

IBM Storage Management Pack for Microsoft System  
Center Operations Manager (SCOM)  
Version 1.3.0

*User Guide*



**Note**

Before using this document and the product it supports, read the information in "Notices" on page 45.

**Edition notice**

Publication number: GC27-3909-07. This publication applies to version 1.3.0 of the IBM Storage Management Pack for Microsoft System Center Operations Manager and to all subsequent releases and modifications until otherwise indicated in a newer publication.

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## About this guide

This guide describes how to install, configure, and use the IBM® Storage Management Pack for Microsoft System Center Operations Manager (SCOM).

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## Who should use this guide

This guide is intended for system administrators who use Microsoft System Center Operations Manager (SCOM) together with IBM storage systems.

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## Conventions used in this guide

These notices are used in this guide to highlight key information.

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**Note:** These notices provide important tips, guidance, or advice.

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**Important:** These notices provide information or advice that might help you avoid inconvenient or difficult situations.

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**Attention:** These notices indicate possible damage to programs, devices, or data. An attention notice appears before the instruction or situation in which damage can occur.

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## Related documentation

You can find additional information and publications related to the IBM Storage Management Pack for Microsoft System Center Operations Manager on the following websites.

- IBM Storage Host Software Solutions Information Center ([publib.boulder.ibm.com/infocenter/strhosts/ic](http://publib.boulder.ibm.com/infocenter/strhosts/ic))
- IBM XIV® Storage System Information Center ([publib.boulder.ibm.com/infocenter/ibmxiv/r2](http://publib.boulder.ibm.com/infocenter/ibmxiv/r2))
- IBM Flex System™ Information Center ([publib.boulder.ibm.com/infocenter/flexsys/information](http://publib.boulder.ibm.com/infocenter/flexsys/information))
- IBM Storwize® V7000 Information Center ([publib.boulder.ibm.com/infocenter/storwize/ic](http://publib.boulder.ibm.com/infocenter/storwize/ic))
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- Microsoft System Center website ([www.microsoft.com/en-us/server-cloud/system-center](http://www.microsoft.com/en-us/server-cloud/system-center))

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- IBM Directory of Worldwide Contacts website ([www.ibm.com/planetwide](http://www.ibm.com/planetwide))

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- You can send your comments by email to [starpubs@us.ibm.com](mailto:starpubs@us.ibm.com). Be sure to include the following information:
  - Exact publication title and version
  - Publication form number (for example: GC00-1111-22)
  - Page, table, or illustration numbers that you are commenting on
  - A detailed description of any information that should be changed

**Note:** When you send information to IBM, you grant IBM a nonexclusive right to use or distribute the information in any way it believes appropriate without incurring any obligation to you.

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## Chapter 1. Introduction

The IBM Storage Management Pack for Microsoft System Center Operations Manager (SCOM) is a set of software modules, or management packs, that help you to access and monitor IBM storage systems from the host-based Microsoft SCOM interface.

You can install a specific management pack, add specific storage systems to the list of SCOM monitored IBM storage systems (using the appropriate credentials), or remove IBM storage systems from the SCOM monitoring list.

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### Bundled tools and management packs

The IBM Storage Management Pack for Microsoft System Center Operations Manager includes the following components:

- IBM Storage SCOM-control Utility (**scomu.cmd**), a stand-alone command-line interface (CLI) utility (command prompt utility) for configuration and diagnostics.
- IBM XIV Storage System management pack
- IBM Flex System V7000 management pack
- IBM Storwize V7000 management pack
- IBM System Storage SAN Volume Controller management pack
- IBM System Storage DS8000 series management pack

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### Monitoring modules

The IBM Storage Management Pack for Microsoft SCOM includes the following monitoring modules:

- Alerts – Lists all alert notifications.
- Events – Lists the captured events for every component of the monitored storage systems.
- Systems – Displays the health state of entire storage systems and their objects (overall view).
- Physical components – Displays the health state of any specific physical component.
- Logical components – Displays the health state of any defined logical component.
- Diagrams – Shows a visual representation of the hierarchy and relationship of selected components within a storage system, as well as more detailed information about it.

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### Concept diagram

The IBM Storage Management Pack comprises four separate management packs, each matching an IBM storage system.

Accordingly, you can import a management pack into Microsoft SCOM for each IBM storage system.

The following block diagram illustrates how all management packs are integrated in Microsoft SCOM and connect to the storage systems.

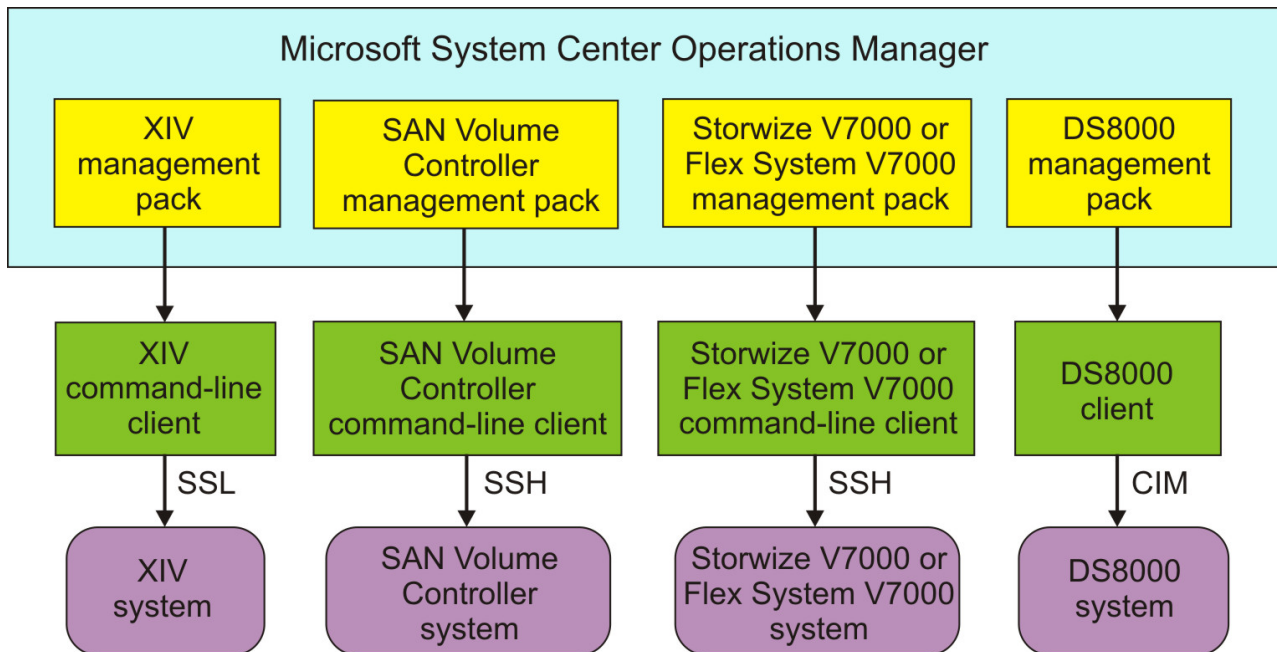


Figure 1. Individual management packs for IBM storage systems

As shown in the diagram, the IBM management packs use different client types and communication channels to connect to their backend storage systems:

- The XIV management pack uses the XIV command-line client and communicates with the XIV system using SSL.
- The SAN Volume Controller, Storwize V7000, and Flex System V7000 management packs use their respective command line clients and communicate with their storage systems using SSH.
- The DS8000 management pack uses a DS8000 client and communicates with the DS8000 storage system using the SMI-S standard Common Information Model (CIM) agent.

## Compatibility and requirements

For the complete and up-to-date information about the compatibility and requirements of the IBM Storage Management Pack for Microsoft System Center Operations Manager (SCOM), refer to the latest release notes.

You can find the latest release notes on the IBM Storage Host Software Solutions Information Center ([publib.boulder.ibm.com/infocenter/strhosts/ic](http://publib.boulder.ibm.com/infocenter/strhosts/ic)) or on the IBM Fix Central ([www.ibm.com/support/fixcentral](http://www.ibm.com/support/fixcentral)).

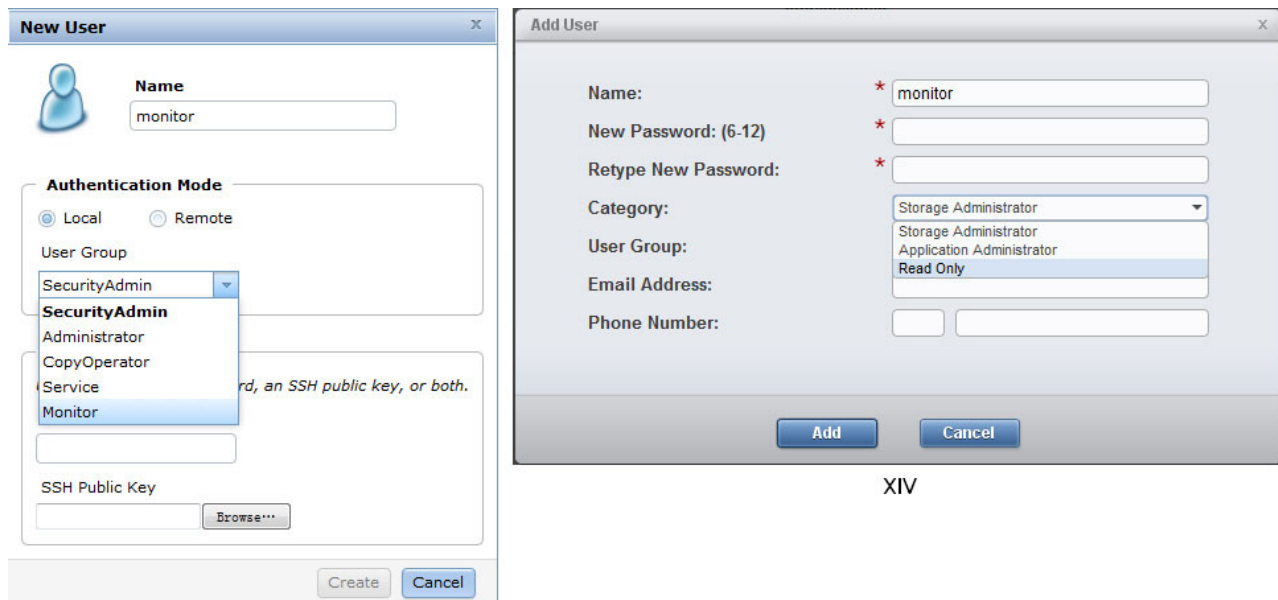
## Before you proceed

Before you proceed to the installation and usage of the IBM Storage Management Pack, you need to obtain the required user privileges for accessing the specific IBM storage systems that you intend to monitor from Microsoft SCOM.

Use your IBM storage system management GUI (or contact your storage administrator) to define your user account on the storage system in the appropriate

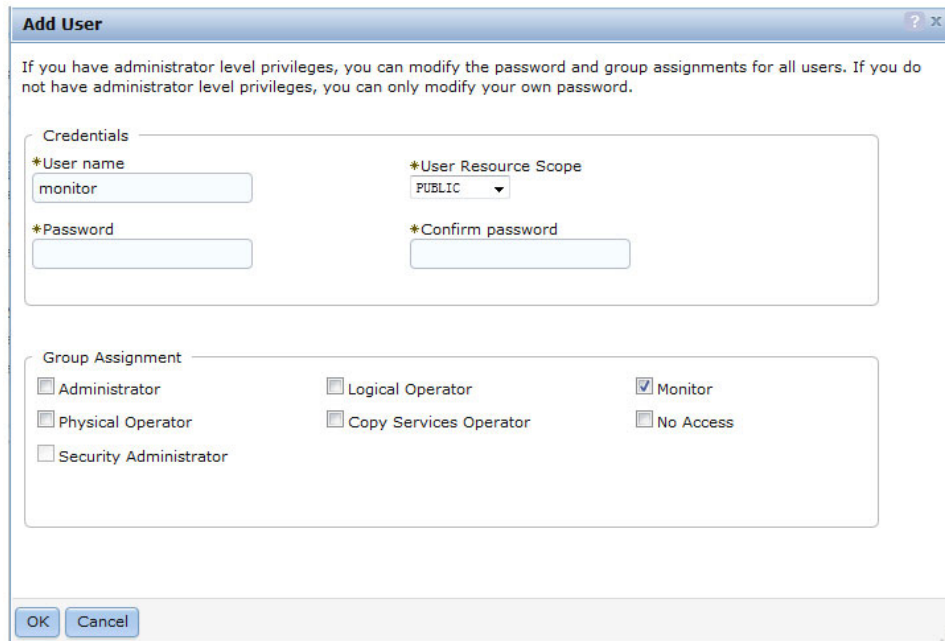
user permission group. Unless specified otherwise in the release notes of the IBM Storage Management Pack for Microsoft SCOM, your user account can be defined in the **Monitor** user group (applicable to IBM Flex System V7000, SAN Volume Controller, Storwize V7000, and DS8000), or in the **Read Only** category (applicable to XIV).

The following figure shows where the user groups are defined in the management GUI of XIV, SAN Volume Controller, Storwize V7000, Flex System V7000, and DS8000.



XIV

SAN Volume Controller, Storwize V7000, and Flex System V7000



DS8000

Figure 2. Storage system user group definitions



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## Chapter 2. Installation

This chapter describes the installation of the IBM Storage Management Pack for Microsoft SCOM, and includes the following sections:

- “Downloading the IBM Storage Management Pack”
- “Installation package contents”
- “First-time installation vs. upgrade” on page 6
- “Running the installation wizard” on page 6
- “Uninstalling the IBM Storage Management Pack” on page 10

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**Note:** You can install the IBM Storage Management Pack on the Microsoft SCOM management server and on all site servers that run SCOM agents. This allows monitoring data to be collected by each SCOM agent service, which then sends the data to the SCOM management server..

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### Downloading the IBM Storage Management Pack

Download the IBM Storage Management Pack onto the host on which Microsoft SCOM is installed and used.

#### About this task

You can find the IBM Storage Management Pack for Microsoft SCOM installation package on the IBM Fix Central website ([www.ibm.com/support/fixcentral](http://www.ibm.com/support/fixcentral)).

#### Procedure

Two packages are available for download. Download the executable package that matches the Windows bit version that you are using on the host:

- IBM\_Storage\_MP\_for\_SCOM-windows-x86-1.3.0.exe – for 32-bit Windows Server versions
- IBM\_Storage\_MP\_for\_SCOM-windows-x64-1.3.0.exe – for 64-bit Windows Server versions

---

### Installation package contents

Some components in the installation package are required and some are optional, as detailed in the following table.

*Table 1. Installation package contents*

Component	Description	Required or optional
SCOM-control utility ( <code>scomu.cmd</code> )	A stand-alone command-line interface (CLI) tool for configuration and diagnostics.	Required
DS8000 management pack	A module for managing the IBM DS8000 system through Microsoft SCOM.	Optional

Table 1. Installation package contents (continued)

Component	Description	Required or optional
Flex System V7000 management pack	A module for managing the IBM Flex System V7000 system through Microsoft SCOM.	Optional
Storwize V7000 management pack	A module for managing the IBM Storwize V7000 system through Microsoft SCOM.	Optional
SAN Volume Controller management pack	A module for managing the IBM SAN Volume Controller system through Microsoft SCOM.	Optional
XIV management pack	A module for managing the IBM XIV Storage System through Microsoft SCOM.	Optional

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**Note:** The management packs are not automatically imported to the System Center Operations Manager. You must manually import each pack that you want to use.

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## First-time installation vs. upgrade

If a previous version of the IBM Storage Management Pack is already installed, you can upgrade it.

When you run the installation (see “Running the installation wizard”) on a host with an existing installation of the IBM Storage Management Pack, the upgrade wizard is automatically invoked and it guides you through the upgrade process.

---

### Important:

- After the upgrade, you need to re-import the management packs. For more information, see “Importing management packs to Microsoft SCOM” on page 22.
  - Only 300 of the most recent IBM Storage events and alerts are kept in the database after the upgrade.
- 

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## Running the installation wizard

When you are ready to install the IBM Storage Management Pack, run the installation wizard as described in the following procedure.

### Before you begin

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**Attention:** Before installing, updating, or uninstalling the IBM Storage Management Pack, close the configuration shell (`scomu.cmd`) and all other running applications that may be using the IBM Storage Solutions External Runtime Components (such as the IBM XIV Host Attachment Kit). This is to avoid errors or disruptive restart of the host server.

---

### About this task

You can install the IBM Storage Management Pack on the Microsoft SCOM management server and on all site servers that run SCOM agents. This allows



monitoring data to be collected by each SCOM agent service, which then sends the data to the SCOM management server.

## Procedure

1. Run the executable file that you have downloaded (see “Downloading the IBM Storage Management Pack” on page 5). The welcome panel of the installation wizard is displayed.

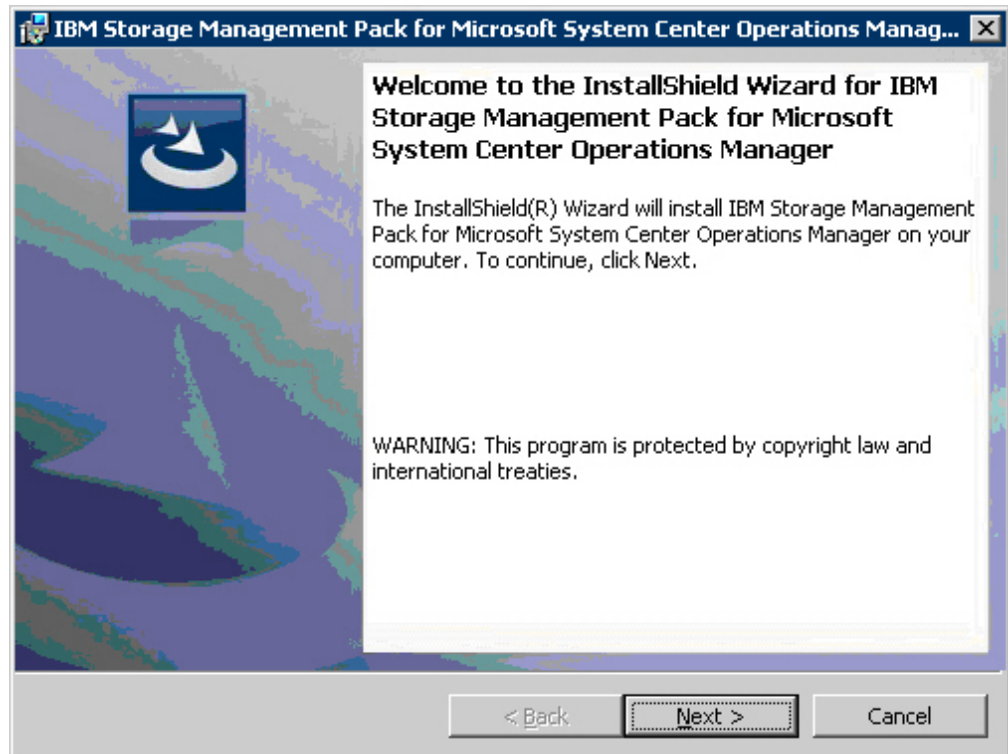


Figure 3. IBM Storage Management Pack for Microsoft SCOM – Installation Wizard

2. Click **Next**. The License Agreement panel is displayed.
3. Read and accept the terms of the license agreement, and then click **Next**. The Setup Type panel is displayed.

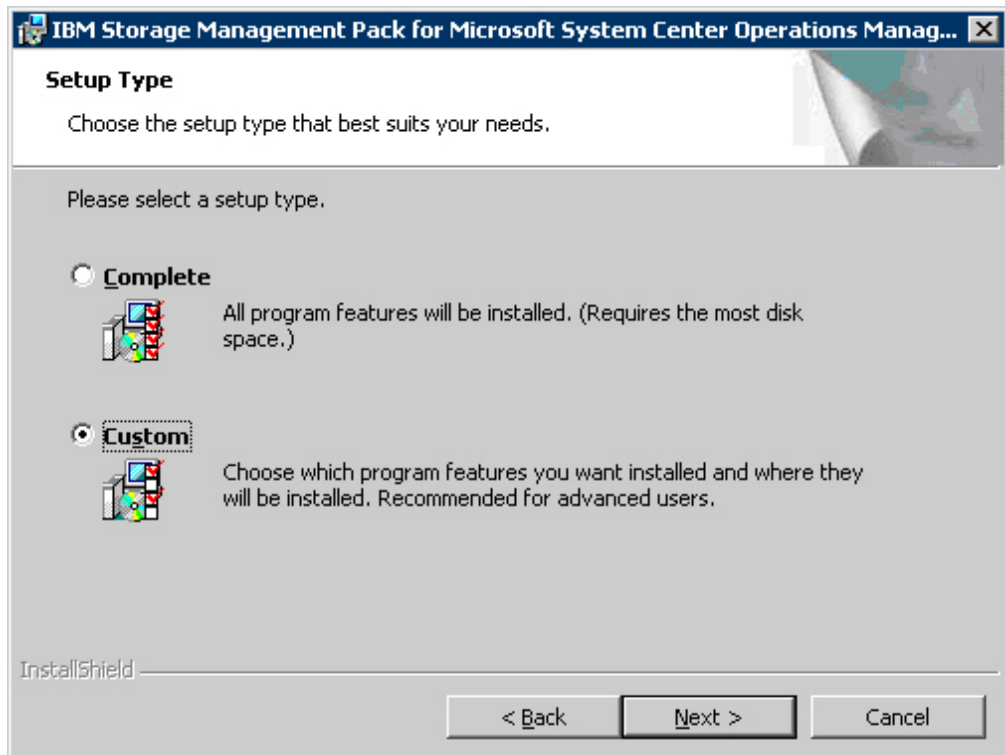


Figure 4. Setup type selection

4. Select the setup type:
  - **Complete** – Select this option to install all management packs (see “Installation package contents” on page 5).
  - **Custom** – Select this option to install only the management packs that you specify.
5. Click **Next**. If you previously selected **Custom**, the Select Features panel is displayed, and you can select the specific management pack(s) that you want to install.

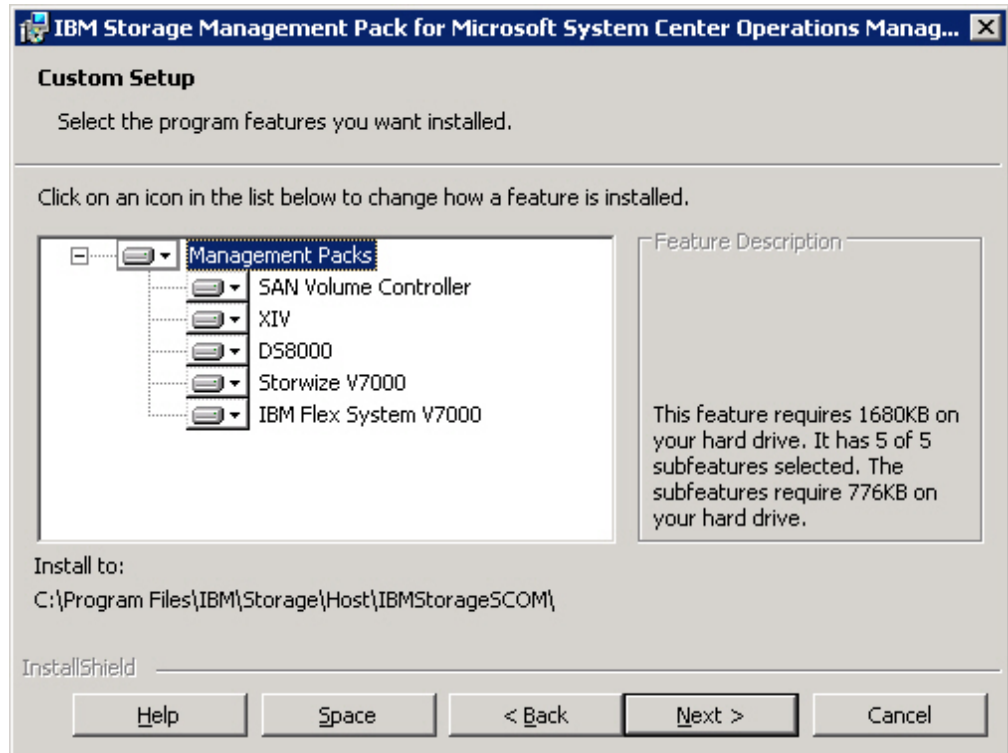


Figure 5. Custom setup

6. Click Next. The Ready to Install the Program panel is displayed.

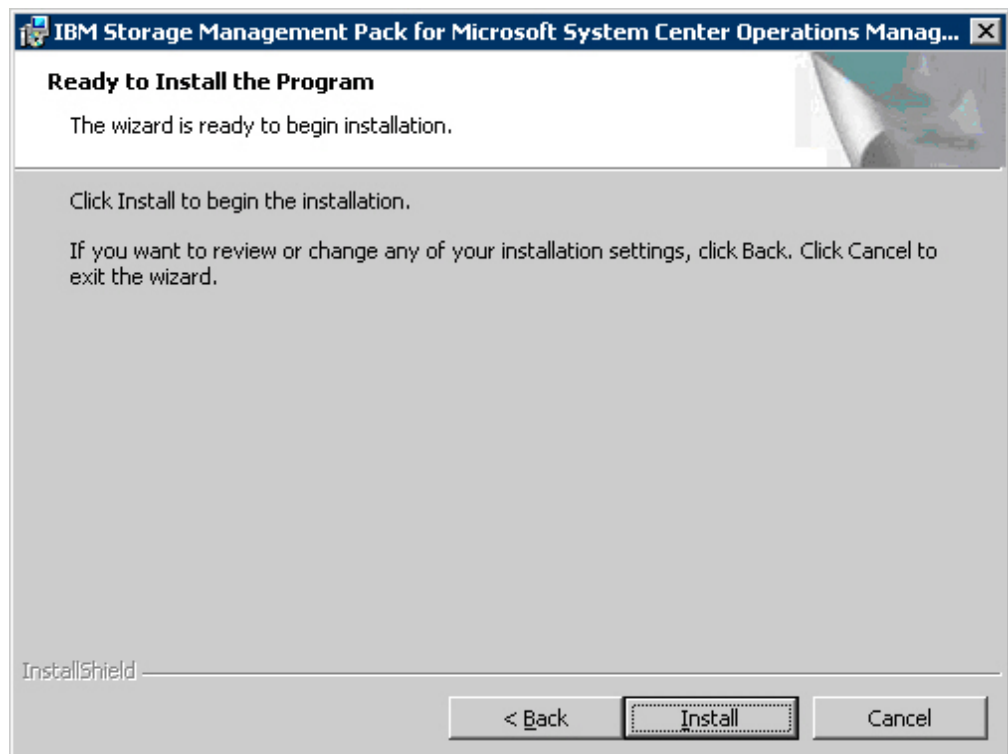


Figure 6. Ready to install the program

7. Click **Install**. The installation process begins, and files are copied to the following directory: %ProgramFiles%\IBM\Storage\Host\IBMStorageSCOM
8. After the installation process is complete, click **Finish**.

---

## Uninstalling the IBM Storage Management Pack

When any specific management pack is no longer needed, you can remove it individually from the System Center Operations Manager, or, if needed, you can uninstall all management packs together.

### Procedure

Accordingly, the following subsections describe:

- “Removing a specific management pack”
- “Uninstalling all management packs”

### Removing a specific management pack

This section describes how to remove a specific management pack.

#### Procedure

1. On the Administration panel, click **Management Packs**.
2. On the Management Packs list, select the management pack that you want to remove.
3. Right-click the management pack, and select **Delete** from the pop-up menu. Alternatively, press **Delete** or **Del** on the keyboard when the row of the management pack is selected.

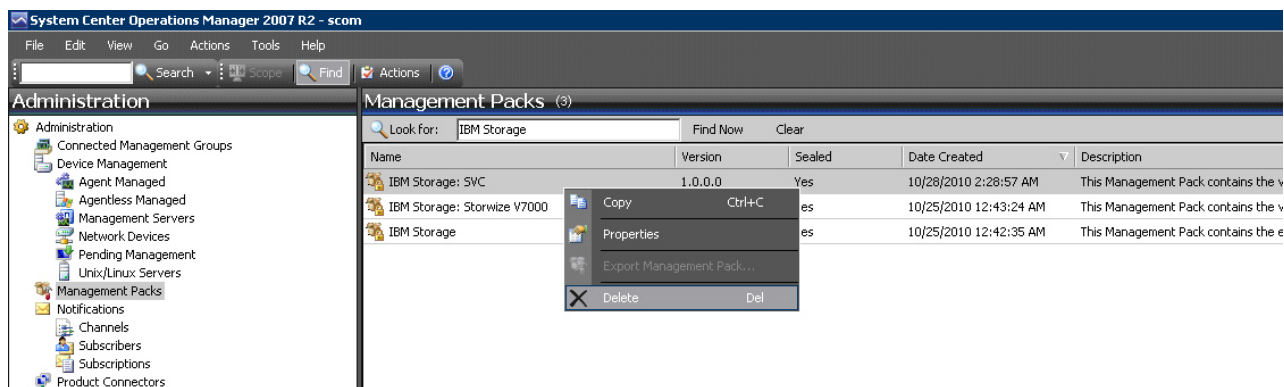


Figure 7. Deleting a management pack

---

**Important:** If the management pack you deleted is the last remaining pack in the Operations Manager, you must delete the IBM Storage common management pack as well.

---

### Uninstalling all management packs

This section describes how to completely uninstall all IBM management packs.

#### Procedure

1. Select and delete each management pack as explained in “Removing a specific management pack.”

2. Go to **Control Panel > Add/Remove Programs**, and uninstall **IBM Storage Management Pack for Microsoft SCOM**.



---

## Chapter 3. Configuration

After the IBM Storage Management Pack for Microsoft SCOM has been successfully installed, you can begin configuring it.

Configuring the IBM Storage Management Pack involves different tasks, as described in the following sections:

- “Using the command-line utility”
- “Adding IBM storage systems” on page 15
- “Displaying the monitored storage systems” on page 19
- “Modifying storage system connection parameters” on page 21
- “Removing a storage system from the monitoring list” on page 21
- “Changing event severity levels” on page 21
- “Importing management packs to Microsoft SCOM” on page 22
- “Setting the storage system discovery and event collection intervals” on page 26

---

### Using the command-line utility

The IBM Storage Management Pack includes a standalone command-line interface (CLI) utility, **scomu.cmd**, which you can use from a desktop shortcut or from the **Run command** box on the Windows Start menu.

Using a set of CLI commands, you can configure the IBM storage systems that are monitored by Microsoft SCOM, as explained in the following subsections.

---

**Note:** **scomu.cmd** can also be used to diagnose issues and collect logs for troubleshooting. For more information, see Chapter 5, “Diagnostics and troubleshooting,” on page 41.

---

To display the full list of commands and options available for the CLI utility, enter **scomu.cmd --help** in the command prompt window.

```
C:\Program Files\IBM\Storage\Host\IBMStorageSCOM\bin>scomu.cmd --help

IBM Storage SCOM-control Utility – Version 1.3.0

Usage:
scomu.cmd --add [--no-test | --timeout TIMEOUT] [device options]
scomu.cmd --modify [--no-test | --timeout TIMEOUT] [device options]
scomu.cmd --del [device options]
scomu.cmd --list [-t DEVICE_TYPE] [--format FORMAT]
scomu.cmd --test [--timeout TIMEOUT] [device options]
scomu.cmd --setseverity -t DEVICE_TYPE --event_id [EVENT ID] --severity [SEVERITY]
scomu.cmd --restoreseverity -t DEVICE_TYPE --event_id [EVENT ID]
scomu.cmd --listseverity
scomu.cmd --loglevel -t DEVICE_TYPE [LOG_LEVEL]
scomu.cmd --diag [--no-test]
scomu.cmd --precheck
scomu.cmd --help
```

```

Options:
Main operation mode:
--add          Add a connection
--modify       Modify a connection
--del          Delete a connection
--list         List all connection
--test         Test whether a connection can be established
--loglevel     View the log level or set log level for ['NOTSET',
              'TRACE', 'DEBUG', 'INFO', 'WARNING', 'ERROR',
              'CRITICAL'].
--diag         Collect diagnostic data
--precheck     Pre-check the environment
--setseverity  Set event severity
--restoreseverity Restore event severity
--listseverity List event severity mappings

Operation modifiers:
-F FILE, --file=FILE Obtain configuration from a file or read the
                    environment IBM_SCOM_HOME (used only by the service
                    team)
--debug        Display debug information (only used by service team)
--no-test      Skip the connection test
--timeout=TIMEOUT The device connection time-out duration in seconds,
                 can be any value between 1s and 3600s. Default value:
                 60s.
--format=FORMAT The output format: html (default) or csv

Device options:
-t DEVICE_TYPE, --dev_type=DEVICE_TYPE
                    Set the device type to ['ds8k', 'storwize', 'svc',
                    'xiv', 'flex'], "ds8k" for IBM System Storage
                    DS8000,"storwize" for IBM Storwize V7000,"svc" for IBM
                    System Storage SAN Volume Controller,"xiv" for IBM XIV
                    Storage System,"flex" for IBM Flex System V7000
--ip=IP, --host=IP IP address or hostname
-U USERNAME, --username=USERNAME
                    username
-P PASSWORD, --password=PASSWORD
                    password
-p PASSPHRASE, --passphrase=PASSPHRASE
                    passphrase
--url=URL          URL, e.g. http | https://hostname or IP:port
--namespace=NAMESPACE
                    namespace
--authmode=AUTHMODE
                    Set authentication mode to AUTHMODE. "publickey" for a
                    certificate file, "password" for password (can only be
                    used for SAN Volume Controller or Storwize V7000 of
                    microcode version 6.3 or later.)
--certpath=CERTPATH
                    certificate file path
--event_id=EVENT_ID
                    event ID
--severity=SEVERITY
                    Set event severity to SEVERITY

Device options for IBM System Storage DS8000:
-t ds8k --url URL [--username USERNAME] [--password PASSWORD]
  [--namespace NAMESPACE]

Device options for IBM System Storage SAN Volume Controller:
-t svc --ip IP [--authmode AUTHMODE] [--username USERNAME]
  [--password] PASSWORD [--certpath CERTPATH] [--passphrase] PASSPHRASE

Device options for IBM Storwize V7000:
-t storwize --ip IP [--authmode AUTHMODE] [--username USERNAME]
  [--password] PASSWORD [--certpath CERTPATH] [--passphrase] PASSPHRASE

Device options for IBM Flex System V7000:
-t flex --ip IP [--authmode AUTHMODE] [--username USERNAME]
  [--password] PASSWORD [--certpath CERTPATH] [--passphrase] PASSPHRASE

```



```
Device options for IBM XIV Storage System:
-t xiv --ip IP [--username USERNAME] [--password PASSWORD]

Other options:
-h, --help          Display help information
--version           Display the IBM Storage Management Pack version number
```

```
Examples:
scomu.cmd --add -t xiv --ip 192.0.2.10 -U u1 -P 123 # adds a connection
scomu.cmd --modify -t xiv --ip 192.0.2.10 -P x # modifies a connection
scomu.cmd --del -t svc --ip 192.0.2.10 # deletes a connection
scomu.cmd --list # lists all connections
scomu.cmd --test -t xiv --ip 192.0.2.10 -U u1 -P 123 # tests a connection
scomu.cmd --loglevel -t ds8k ERROR # sets log level
scomu.cmd --setseverity -t svc --event_id 980001 --severity information
# set severity in SCOM MP of event 980001 to information
scomu.cmd --restoreseverity -t svc --event_id 980001
# restore severity in SCOM MP of event 980001 to default
scomu.cmd --listseverity # list all customized event severity mappings
```

---

## Adding IBM storage systems

You can use the **SCOMU.cmd** utility and the **--add** command to add specific IBM storage systems to the Microsoft SCOM monitoring list.

After the specific systems are added, you can add the matching management pack to the Microsoft SCOM environment (if the management pack is not yet installed), as specified in Importing management packs to Microsoft SCOM.

---

**Note:** When adding a storage system to the monitoring list, the connection to the storage system is tested before it is added. You can skip the testing by specifying **--no-test** when adding the storage system.

---

## Adding a DS8000 system

This section describes how to add a DS8000 system to the list of SCOM-monitored IBM storage systems.

### About this task

The DS8000 management pack connects to the DS8000 storage system through a DS CIM agent. The DS CIM agent runs embedded on the DS8000 system (for microcode versions 5.4.3, 5.5.1 and 5.6.0) or in proxy mode (for microcode version 5.4.0).

### Procedure

To add a DS8000 system to the monitoring list, type the following details in a single command line:

- Type of system to be added (**-t**) – Use **"ds8k"** to specify DS8000 as the system type.
- URL (**--url**) – Web address of the DS CIM agent
- Namespace (**--namespace**) – CIM namespace of the DS CIM agent (for example: root/ibm)
- Login user name (**--username**) and password (**--password**) – For a proxy DS CIM agent, use the CIM agent user account. For an embedded DS CIM agent, use the DS8000 user account.

## Example

```
C:\Program Files\IBM\Storage\Host\IBMStorageSCOM\bin>
scomu.cmd --add -t ds8k --url https://host1.domain1.com:6989
--namespace root/ibm --username usr1 --password pwd1
Connecting to the device ...
1 IBM DS8000 Storage System is found.
device ID: xx, code level: x.x.x.x, CIM server version: x.x.x.x

The connection is OK.
Trying to add the connection.
New connection is added.
```

## Adding a Flex System V7000 system

This section describes how to add an IBM Flex System V7000 system to the list of SCOM-monitored IBM storage systems.

### Procedure

After the **--add** command, specify the following parameters (CLI arguments followed by values):

- IP address (**--ip**) or host name (**--host**) of the Flex System V7000 system.
- Type of system to be added (**-t**) – Use **"flex"** to specify Flex System V7000 as the system type.
- Authentication mode (**--authmode**) – You can specify public key mode (**publickey**) or password mode (**password**).
  - If the public key authentication mode is used, enter the authentication user name (**--username**) and then the folder location and name of the private SSH key (**--certpath**). If the SSH requires a passphrase (**--passphrase**), enter it as well.

For example:

```
C:\Program Files\IBM\Storage\Host\IBMStorageSCOM\bin>
scomu.cmd --add -t flex --ip 192.0.2.10
--authmode publickey --username john1 --certpath c:\flex.cert --passphrase xxxxx
Connecting to the device ...
1 IBM Flex System V7000 Storage System is found.
cluster ID: xx, code level: x.x.x.x, location: local

The connection is OK.
Trying to add the connection.
New connection is added.
```

- If the password authentication mode is used, enter the authentication user name (**--username**) and then the authentication password (**--password**).

For example:

```
C:\Program Files\IBM\Storage\Host\IBMStorageSCOM\bin>
scomu.cmd --add -t flex --ip 192.110.20.10
--authmode password --username john1 --password xxxxxxxxxx
Connecting to the device ...
1 IBM Flex System V7000 Storage System is found.
cluster ID: xx, code level: x.x.x.x, location: local

The connection is OK.
Trying to add the connection.
New connection is added.
```

---

**Important:**

- The private SSH key (in all cases in which it is used) must be in the OpenSSH format. If your key is not in the OpenSSH format, you can use a certified OpenSSH conversion utility. For more information, see the OpenSSH website ([www.openssh.org](http://www.openssh.org)).
- 

## Adding a Storwize V7000 system

This section describes how to add a Storwize V7000 system to the list of SCOM-monitored IBM storage systems.

### Procedure

After the **--add** command, specify the following parameters (CLI arguments followed by values):

- IP address (**--ip**) or host name (**--host**) of the Storwize V7000 system.
- Type of system to be added (**-t**) – Use "**storwize**" to specify Storwize V7000 as the system type.
- Authentication mode (**--authmode**) – You can specify the public key mode (**publickey**), or, if you are using microcode version 6.3 or later – you can specify the password mode (**password**).
  - If the public key authentication mode is used, enter the authentication user name (**--username**) and then the folder location and name of the private SSH key (**--certpath**). If the SSH requires a passphrase (**--passphrase**), enter it as well.

For example:

```
C:\Program Files\IBM\Storage\Host\IBMStorageSCOM\bin>
scomu.cmd --add -t storwize --ip 192.0.2.10
--authmode publickey --username john1 --certpath c:\storwize.cert --passphrase xxxxx
Connecting to the device ...
1 IBM Storwize V7000 Storage System is found.
cluster ID: xx, code level: x.x.x.x, location: local

The connection is OK.
Trying to add the connection.
New connection is added.
```

- If the password authentication mode is used (applicable only to microcode version 6.3 or later), enter the authentication user name (**--username**) and then the authentication password (**--password**).

For example:

```
C:\Program Files\IBM\Storage\Host\IBMStorageSCOM\bin>
scomu.cmd --add -t storwize --ip 192.110.20.10
--authmode password --username john1 --password xxxxxxxxx
Connecting to the device ...
1 IBM Storwize V7000 Storage System is found.
cluster ID: xx, code level: x.x.x.x, location: local

The connection is OK.
Trying to add the connection.
New connection is added.
```

---

**Important:**

- If you are using a Storwize V7000 system with microcode version 6.1 or earlier, only "admin" is accepted as the user name. Using "admin" does not necessarily mean that you have administrator credentials, but rather a user name spelled as "admin". It also does not mean that the matching user name defined on the storage system is also "admin". The pairing between the SCOM Management Pack user and the storage system user account is performed only by the SSH key pairing (any valid SSH key grants access).
  - The private SSH key (in all cases in which it is used) must be in the OpenSSH format. If your key is not in the OpenSSH format, you can use a certified OpenSSH conversion utility. For more information, see the OpenSSH website ([www.openssh.org](http://www.openssh.org)).
- 

## Adding a SAN Volume Controller system

This section describes how to add a SAN Volume Controller system to the list of SCOM-monitored IBM storage systems.

### Procedure

After the **--add** command, specify the following parameters (CLI arguments followed by values):

- IP address (**--ip**) or host name (**--host**) of the SAN Volume Controller system.
- Type of system to be added (**-t**) – Use "svc" to specify SAN Volume Controller as the system type.
- Authentication mode (**--authmode**) – You can specify the public key mode (**publickey**), or, if you are using microcode version 6.3 or later – you can specify the password mode (**password**).
  - If the public key authentication mode is used, enter the authentication user name (**--username**) and then the folder location and name of the private SSH key (**--certpath**). If the SSH requires a passphrase (**--passphrase**), enter it as well.

For example:

```
C:\Program Files\IBM\Storage\Host\IBMStorageSCOM\bin>
scomu.cmd --add -t svc --ip 192.0.2.10
--authmode publickey --username john1 --certpath c:\svc.cert --passphrase xxxxx
Connecting to the device ...
1 IBM SAN Volume Controller Storage System is found.
cluster ID: xx, code level: x.x.x.x, location: local

The connection is OK.
Trying to add the connection.
New connection is added.
```

- If the password authentication mode is used (applicable only to microcode version 6.3 or later), enter the authentication user name (**--username**) and then the authentication password (**--password**).

For example:

```

C:\Program Files\IBM\Storage\Host\IBMStorageSCOM\bin>
scomu.cmd --add -t svc --ip 192.110.20.10
--authmode password --username john1 --password xxxxxxxxx
Connecting to the device ...
1 IBM SAN Volume Controller Storage System is found.
cluster ID: xx, code level: x.x.x.x, location: local

The connection is OK.
Trying to add the connection.
New connection is added.

```

---

### Important:

- If you are using a SAN Volume Controller system with microcode version 6.1 or earlier, only "admin" is accepted as the user name. Using "admin" does not necessarily mean that you have administrator credentials, but rather a user name spelled as "admin". It also does not mean that the matching user name defined on the storage system is also "admin". The pairing between the SCOM Management Pack user and the storage system user account is performed only by the SSH key pairing (any valid SSH key grants access).
  - The private SSH key (in all cases in which it is used) must be in the OpenSSH format. If your key is not in the OpenSSH format, you can use a certified OpenSSH conversion utility. For more information, see the OpenSSH website ([www.openssh.org](http://www.openssh.org)).
- 

## Adding an XIV system

This section describes how to add an XIV system to the list of SCOM-monitored IBM storage systems.

### Procedure

To add an XIV system to the monitoring list, use **-t xiv** to specify XIV as the system type, and then specify the IP address (**--ip**) or host name (**--host**) of the XIV system, followed by the **--username** and **--password** login details.

### Example

```

C:\Program Files\IBM\Storage\Host\IBMStorageSCOM\bin>
scomu.cmd --add -t xiv --ip 192.0.2.10 --username usr4 --password pwd4
Connecting to the device ...
1 IBM XIV Storage System is found.
device ID: xx, code level: x.x.x.x

The connection is OK.
Trying to add the connection.
New connection is added.

```

---

## Displaying the monitored storage systems

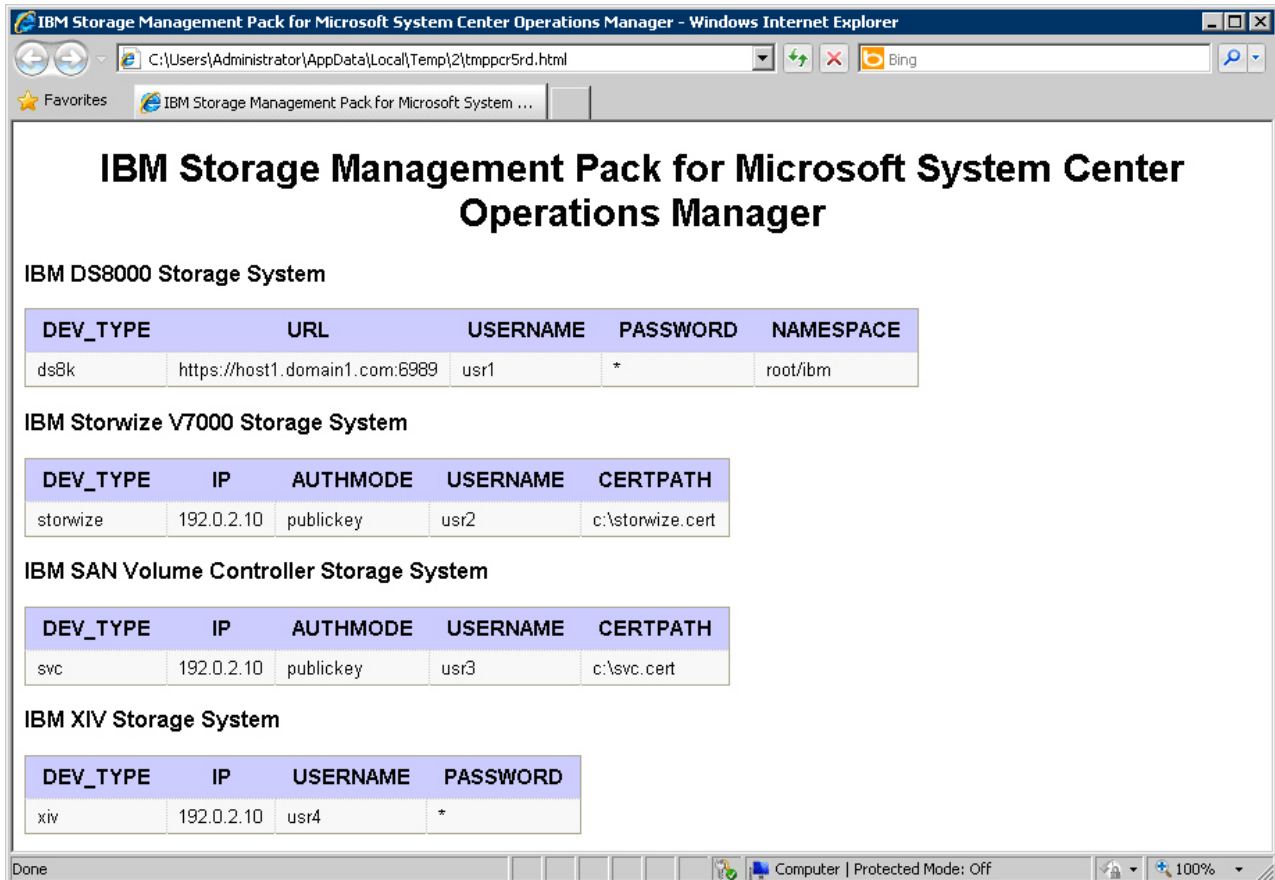
This section describes how to display the list of SCOM-monitored storage systems.

### Procedure

To view the list of monitored storage systems, enter **scomu.cmd --list**. The default output format is HTML, and the list is displayed in the default web browser.

## Example

```
C:\Program Files\IBM\Storage\Host\IBMStorageSCOM\bin>
scomu.cmd -list
4 connections are found.
```



**IBM Storage Management Pack for Microsoft System Center Operations Manager**

**IBM DS8000 Storage System**

DEV_TYPE	URL	USERNAME	PASSWORD	NAMESPACE
ds8k	https://host1.domain1.com:6989	usr1	*	root/ibm

**IBM Storwize V7000 Storage System**

DEV_TYPE	IP	AUTHMODE	USERNAME	CERTPATH
storwize	192.0.2.10	publickey	usr2	c:\storwize.cert

**IBM SAN Volume Controller Storage System**

DEV_TYPE	IP	AUTHMODE	USERNAME	CERTPATH
svc	192.0.2.10	publickey	usr3	c:\svc.cert

**IBM XIV Storage System**

DEV_TYPE	IP	USERNAME	PASSWORD
xiv	192.0.2.10	usr4	*

Figure 8. HTML output

## What to do next

To display the list in comma-separated values (CSV) format, add **--format csv** to the command. For example:

```
C:\Program Files\IBM\Storage\Host\IBMStorageSCOM\bin>
scomu.cmd --list --format csv
4 connections are found.
DEV_TYPE,URL,USERNAME,PASSWORD,NAMESPACE
ds8k,https://192.0.2.40:6989,usr1,*,root/ibm

DEV_TYPE,IP,AUTHMODE,USERNAME,CERTPATH
storwize,192.0.2.30,publickey,usr2,c:\storwize.cert

DEV_TYPE,IP,AUTHMODE,USERNAME,CERTPATH
svc,192.0.2.20,publickey,usr3,c:\svc.cert

DEV_TYPE,IP,USERNAME,PASSWORD
xiv,192.0.2.10,usr4,*
```

---

## Modifying storage system connection parameters

This section describes modifying storage system connection parameters.

### Procedure

To modify the connection parameters for a specific monitored storage system, enter **--modify** followed by the system to be modified, the new parameter names and values.

### Example

```
C:\Program Files\IBM\Storage\Host\IBMStorageSCOM\bin>
scomu.cmd --modify -t xiv --ip 192.0.2.10 --username usr5
Connecting to the device ...
1 IBM XIV Storage System is found.
device ID: xx, code level: x.x.x.x

The connection is OK.
Trying to modify the connection.
The connection is modified.
```

---

## Removing a storage system from the monitoring list

This section describes how to remove a storage system from the list of SCOM-monitored IBM storage systems.

### Procedure

To remove the storage system from the monitored list, enter **--del** and then the IP address or host name of the storage system.

### Example

```
C:\Program Files\IBM\StorageMPIBM\Storage\Host\IBMStorageSCOM\bin>
scomu.cmd --del -t xiv --ip 192.0.2.40
1 connection is deleted.
```

---

## Changing event severity levels

Starting from version 1.3.0, you can use the **scomu.cmd** CLI utility to change the severity level of logged events.

### About this task

Depending on your environment and preference, you can change the default severity level of logged events. This allows you to set automated alerts for events that their default severity does not match your particular environment and preference. You can lower the severity level of events about which you do not want to be alerted, or raise the severity level of events about which you do want to be alerted.

---

#### Note:

- This feature is supported only with IBM Flex System V7000, Storwize V7000, and SAN Volume Controller.
  - The default alert severity level is **Warning**.
-

Use the **--setseverity** command to change event severity levels, as described in the following procedure.

## Procedure

After the **--setseverity** command, specify the following parameters (CLI arguments followed by values):

- Type of system for which the severity change should be made – Use **-t** followed by "flex", "storwize", or "svc".
- ID of the event for which you want to change the severity level – Use **--event\_id** followed by the ID number of the event.
- The severity level that you want to set for the event – Use **--severity** followed by the name of the severity level that you want to set.

---

**Note:** Different severity level types are available depending on the IBM storage system that you are using. For more information, see Chapter 4, “Monitoring,” on page 29.

---

## Example

```
scomu.cmd --setseverity -t svc --event_id 980001 --severity information
```

## What to do next

- To display a list of all the customized severity levels, use the **--listseverity** command as follows:

```
scomu.cmd --listseverity
```

- If you want to restore the severity level of a certain event to its default severity, use the **--restoreseverity** command as shown in this example:

```
scomu.cmd --restoreseverity -t svc --event_id 980001
```

---

## Importing management packs to Microsoft SCOM

If any specific management pack (for a storage system type) is not already imported, you can import it to the Microsoft SCOM environment by performing the following procedure.

### Procedure

1. On the Administration panel, right-click **Management Packs**, and select **Import Management Packs**.

The Import Management Pack dialog box is displayed.



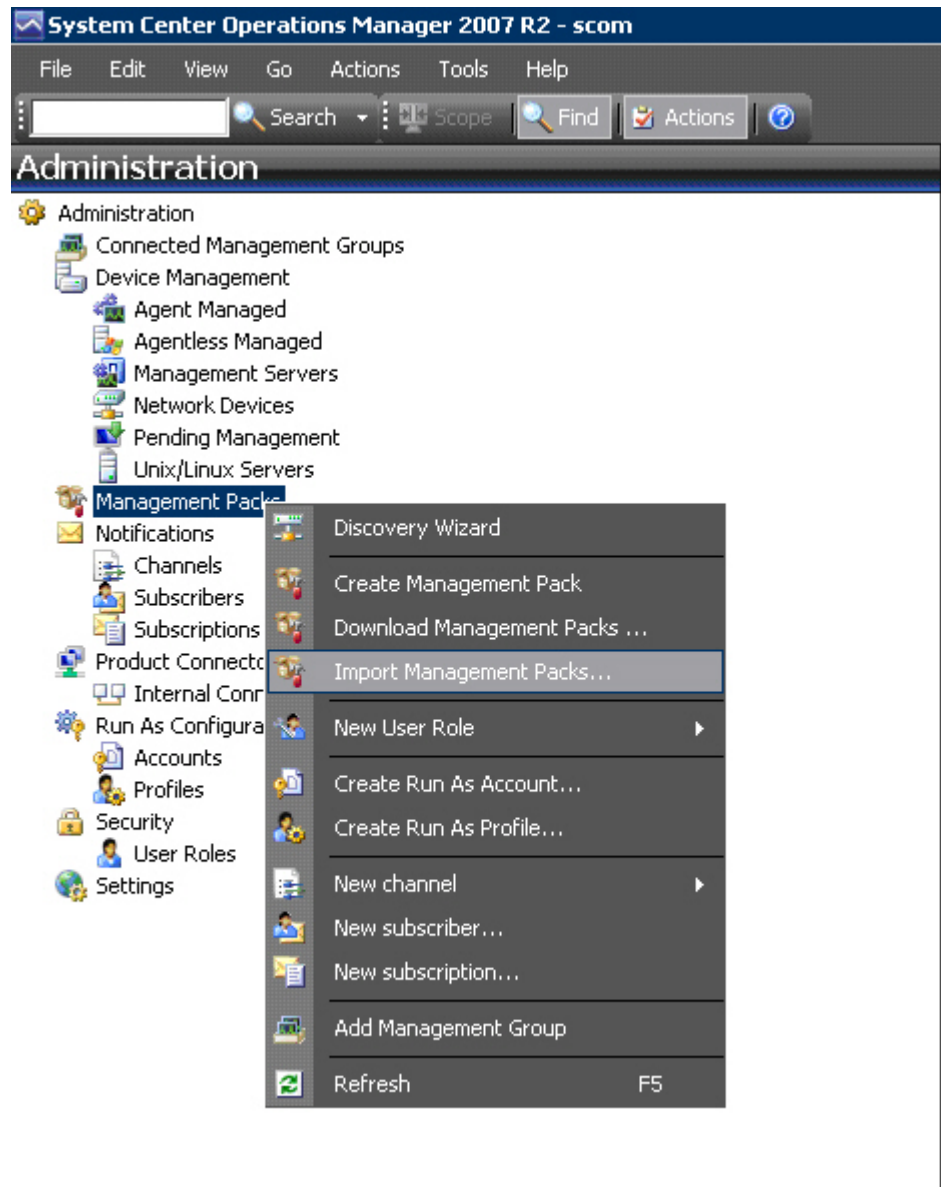


Figure 9. Import Management Packs selected

2. Click **Add**, and then click **Add from disk**.

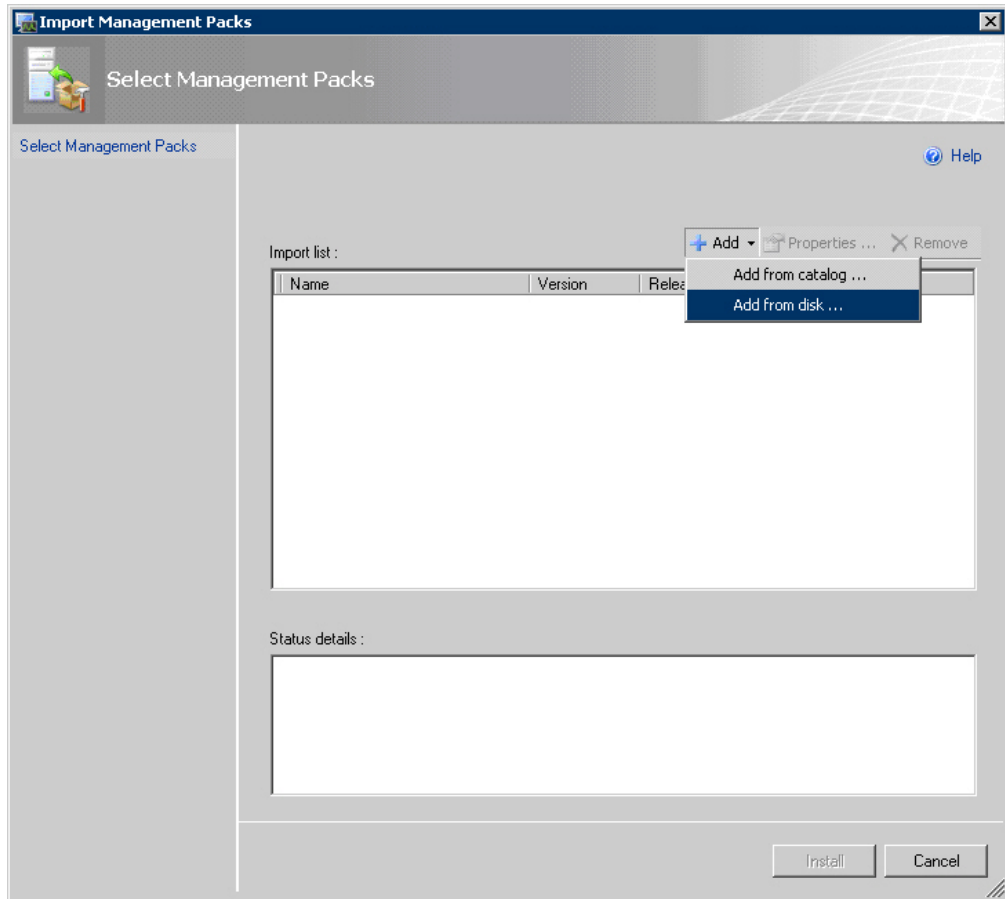


Figure 10. Add from disk

The Online Catalog Connection confirmation is displayed.

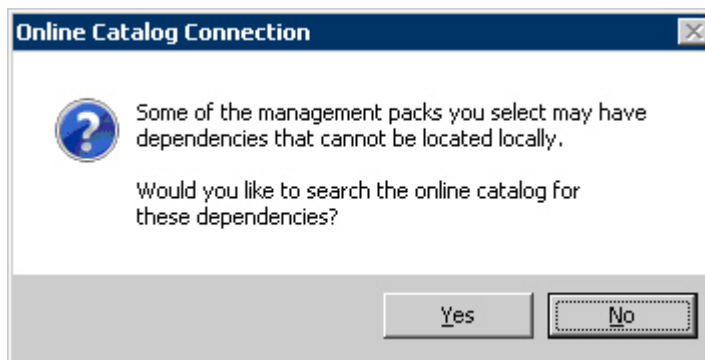


Figure 11. Online Catalog Connection Confirmation

3. Click **No** to locate the management pack locally. The Select Management Packs to Import dialog box is displayed.
4. Access the %ProgramFiles%\IBM\Storage\Host\IBMStorageSCOM\mps directory and select two files:
  - IBM.Storage.Common.mp
  - The file of the management pack that you want to add (for example, select IBM.Storage.DS8K.mp for adding the DS8000 management pack). You can select more than one management pack.

**Important:** You must select the IBM.Storage.Common.mp file together with the first management pack that you add. After this initial addition, you do not need to select IBM.Storage.Common.mp file again.

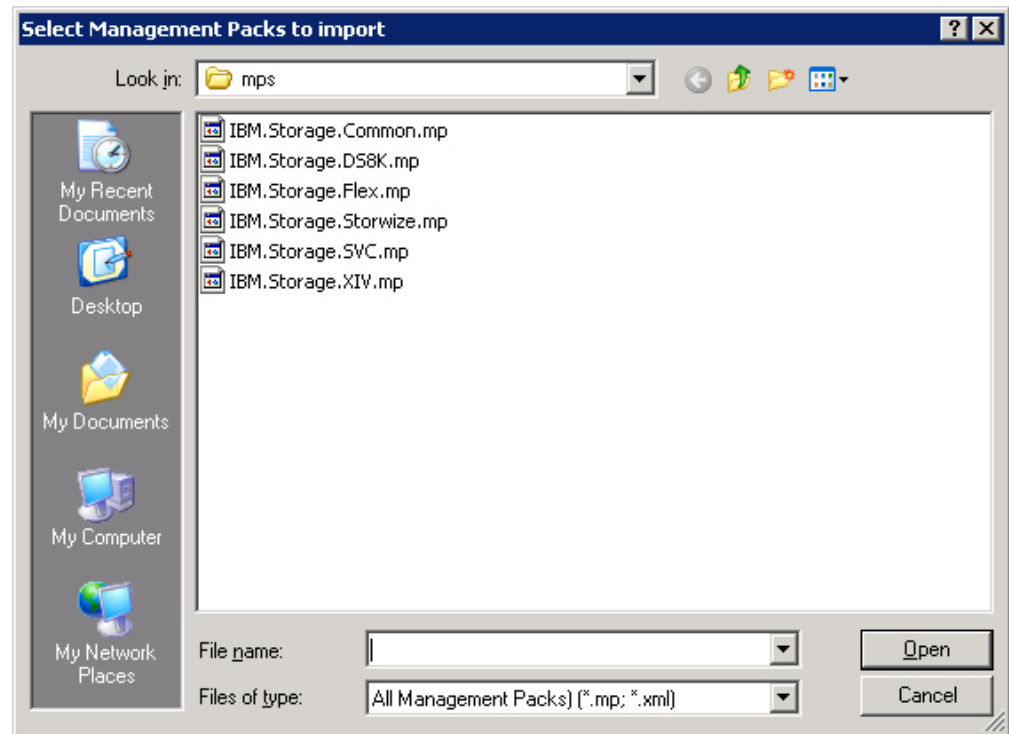


Figure 12. Pack file selection

5. When the files are selected, click **Open**. The Import Management Packs dialog box now lists the management packs to be added.

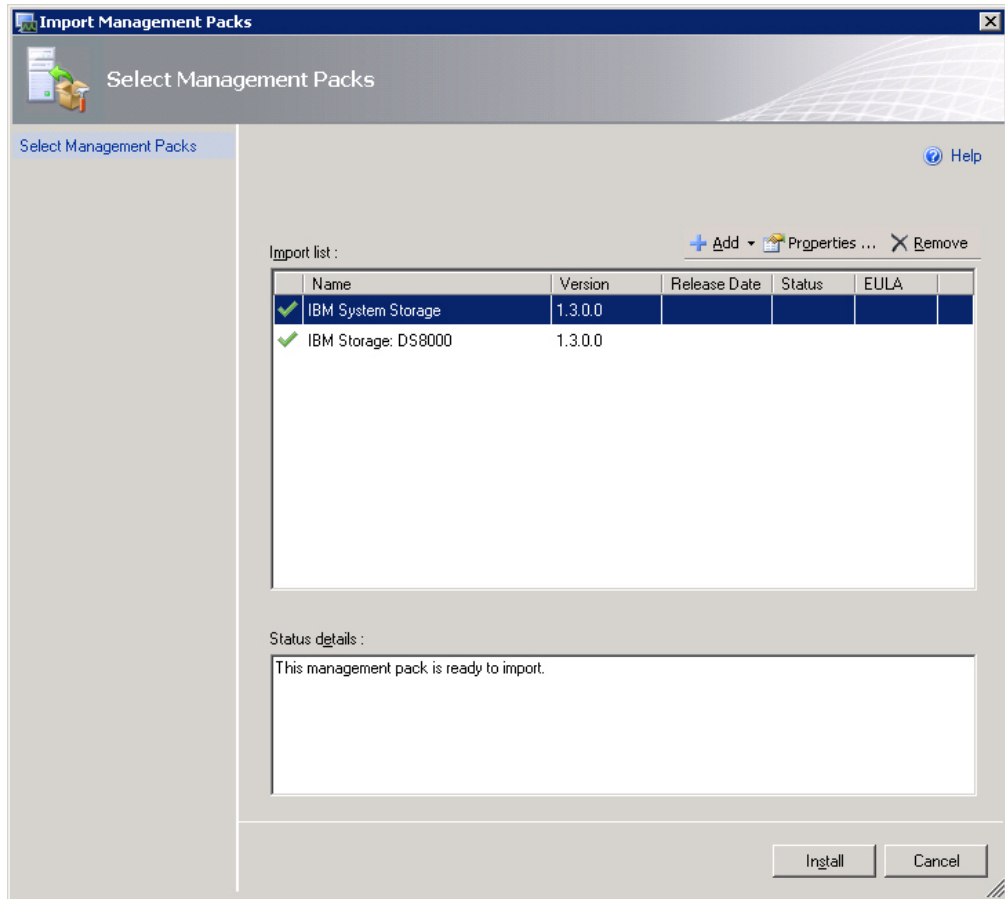


Figure 13. List of management packs to be imported

- Click **Install** to start the import. When the management packs are successfully imported, click **Close**.

## Setting the storage system discovery and event collection intervals

Before or at any time after you start using the IBM Storage Management Pack, you can set the time intervals that define the rate by which Microsoft SCOM discovers new storage systems and collects information about new events.

### Setting the storage system discovery intervals

This section describes how to set the storage system discovery intervals.

#### Procedure

The default interval for the discovery of each IBM storage system type is set to 30 minutes. Perform the following procedure to change the IBM storage system discovery interval.

- Click the Microsoft SCOM **Authoring** pane.
- Select **Object Discoveries**, and then select **System Discovery** for the relevant management pack.
- In the Actions pane (located on the right), select **Overrides > Override the Object Discovery > For all objects of class: Windows Server**. The Override Properties dialog box is displayed.

4. Select **Override for Interval Seconds**, and then enter a new numerical value **Override Value**. The numerical value that you enter defines the number of seconds for the interval.
5. Click **Apply**. The new discovery interval is set.

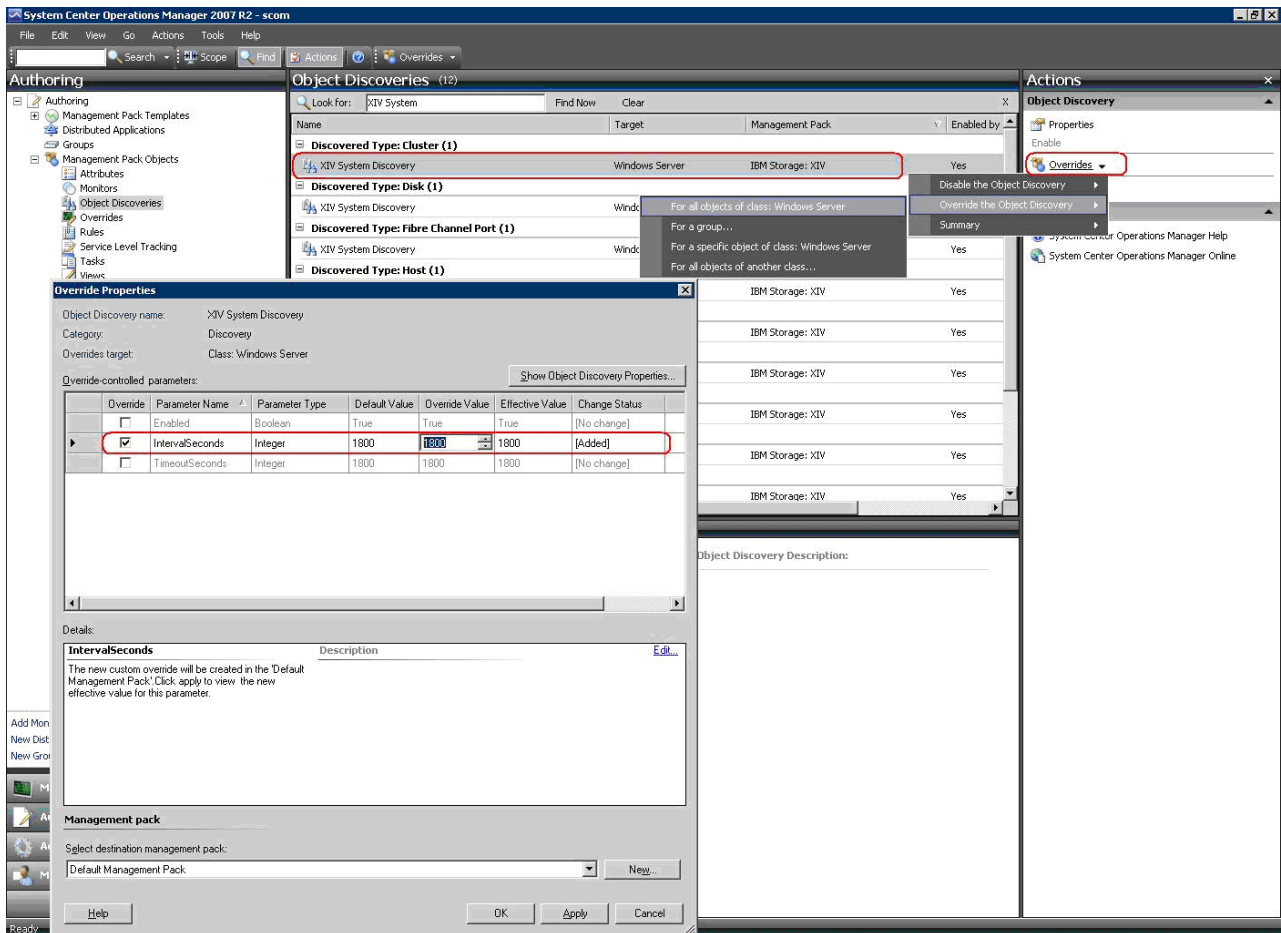


Figure 14. Interval setting for storage system discovery

## Setting the event collection intervals

This section describes how to set the event collection intervals.

### Procedure

The default interval for event collection of each IBM storage system type is set to 10 minutes. Perform the following procedure to change the collection interval.

1. Click the Microsoft SCOM **Authoring** pane.
2. Select **Rules**, and then select **Event Rule** for the relevant management pack.
3. In the Actions pane (located on the right), select **Overrides** > **Override the Rule** > **For all objects of class: System**. The **Override Properties** dialog box appears.
4. Select **Override for Interval Seconds**, and then enter a new numerical value **Override Value**. The numerical value that you enter defines the number of seconds for the interval.
5. Click **Apply**. The new event collection interval is set.

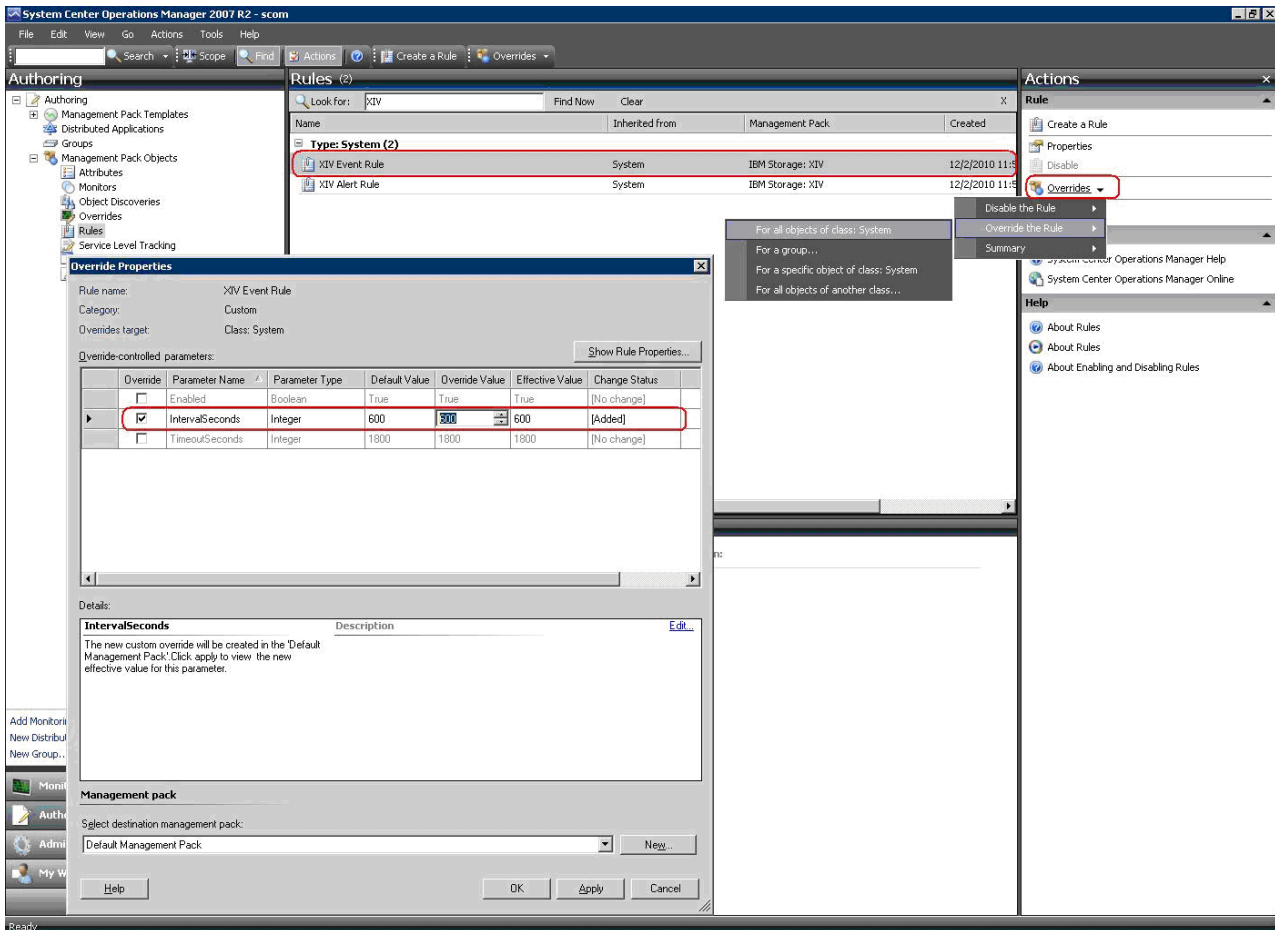


Figure 15. Interval setting for event collection

## Chapter 4. Monitoring

After installing the IBM Storage Management Pack, you can use the Monitoring tab of the Microsoft SCOM console to monitor the storage systems.

To start the monitoring, click the **Monitoring** tab on the left pane of the Operations Manager console, and then expand the **IBM System Storage** folder, located on the Monitoring tree.

Depending on the installed management packs, the subfolders under **IBM System Storage** display the information about the different IBM storage systems that are monitored via Microsoft SCOM.

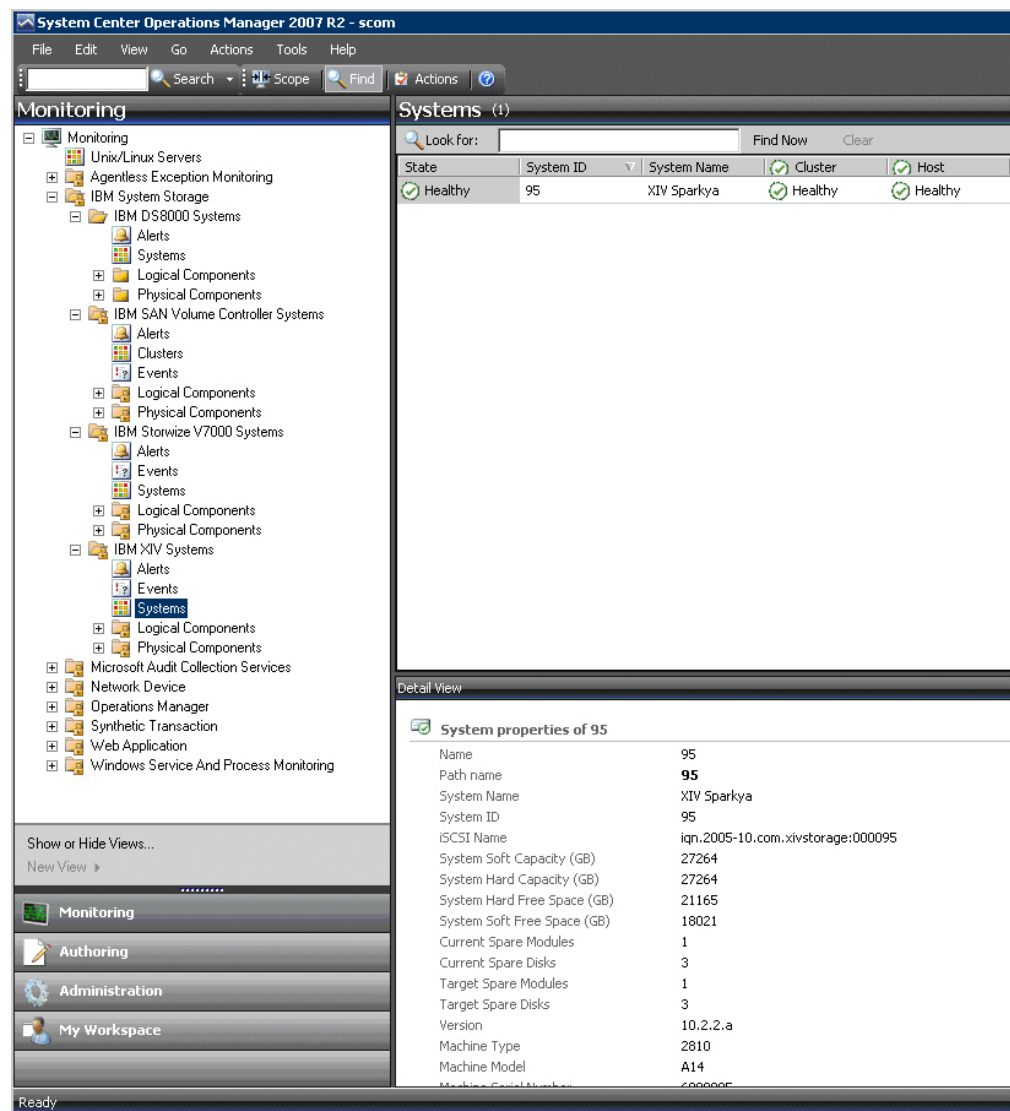


Figure 16. Monitoring Tree

Under each management pack subfolder (of a storage system type), the following options are available:

- Monitoring alerts
- Monitoring events
- Monitoring systems
- Monitoring physical and logical components
- Viewing diagrams

---

## Monitoring alerts

This section describes how to monitor alerts for IBM storage systems.

### About this task

You can monitor two types of alerts:

- **Health monitoring alerts** – Alerts about the health state of the monitored storage components. Health monitoring alerts are applicable to all the supported IBM storage systems. For example, an alert is created when the health state of a certain component changes from **Healthy** to **Critical**.
- **Event log alerts** – Alerts about system events that are defined as error or warning events. Event log alerts are **not applicable to DS8000 systems**, but are applicable to all the other supported IBM storage systems and are monitored as follows:
  - For Storwize V7000, Flex System 7000, and SAN Volume Controller systems, **Error** events are displayed in SCOM as **Warning** alerts.

---

#### Note:

- To increase or decrease alerting regarding certain events of Storwize V7000, Flex System 7000, and SAN Volume Controller systems, change the severity level of any event as explained in “Changing event severity levels” on page 21.
- For more information about SAN Volume Controller error events, refer to the *IBM System Storage SAN Volume Controller Troubleshooting Guide* available on the IBM SAN Volume Controller Information Center ([pic.dhe.ibm.com/infocenter/svc/ic/index.jsp](http://pic.dhe.ibm.com/infocenter/svc/ic/index.jsp)). In the guide, refer to the section: ‘Error event IDs and error codes’.
  - For XIV systems, **Major** and **Critical** events are displayed in SCOM as **Critical** alerts, while **Minor** and **Warning** events are displayed in SCOM as **Warning** alerts.

---

**Note:** The alert severity level of XIV system events cannot be modified.

---

### Procedure

To view more details regarding a specific alert, select its row. A detailed description of the alert is displayed in the Alert Details pane (below the alerts list).



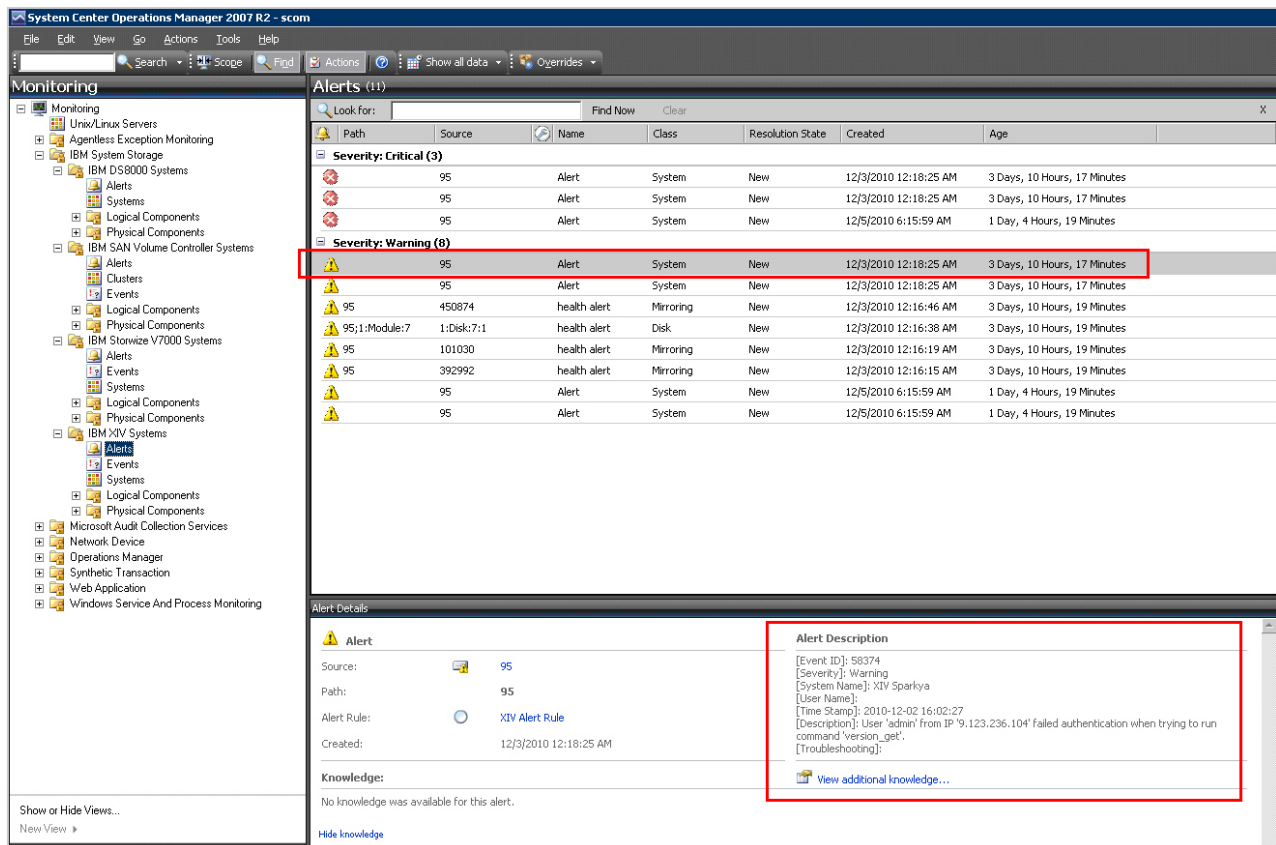


Figure 17. Alert Monitoring

## Monitoring events

This section describes how to monitor events for IBM storage systems.

### About this task

Events are displayed differently in the management packs:

- For IBM Flex System V7000, Storwize V7000, and SAN Volume Controller systems, **Information** and **Configuration** events are displayed.

**Note:** To learn about SAN Volume Controller Information or Configuration events, refer to the *IBM System Storage SAN Volume Controller Troubleshooting Guide* available on the IBM SAN Volume Controller Information Center ([pic.dhe.ibm.com/infocenter/svc/ic/index.jsp](http://pic.dhe.ibm.com/infocenter/svc/ic/index.jsp)). In the guide, refer to the sections: 'Informational events' and 'Configuration event IDs'.

- For XIV systems, all event levels are displayed: **Information**, **Error**, and **Warning**.
- For the DS8000 systems, events are not displayed.

**Note:** By default, the list of events is refreshed every 10 minutes. You can change the default interval as explained in "Setting the event collection intervals" on page 27.

## Procedure

- To view more details regarding a specific event, select its row. A detailed description of the event is displayed in the Event Details pane (below the events list).

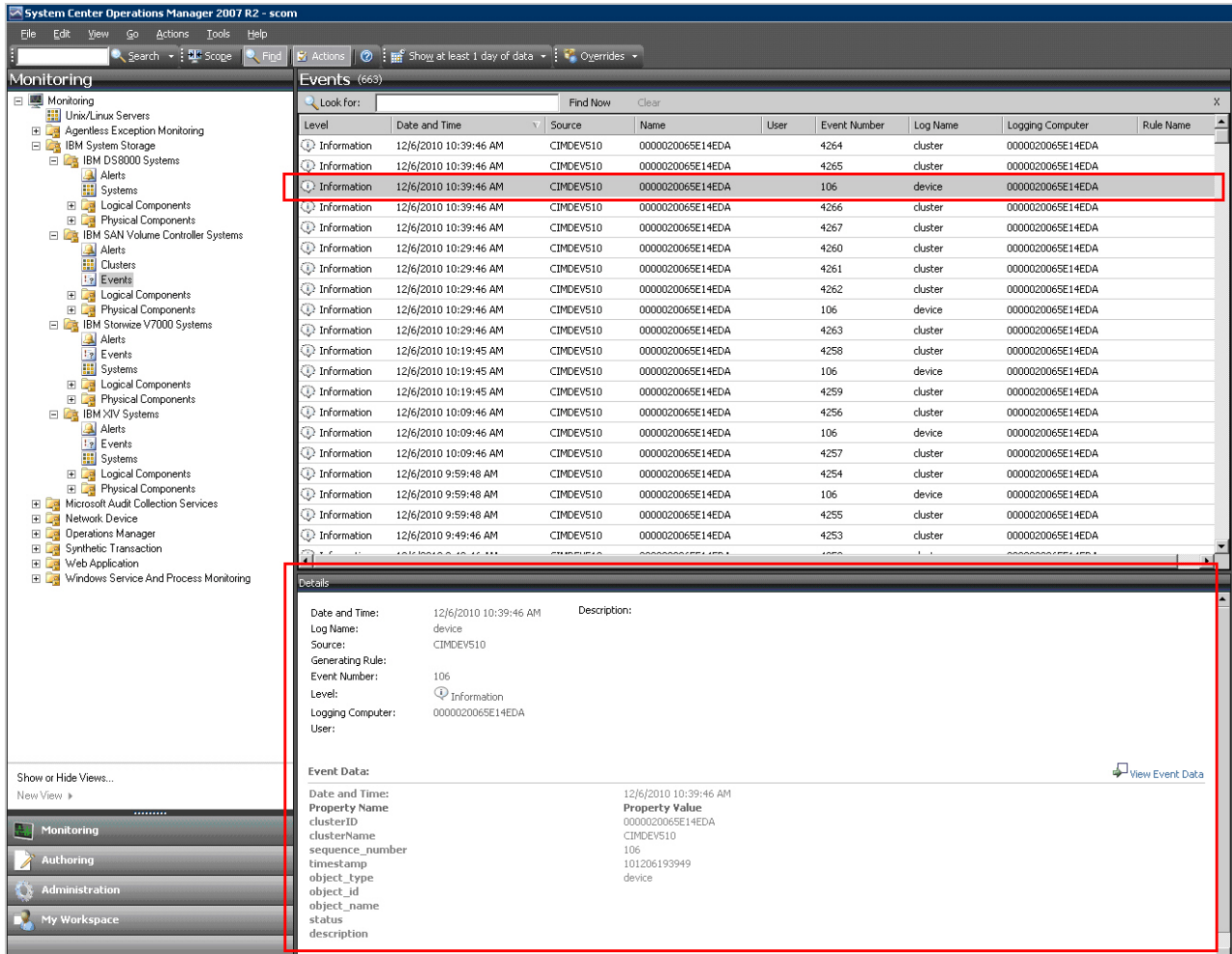


Figure 18. Event Monitoring

- To view the raw data of the selected event, click **View Event Data**. The XML code is displayed in your system's default browser or XML viewer, as shown in the following figure.

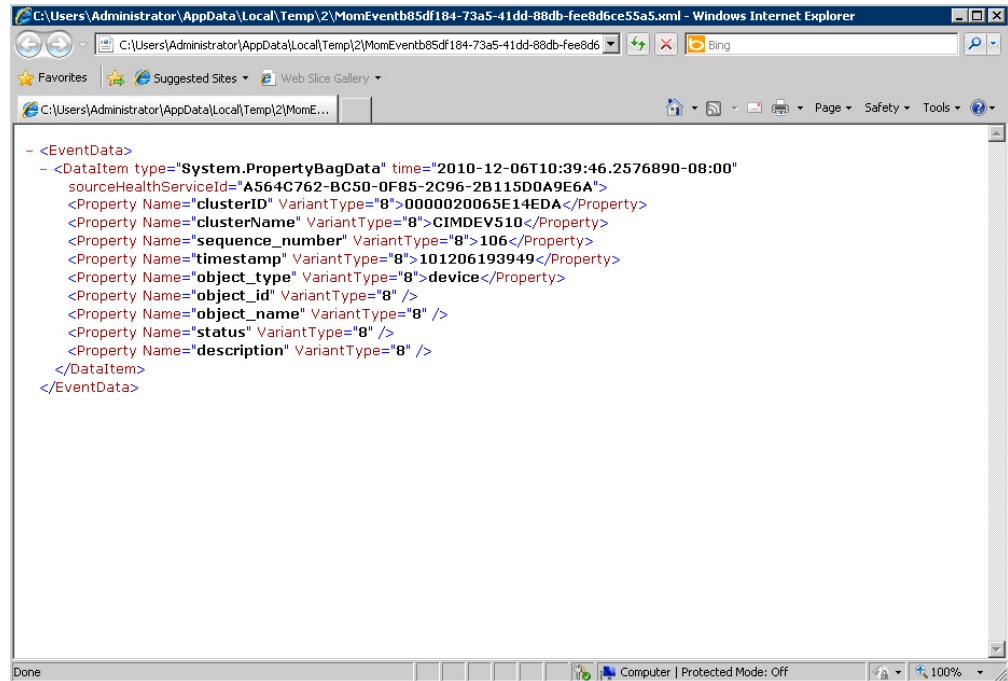


Figure 19. Event data in XML format

---

## Monitoring systems

This section describes how to monitor IBM storage systems.

### About this task

The Systems monitoring module provides a global health view of the monitored IBM storage systems and their associated components and objects (disks, volume group, volume mapping, and so on) in one general list.

### Procedure

- To view more detailed information about a specific system component or object, click on its row. The details are displayed in the Detailed View pane located below the systems list.

---

#### Note:

- By default, the systems monitoring list is refreshed every 30 minutes. You can change this interval as described in “Setting the storage system discovery intervals” on page 26.
  - SAN Volume Controller and Storwize V7000 are monitored by clusters and not by systems. Therefore, their equivalent monitoring tree level displays 'Clusters' instead of 'Systems'.
-

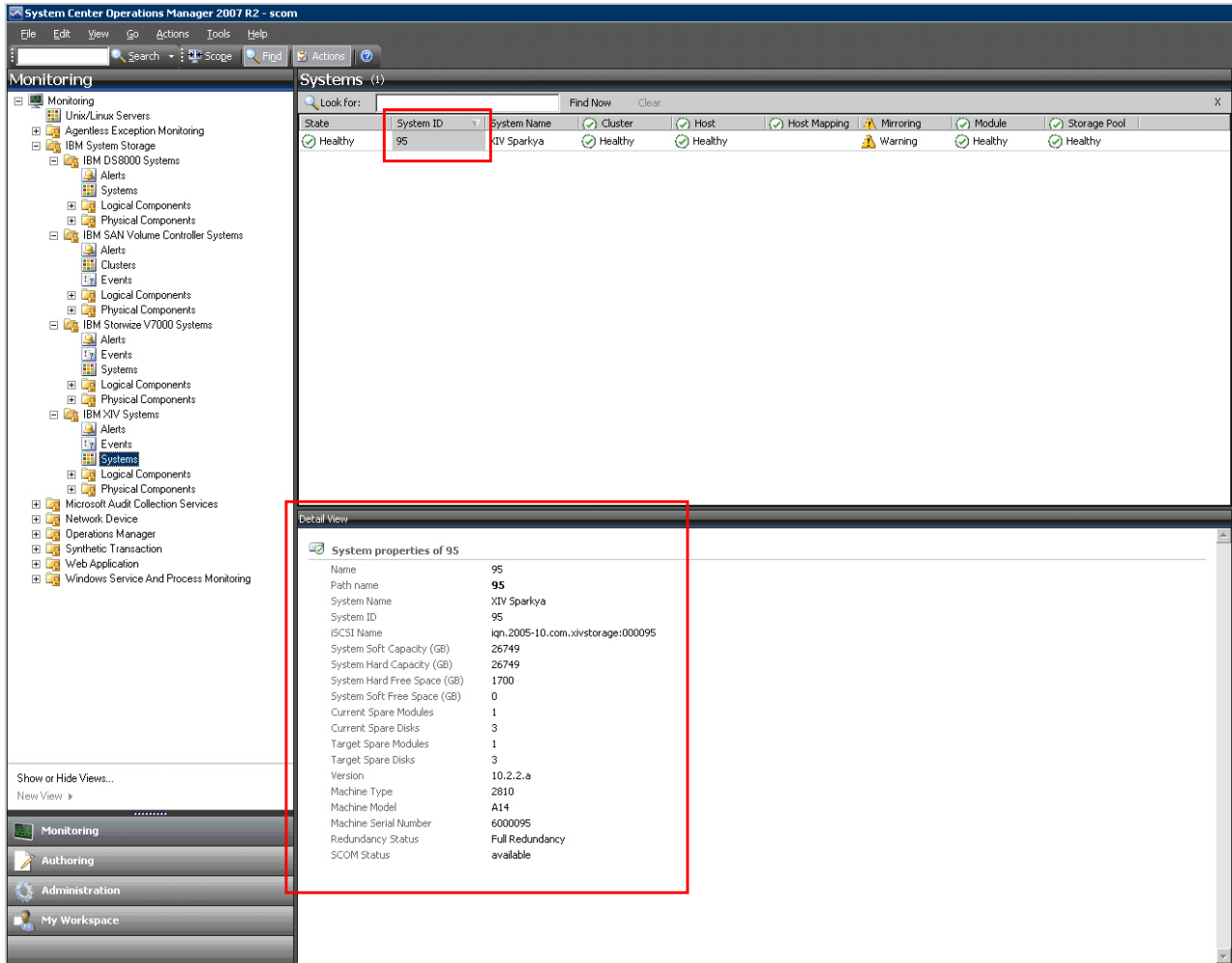


Figure 20. System monitoring per system ID

- Alternatively, you can click on a specific component cell on a specific column to see its associated components and details in the Detailed View pane.

---

**Note:** Only the object availability is monitored. The object status can be **Healthy**, **Warning**, or **Critical**.

---

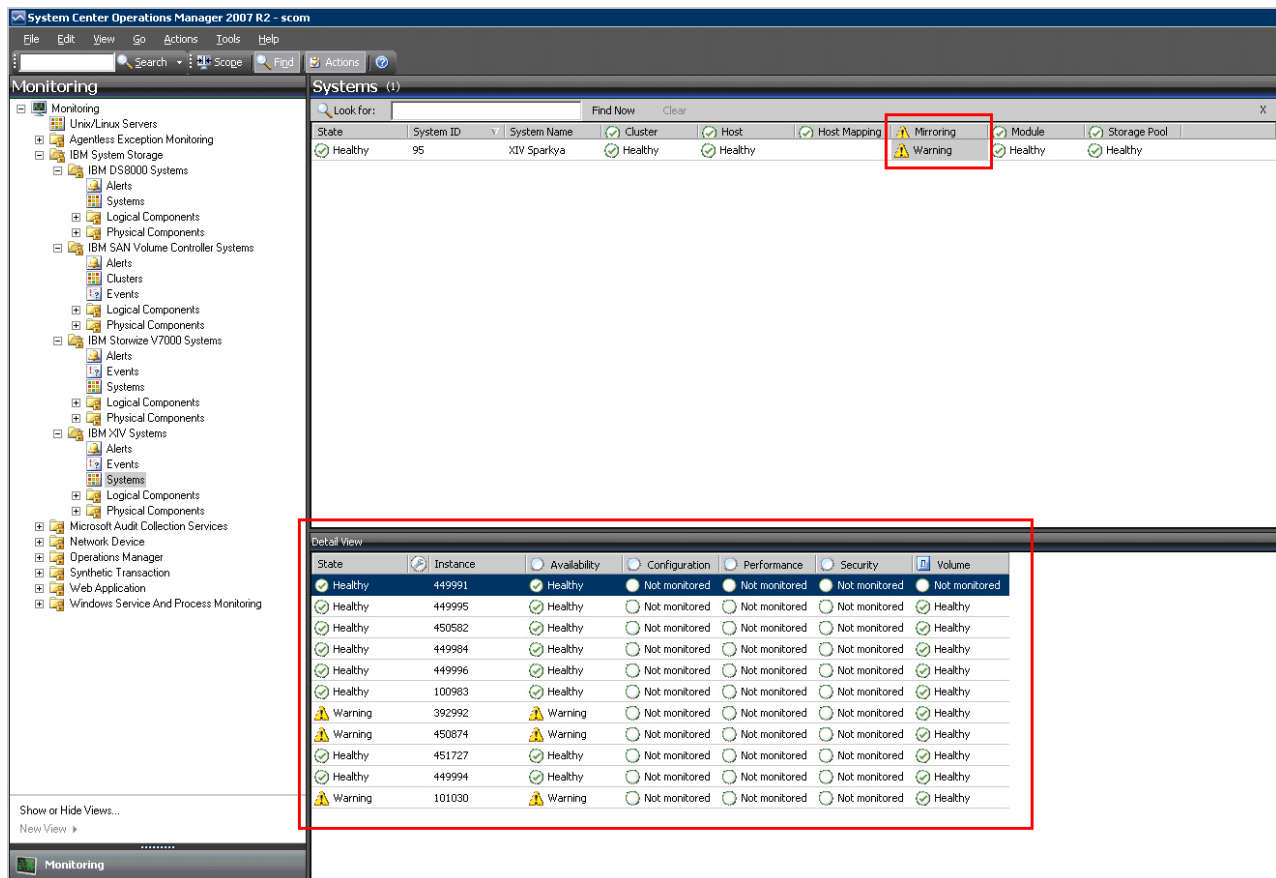


Figure 21. System monitoring per object status

## Monitoring physical and logical components

This section describes monitoring physical and logical components.

### About this task

Each management pack folder includes two sub-folders that you can use to monitor two major types of components:

- Physical components – Hardware components that a storage system comprises.
- Logical components – User-defined storage entities that can be modified during operation and added or removed per specific use as necessary.

The following table summarizes the logical and physical components that are included in each storage system and its management pack.

Table 2. Physical and logical components

Storage system and management pack	Logical components	Physical components
IBM XIV	<ul style="list-style-type: none"> <li>• Mapping</li> <li>• Mirror</li> <li>• Pool</li> <li>• Volume</li> </ul>	<ul style="list-style-type: none"> <li>• Cluster</li> <li>• Disk</li> <li>• FC Port</li> <li>• Host</li> <li>• IP interface</li> <li>• iSCSI port</li> <li>• Module</li> </ul>
IBM SAN Volume Controller	<ul style="list-style-type: none"> <li>• FlashCopy® consistency group</li> <li>• FlashCopy mapping</li> <li>• Host mapping</li> <li>• Remote Copy consistency group</li> <li>• Remote Copy relationship</li> <li>• Storage pool</li> <li>• Volume</li> </ul>	<ul style="list-style-type: none"> <li>• FCoE port</li> <li>• Fibre Channel port</li> <li>• Host</li> <li>• iSCSI port</li> <li>• MDisk</li> <li>• Node</li> </ul>
IBM Storwize V7000	<ul style="list-style-type: none"> <li>• FlashCopy consistency group</li> <li>• FlashCopy mapping</li> <li>• Host mapping</li> <li>• Remote Copy consistency group</li> <li>• Remote Copy relationship</li> <li>• Storage pool</li> <li>• Volume</li> </ul>	<ul style="list-style-type: none"> <li>• Array</li> <li>• Drive</li> <li>• Enclosure</li> <li>• FCoE port</li> <li>• Fibre Channel port</li> <li>• Host</li> <li>• iSCSI port</li> <li>• MDisk</li> <li>• Node</li> </ul>
IBM Flex System V7000	<ul style="list-style-type: none"> <li>• FlashCopy consistency group</li> <li>• FlashCopy mapping</li> <li>• Host mapping</li> <li>• Remote Copy consistency group</li> <li>• Remote Copy relationship</li> <li>• Storage pool</li> <li>• Volume</li> </ul>	<ul style="list-style-type: none"> <li>• Array</li> <li>• Drive</li> <li>• Enclosure</li> <li>• FCoE port</li> <li>• Fibre Channel port</li> <li>• Host</li> <li>• iSCSI port</li> <li>• MDisk</li> <li>• Node</li> </ul>

Table 2. Physical and logical components (continued)

Storage system and management pack	Logical components	Physical components
IBM DS8000	<ul style="list-style-type: none"> <li>• Array</li> <li>• Array site</li> <li>• Extent pool</li> <li>• IBM FlashCopy</li> <li>• Host volume mapping</li> <li>• Rank</li> <li>• Standard volume</li> <li>• Space-efficient (SE) volume</li> <li>• Virtual pool</li> <li>• Volume group</li> </ul>	<ul style="list-style-type: none"> <li>• Disk</li> <li>• FC port</li> <li>• Host port</li> </ul>

## Procedure

To view the monitoring details of a specific physical or logical component, click its item on the monitoring tree. The details are displayed in the Detailed View pane.

The screenshot displays the System Center Operations Manager 2007 R2 interface. The left pane shows a tree view of monitoring components, with 'Volumes' selected under 'IBM System Storage'. The main pane shows a list of volumes, with 'Vol\_t1' highlighted. A red box highlights the 'Vol\_t1' row in the list and the 'Detail View' pane below it.

State	Path	Volume ID	Object Name
Healthy	95;thin_pool	100942	vol_thin_1
Healthy	95;testP1	434455	Vol_t2
Healthy	95;testP1	434454	Vol_t1
Healthy	95;testP1	514067	last-replicated-Vol_t1
Healthy	95;testP1	514071	most-recent-Vol_t1
Healthy	95;pool1	100945	12123213
Healthy	95;Pool_test	450002	consistgrp.mirror_snapshot_.vol1_2
Healthy	95;Pool_test	450021	consistgrp.snap_group_00002.vol1_3
Healthy	95;Pool_test	436412	vol1_1
Healthy	95;Pool_test	450015	vol1_1.snapshot_00007
Healthy	95;Pool_test	450013	vol1_1.snapshot_00006
Healthy	95;Pool_test	450017	consistgrp.snap_group_00002.vol1_1

Volume properties of Vol_t1	
Name	Vol_t1
Path name	95;testP1;Vol_t1
Object Name	Vol_t1
Size (GB)	17
Size (MB)	16384
Master Name	
Consistency Group	
Pool Name	testP1
Creator	admin
Creator Category	storageadmin
Consistency Group ID	0
Capacity (blocks)	33554432
Modified	no
Snapshot Group Name	
Snapshot ID	0
Deletion Priority	0
Master ID	0
Locked	no
Serial Number	1443
Snapshot Time	
Internal	no
Pool ID	434453
Snapshot of	
Reserved by	
Snapshot of Snap Group	
Volume ID	434454
WWN	00173800005F05A3
Locked by a Pool	no
Used Capacity (GB)	0
Remote Copy UID	-1
SCOM Status	available

Figure 22. Volume details



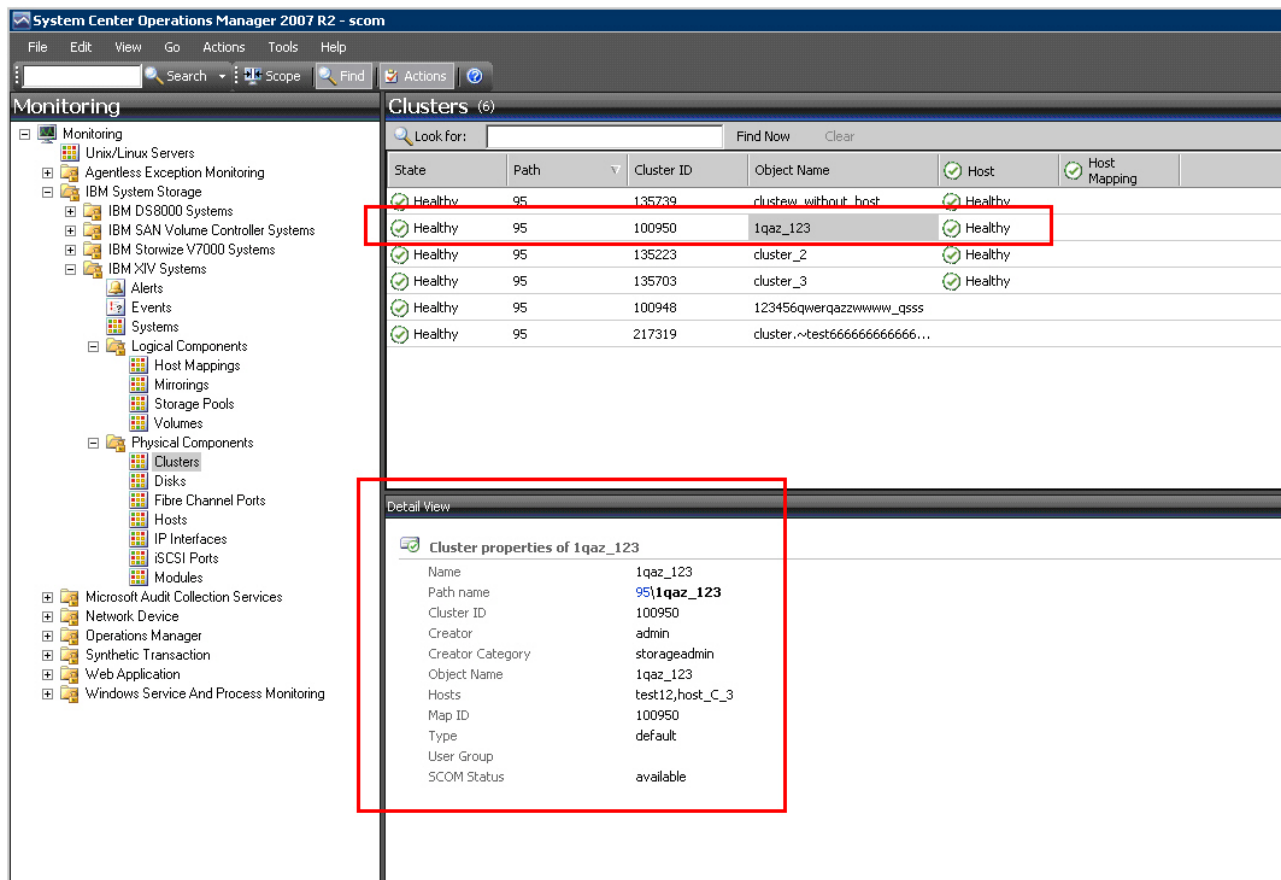


Figure 23. Cluster details

## Viewing diagrams

In addition to monitoring the IBM storage systems through a table and an information pane (as described in the previous sections), you can view any information object in a diagram.

The diagram shows a graphic representation of the selected object, as well as its relationship with other objects. This viewing option helps you obtain a clear picture of the object condition and its influence on other objects in real time.

To display a diagram for a selected object on the table, right-click the object, and then select **Open > Diagram View** from the pop-up menu.

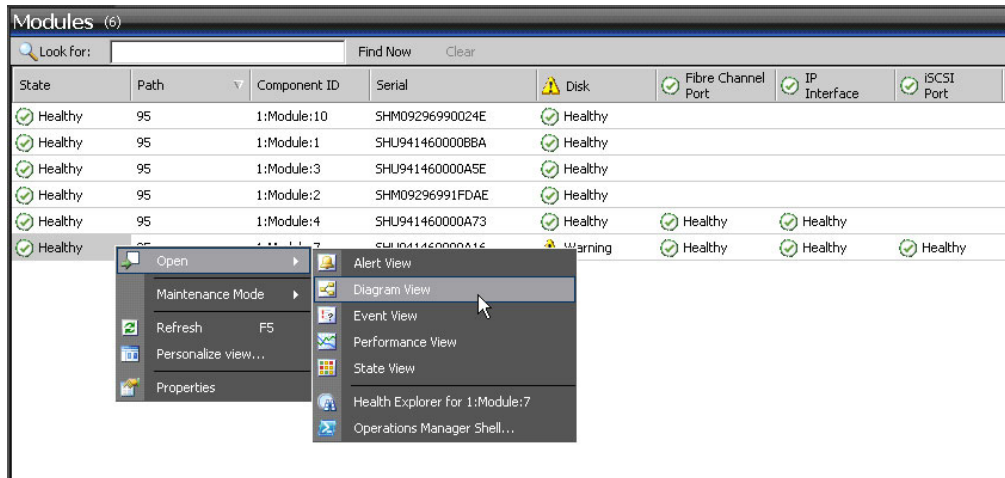


Figure 24. Opening Diagram View

The displayed diagram shows the object icon, current status and relationships. You can click any icon in the diagram to display more information in the **Detailed View** pane.

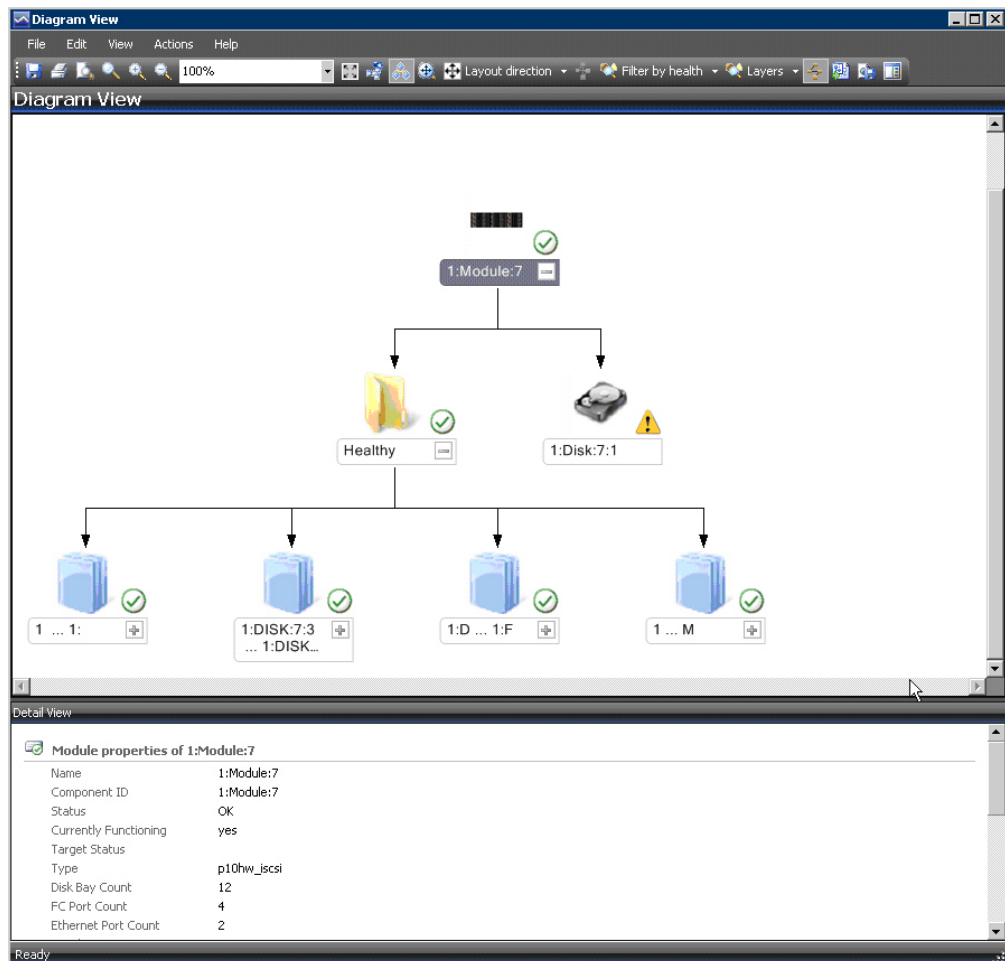


Figure 25. Diagram View

---

## Chapter 5. Diagnostics and troubleshooting

This chapter describes diagnostic and troubleshooting information.

You can use the **scomu.cmd** utility to perform different diagnostic tasks, as described in the following sections:

- “Testing the connectivity to storage systems”
- “Setting the logging level”
- “Collecting diagnostic information”
- “Checking the running environment” on page 42

For troubleshooting info, refer to “Troubleshooting” on page 42.

---

### Testing the connectivity to storage systems

When required, you can check whether the Microsoft SCOM server can successfully connect to the storage system using the **scomu.cmd --test** command.

If the network is slow, you can set the timeout value for the connection, using the **scomu.cmd --timeout** command. The default timeout is 60 seconds.

```
C:\Program Files\IBM\Storage\Host\IBMStorageSCOM\bin>
scomu.cmd --test -t ds8k --url https:// host1.domain1.com:6989
--namespace root/ibm --username usr1 --password pwd1 --timeout=300
Connecting to the device ...
1 IBM DS8000 Storage System is found.
device ID: xx, code level: x.x.x.x, CIM server version: x.x.x.x

The connection is OK.
```

---

### Setting the logging level

You can set the logging level for each management pack, so that the logging is performed only for events with severity level equivalent or lower than the severity level that you set.

The IBM Storage management packs logs activity in the following directory:  
%ProgramFiles%\IBM\Storage\Host\IBMStorageSCOM\log

The possible logging levels are: **Critical, Error, Warning, Info, Debug, or Trace.**

```
C:\Program Files\IBM\Storage\Host\IBMStorageSCOM\bin>
scomu.cmd -t ds8k -loglevel
Log level is INFO.
C:\Program Files\IBM\Storage\Host\IBMStorageSCOM\bin>
scomu.cmd -t ds8k --loglevel DEBUG
Log level is set to DEBUG.
```

---

### Collecting diagnostic information

Use the **scomu.cmd --diag** command to collect diagnostic information and include the generated tar file when reporting the issue.

The tar file is located in the following directory: %ProgramFiles%\IBM\Storage\Host\IBMStorageSCOM

```
C:\Program Files\IBM\Storage\Host\IBMStorageSCOM\bin>
scomu.cmd -diag
"C:\PROGRA~1\IBM\STORAG~1\scom_20101019202551_lt_ras.tgz"
is created with diagnostic data.
```

## Checking the running environment

Use the **scomu.cmd --precheck** command to check whether the running environment of the management packs is correctly set, and whether the installed libraries are corrupted.

```
C:\Program Files\IBM\Storage\Host\IBMStorageSCOM\bin>
scomu.cmd -precheck
The pre-check is successful. No error is found.
```

## Troubleshooting

The following table lists some typical problems that you might encounter, along with the possible solution for each problem.

### Note:

- For additional up-to-date troubleshooting information, refer to the Known Issues section in the latest release notes.
- Check the SCOM event log to obtain any relevant information that might help in troubleshooting. Check for event ID 700 to trace any fatal error.

Table 3. Typical problems and possible solutions

Problem	Possible solution
During the installation, the following error message may appear: The installation package is not supported by the processor type.  This problem might occur when you are installing a 32-bit package on a 64-bit operating system, or vice versa.	Check which bit version of the operating system you are using, and run the matching installation package.
No storage system is listed under Systems or Clusters.	Use the <b>scomu.cmd --list</b> command to check the list of monitored storage systems. Use the <b>scomu.cmd --test</b> command to check the connection to each storage system.
The connection to DS8000 storage systems fails.	Make sure that the web address of the DS CIM agent is correct. The protocol is usually HTTPS and not HTTP.  By default, the embedded DS CIM agent communicates through port 6989, and the proxy agent communicates through port 5989.

Table 3. Typical problems and possible solutions (continued)

Problem	Possible solution
<p>Event information is not synchronized with System information.</p> <p>In some cases, the information displayed under <b>Events</b> is not immediately synchronized with the information under <b>Systems</b>.</p> <p>For example, the creation of a new volume may be registered as an event, but may not be displayed under <b>Systems</b>, or vice versa.</p>	<p>This happens because the default data refresh interval in <b>Events</b> is 10 minutes, and in <b>Systems</b> it is 30 minutes. Accordingly, wait until the next refresh interval for the synchronization to occur.</p> <p>In addition, if numerous events are generated within a short time, only the last 300 events are reported (fewer events are reported for SAN Volume Controller with microcode 5.1.0 or later).</p> <p>This is an intended restriction that is imposed due to performance considerations.</p>
<p>IBM management packs still appear in Microsoft SCOM after uninstallation.</p>	<p>IBM management pack entries may remain in Microsoft SCOM after uninstallation. This occurs when installed management packs are not manually deleted from the System Center Operations Manager prior to uninstalling the IBM Storage Management pack via the Windows Control Panel.</p> <p>Accordingly, you must manually remove the IBM management packs from the Administration pane of Microsoft SCOM (before or after you use the Windows Control Panel to uninstall the IBM Storage Management Pack).</p> <p>For more information, refer to the Microsoft SCOM documentation.</p>
<p>Delay in storage systems display.</p>	<p>After you import a management pack to Microsoft SCOM, it might take several minutes before the relevant storage systems are displayed, and it might take several minutes more before all health state icons are correctly presented.</p> <p>You can encounter this delay depending on the following circumstances:</p> <ul style="list-style-type: none"> <li>• Network traffic</li> <li>• The number of monitored storage systems</li> <li>• The performance of the Microsoft SCOM database.</li> </ul>
<p><b>Reset to default</b> has no effect on the order of columns.</p>	<p>Under Alerts or Systems, columns cannot be restored to their default order after it is manually changed, and the <b>Reset to Default</b> option in Personalize View has not effect on the order of columns.</p> <p>Due to this limitation of Microsoft SCOM, you need to re-order the columns manually.</p>
<p>Status icon of newly discovered systems displays a wrong status.</p>	<p>Immediately after the storage systems are discovered, the status icon (Healthy, Warning or Critical) does not indicate the actual state of the system. This may occur due to data refresh timing in Microsoft SCOM.</p> <p>Press <b>F5</b> to manually refresh the displayed status information.</p>
<p>Modified sticky views are kept after re-importing management packs.</p>	<p>Microsoft SCOM allows you to use modifiable sticky views that are kept across sessions even after removing the IBM management packs from the Administration pane and re-importing them.</p> <p>To resolve this, use the <b>Reset to Default</b> option in Personalize View.</p>

Table 3. Typical problems and possible solutions (continued)

Problem	Possible solution
<p>Management packs cannot be removed due to a dependency.</p> <p>When attempting to delete an IBM management pack, a message appears and states that due to a dependency on the Default Management Pack, you must first remove the Default Management Pack.</p>	<p>This message, which is normal in Microsoft SCOM 2007, appears whenever one or more manual overrides were defined for the rules or monitors in the IBM management pack. Such overrides are saved in either the Default Management Pack, or in the IBM management pack.</p> <p>To resolve this, save the overrides in a custom management pack, and then delete the existing overrides or import new ones if necessary.</p>
<p>When the IBM Storage Management Pack is installed on a SCOM agent and the connected storage system has a large amount of volumes (about 300 volumes per storage system), the discovery data package may exceed the SCOM size limit (4MB).</p> <p>In such a case, a relevant alert message (event ID: 2015) is added to the SCOM event log.</p>	<p>Consider installing the IBM System Storage Management Pack on the SCOM management server.</p>

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Printed in USA

GC27-3909-07

