS** address is commented out.

4. After reconfiguration, restart the Service Virtualization Server.

5. In order to enable the new configuration, you must redirect all of your projects to the updated URL. For details, see the section on how to change servers in the HP Service Virtualization User Guide.

```
<configuration>
   ...
   <system.serviceModel>
     ...
      <service name="RestManagementService"
behaviorConfiguration="unsecured">
        <host>
          <baseAddresses>
            <add baseAddress="http://localhost:6080/management"/>
            <!--<add baseAddress="https://localhost:6085/management"/>-->
          </baseAddresses>
        </host>
        <endpoint binding="webHttpBinding"
contract="ServerManagement.IRestClient"
             bindingConfiguration="unsecured"
             behaviorConfiguration="restDispatchBehavior"/>
      </service>
        ...
   </system.serviceModel>
   ...
</configuration>
```

REST management service configuration for enabled authentication

To enable authentication, set the following:

1. Under the **service** element, set the **behaviorConfiguration** attribute to **secured**.

2. Under the **endpoint** element, set the **bindingConfiguration** attribute to **secured**.

3. Make sure that the **HTTPS** address is not commented out, and the **HTTP** address is commented out.

4. After reconfiguration, restart the Service Virtualization Server.

5. In order to enable the new configuration, you must redirect all of your projects to the updated URL. For details, see the section on how to change servers in the HP Service Virtualization User Guide.

```
<configuration>
   ...
   <system.serviceModel>
     ...
       <service name="RestManagementService"
behaviorConfiguration="secured">
         <host>
           <baseAddresses>
             <!--<add baseAddress="http://localhost:6080/management"/>-->
             <add baseAddress="https://localhost:6085/management"/>
           </baseAddresses>
         </host>
         <endpoint binding="webHttpBinding"
contract="ServerManagement.IRestClient"
               bindingConfiguration="secured"
               behaviorConfiguration="restDispatchBehavior"/>
       </service>
         ...
   </system.serviceModel>
   ...
</configuration>
```