



Pure Storage SMI-S Provider 1.0.0 Guide

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Chapter 1. Introduction

Overview

The Storage Management Initiative Specification (SMI-S) initiative was launched by the Storage Networking Industry Association (SNIA) to provide a unifying interface for the management of a multi-vendor storage network. The Pure Storage® SMI-S provider allows FlashArray administrators to manage the array using an SMI-S client over HTTPS. The SMI-S provider is embedded within Purity, but is optional and must be enabled before its first use.

The SMI-S provider includes a Service Location Protocol (SLP) option, which SMI-S client applications use as a directory service to locate resources.

For information on SMI-S, refer to the Storage Networking Industry Association (SNIA) website at <http://www.snia.org>.

Audience

This guide describes the supported SMI-S profiles, how to connect SMI-S clients to the provider, and how to enable the SMI-S provider. The intended audiences for this guide include the following:

- Pure Storage solutions engineers, who support Pure Storage FlashArrays
- Integration partners, who deploy system management solutions
- Independent software vendors (ISVs) and system management vendors, who support storage array discovery
- System administrators, who configure and use Purity and Pure Storage FlashArrays

This guide assumes familiarity with storage and networking concepts, the Purity system, and Pure Storage FlashArrays.

Prerequisites

Storage administrator or array administrator permissions are required to enable the SMI-S provider.

There is no other prerequisite to use the SMI-S provider, after it is enabled.

Chapter 2. Manage the SMI-S Provider

Overview

FlashArray administrators use the SMI-S provider to manage the array through an SMI-S client. The SMI-S provider is optional and must be enabled before its first use.

There are two configuration options for the SMI-S provider:

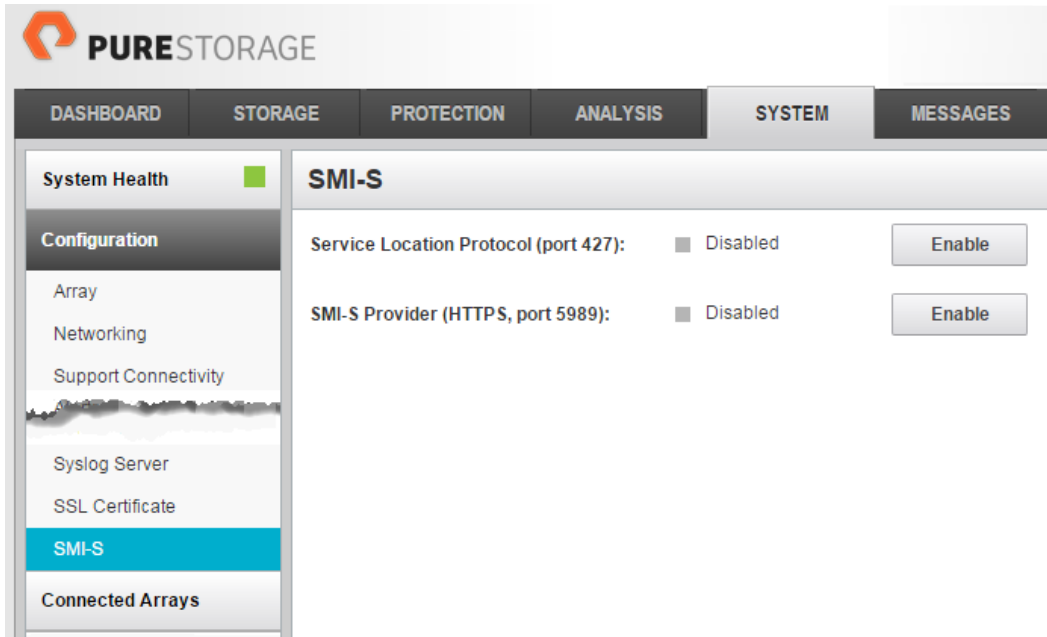
- **SMI-S Provider:** This is the main SMI-S option and is required to enable SMI-S support. Enabling the SMI-S provider opens port 5989. The CLI `pure-smis` command refers to this option as `WBEM-HTTPS`.
- **Service Location Protocol (SLP):** SLP allows clients to discover SMI agents on a storage area network. SLP is optional and has no effect unless the SMI-S provider is enabled. TCP port 427 and UDP port 427 are open when the SLP option is enabled (even if the SMI-S provider is not enabled).

Both options are disabled by default and can be enabled in any order. Enable and disable the SMI-S provider through the Purity GUI (**System > Configuration > SMI-S**) or Purity CLI (`pure-smis` command).

Managing the SMI-S Provider Through the Purity GUI

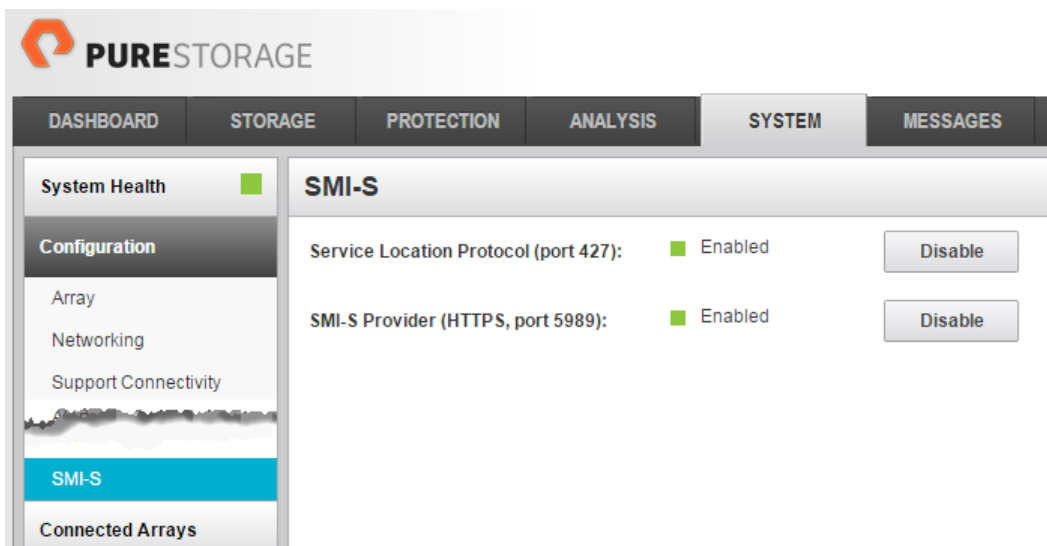
The SMI-S sub-view displays the status of the SMI-S provider options and allows you to enable and disable the SMI-S provider.

Figure 2.1: The Purity SMI-S Sub-View



When an option is enabled, its status box changes from gray to green and its status label changes to **Enabled**:

Figure 2.2: SMI-S Enabled



Enabling the SMI-S Provider

To enable the SMI-S provider:

1. Select **System > Configuration > SMI-S**
2. On the `SMI-S Provider` line, click **Enable**.
3. Verify that the SMI-S Provider status box changes to green and its status label changes to **Enabled**.

Enabling Service Location Protocol (SLP)

To enable the optional SLP support:

1. Select **System > Configuration > SMI-S**
2. On the `Service Location Protocol` line, click **Enable**.
3. Verify that the Service Location Protocol status box changes to green and its status label changes to **Enabled**.

Disabling the SMI-S Provider

To disable the SMI-S provider:

1. On the `SMI-S Provider` line, click **Disable**.
2. Wait for the `SMI-S Provider` status box to change to gray and the status label to change to **Disabled**.

Disabling the SMI-S Provider option disables the SMI-S provider and closes the port 5989, but does not close the SLP ports.

Disabling Service Location Protocol (SLP)

To disable the optional SLP support:

1. On the `Service Location Protocol` line, click **Disable**.
2. Wait for the `Service Location Protocol` status box to change to gray and the status label to change to **Disabled**.

Managing the SMI-S Provider Through the Purity CLI

Use the `pure-smis` command to view, enable, or disable the SMI-S provider options. The `pure-smis` command supports enabling or disabling the entire SMI-S provider or an individual option. For complete syntax and other documentation for the `pure-smis` command, run `pure-help pure-smis` or see the FlashArray User Guide.

Note: The CLI uses `wbem-https` and `--wbem-https` to refer to the main SMI-S provider option. This usage reflects that fact that SMI-S exchanges CIM and WBEM information between a client and a WBEM agent.

Enabling the SMI-S Provider

To enable the SMI-S provider:

1. Run the following command: `purestmis enable`
2. Confirm the expected output:

Name	SLP	WBEM-HTTPS
pure01	enabled	enabled

This command enables both the SMI-S provider and the SLP option.

Enabling only the SMI-S WBEM-HTTPS Option

Both SMI-S provider options are disabled by default.

To enable only the main SMI-S Provider option:

1. Run the following command: `purestmis enable --wbem-https`
2. Confirm the expected output:

Name	SLP	WBEM-HTTPS
pure01	disabled	enabled

Enabling only the Service Location Protocol (SLP)

Both SMI-S provider options are disabled by default.

To enable only the optional SLP support:

1. Run the following command: `purestmis enable --slp`
2. Confirm the expected output:

Name	SLP	WBEM-HTTPS
pure01	enabled	enabled

Viewing the Status of SMI-S Options

To view the status of the SMI-S options:

1. Run the following command: `purestmis list`
2. The following is example output:

Name	SLP	WBEM-HTTPS
pure01	disabled	enabled

Disabling the SMI-S Provider

Use the `purestmis disable` command to disable the SMI-S provider options together or individually.

To disable the SMI-S provider, including the SLP option:

1. Run the following command: `purestmis disable`
2. Confirm the expected output:

Name	SLP	WBEM-HTTPS
pure01	disabled	disabled

Disabling only the SMI-S WBEM-HTTPS Option

This command also disables the SMI-S provider and closes the WBEM port, but not the SLP ports.

To disable only the SMI-S WBEM-HTTPS option:

1. Run the following command: `purestmis disable --wbem-https`
2. Confirm the expected output:

Name	SLP	WBEM-HTTPS
pure01	enabled	disabled

Disabling only the Service Location Protocol (SLP)

This command also disables the SLP ports.

To disable only the optional SLP support:

1. Run the following command: `purestmis disable --slp`
2. Confirm the expected output:

Name	SLP	WBEM-HTTPS
pure01	disabled	enabled

Chapter 3. SMI-S Provider Functionality

Supported Functionality

The SMI-S provider supports functionality in the areas of inventory, configuration, provisioning, capacity, and alerting:

- Discovery
- Instance Discovery
- iSCSI Target Discovery
- iSCSI Target Node Creation
- LUN Masking and Mapping
- Monitor LUN Mapping Changes
- Monitor Volume Creation and Removal
- Related Instance Discovery
- SLP Access
- SLP Discovery
- Scalable Object Retrieval
- Secure Access
- Storage Pool Monitoring
- Subscribe to Event Notifications
- Thinly Provisioned Volume Creation and Removal
- Volume Creation and Removal

Other Functionality

The following SMI-S functionality is not supported in this release:

- Block IO Performance Reporting
- Bulk Retrieval of Performance Statistics
- iSCSI Target Port Creation
- iSCSI Target Portal Addition
- iSCSI Target Session Modification
- Performance Reporting Definition
- Replication
- Storage Pool Creation and Removal
- Thinly Provisioned Pool Creation and Removal

For more information on SMI-S functionality, see the [SNIA definitions pages](http://www.snia.org/ctp/generalinfo/definitionsandterms.html) [http://www.snia.org/ctp/generalinfo/definitionsandterms.html].

Chapter 4. SMI-S Provider Connection Information

SMI-S Profiles

The SMI-S provider complies with the following SMI-S specifications:

- [Storage Management Technical Specification, Part 3 Common Profiles Version 1.6.1, Revision 5](http://www.snia.org/sites/default/files/SMI-Sv1.6.1r5_CommonProfiles.book_.pdf) [http://www.snia.org/sites/default/files/SMI-Sv1.6.1r5_CommonProfiles.book_.pdf]
- [Storage Management Technical Specification, Part 4 Block Devices Version 1.6.1, Revision 5](http://www.snia.org/sites/default/files/SMI-Sv1.6.1r5_Block.book_.pdf) [http://www.snia.org/sites/default/files/SMI-Sv1.6.1r5_Block.book_.pdf]

SMI-S Provider Namespace

The SMI-S provider uses the following namespace: `purestorage`.

SMI-S Provider Port Usage

The SMI-S provider uses port 5989. This port is open when the SMI-S provider is enabled.

The SLP option uses TCP port 427 and UDP port 427. These ports are open when the SLP option is enabled.

Authentication

No additional authentication step is required for FlashArray administrators to use the SMI-S provider. All FlashArray administrators, regardless of role, have access, using their FlashArray credentials.

Note: When a user logs in through an SMI-S client, the SMI-S service obtains the user's REST API token or generates the REST API token if the user has not already done so. No user action is required. However, the REST API token is available for the user's REST API requests, if any.

Appendix A. Resources

Links are subject to change without notice.

Pure Storage Documentation

The Purity documentation resources, including the FlashArray User Guide, are available in the Pure Storage Knowledge Base at <http://community.purestorage.com> (registration is required).

Pure Storage Blog

The Pure Storage Blog contains solutions resources and is available at <http://www.purestorage.com>.

The blog is expected to add SMI-S solutions such as the Microsoft® PowerShell Windows Storage Management Service, which uses PowerShell to access our SMI-S provider, and the Microsoft System Center Virtual Machine Manager (SCVMM).

Documentation Feedback

We welcome your feedback about Pure Storage documentation and encourage you to send your questions and comments to DocumentFeedback@purestorage.com. We would love to hear from you.

Legal Information

End User Agreement [http://www.purestorage.com/agreements/Pure_enduser_agreement.pdf]

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