



Smart Install MIBs and System Messages

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SNMP MIBs

Simple Management Network Protocol (SNMP) development and use is centered around the Management Information Base (MIB). An SNMP MIB is an abstract database, which is a conceptual specification for information that a management application may read and modify in a certain form. This does not imply that the information is kept in the managed system in that same form. The SNMP agent translates between the internal data structures and formats of the managed system and the external data structures and formats defined for the MIB.

The SNMP MIB is conceptually a tree structure with conceptual tables. Relative to this tree structure, the term MIB has two functions:

- It is actually a MIB branch, usually containing information for a single aspect of technology, such as a transmission medium or a routing protocol. A MIB used this way is more accurately called a MIB module, and is usually defined in a single document.
- A MIB is a collection of such branches. This collection might comprise, for example, all the MIB modules implemented by a given agent or the entire collection of MIB modules defined for SNMP.

A MIB is a tree where the leaves are individual items of data called objects. An object may be a counter or a protocol status. MIB objects are also sometimes called variables.

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Cisco Smart Install MIB

The CISCO-SMART-INSTALL-MIB.my MIB module defines managed objects that facilitate the management of the Smart Install feature. Smart Install is a plug-and-play image and configuration management feature that enables zero-touch deployment of Cisco network devices in an enterprise branch network.

This MIB module is supported only on the director and is designed for the following:

- Checks most of the Smart Install configurations on the director.
- Supports monitoring of client devices discovered by the director.

- Provides status of the deployed client image and configuration as a result of operator-defined profiles.
- Provides notifications for these events:
 - New client joined
 - Client removed
 - Upgrade failure
 - Director functionality enabled or disabled

**Note**

SNMP set is not supported in this release.

Downloading and Working with MIBs

These sections provide information about how to download the CISCO-SMART-INSTALL-MIB.my. for the Smart Install feature.

- [Guidelines for Working with MIBs](#)
- [Downloading MIBs](#)

Guidelines for Working with MIBs

While working with MIBs, consider the following guidelines:

- Mismatches on datatype definitions might cause compiler errors or warning messages. Although Cisco MIB datatype definitions are not mismatched, some standard RFC MIBs do mismatch. For example:

```
MIB A defines: SomeDatatype ::= INTEGER(0..100)
MIB B defines: SomeDatatype ::= INTEGER(1..50)
```

This example is considered to be a trivial error and the MIB loads successfully with a warning message.

The next example is considered as a nontrivial error (even though the two definitions are essentially equivalent), and the MIB is not successfully parsed.

```
MIB A defines: SomeDatatype ::= DisplayString
MIB B defines: SomeDatatype ::= OCTET STRING (SIZE(0..255))
```

If your MIB compiler treats these as errors, or you want to delete the warning messages, edit one of the MIBs that define this same datatype so that the definitions match.

- Many MIBs import definitions from other MIBs. If your management application requires MIBs to be loaded, and you experience problems with undefined objects, you might want to load the following MIBs in this order:

```
RFC1213-MIB.my
IF-MIB.my
CISCO-SMI.my
CISCO-PRODUCTS-MIB.my
CISCO-TC.my
```

- For information about how to download and compile Cisco MIBs, go to the following URL:
http://www.cisco.com/en/US/tech/tk648/tk362/technologies_tech_note09186a00800b4cee.shtml

Downloading MIBs

To download the MIBs onto your system if they are not already there, follow these steps:

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- Step 1** Review the guidelines in the previous section (“[Guidelines for Working with MIBs](#)”).
- Step 2** Search for the CISCO-SMART-INSTALL-MIB.my. If the MIB you want to download is not there, try the other URL and search again.
- Go to one of the following Cisco URLs:
- <ftp://ftp.cisco.com/pub/mibs/v2>
- <ftp://ftp.cisco.com/pub/mibs/v1>
- Step 3** Click the link for a MIB to download to your system.
- Step 4** Select **File > Save** or **File > Save As** to save the MIB on your system.
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System Messages

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How to Read System Messages

System log messages can contain up to 80 characters and a percent sign (%), which follows the optional sequence number or time-stamp information, if configured. Messages appear in this format:

seq no:timestamp: %facility-severity-MNEMONIC:description (hostname-n)

seq no:timestamp: %facility-severity-MNEMONIC:description

By default, a switch sends the output from system messages to a logging process. In a switch stack, stack members append their hostnames to the output from system messages and redirect the output to the logging process on the stack master.

Each system message begins with a percent sign (%) and is structured as follows:

%FACILITY-SEVERITY-MNEMONIC: Message-text

- FACILITY is two or more uppercase letters that show the facility to which the message refers. A facility can be a hardware device, a protocol, or a module of the system software. The facility for Smart Install messages is *SMI*.
- SEVERITY is a single-digit code from 0 to 7 that reflects the severity of the condition. The lower the number, the more serious the situation.

Table 5-1 Message Severity Levels

Severity Level	Description
0 – emergency	System is unusable.
1 – alert	Immediate action required.

Table 5-1 Message Severity Levels (continued)

Severity Level	Description
2 – critical	Critical condition.
3 – error	Error condition.
4 – warning	Warning condition.
5 – notification	Normal but significant condition.
6 – informational	Informational message only.
7 – debugging	Message that appears during debugging only.

- MNEMONIC is a code that uniquely identifies the message.
- Message-text is a text string describing the condition. This portion of the message sometimes contains detailed information about the event, including terminal port numbers, network addresses, or addresses that correspond to locations in the system memory address space. Because the information in these variable fields changes from message to message, it is represented here by short strings enclosed in square brackets ([]). A decimal number, for example, is represented as [dec].

Table 5-2 Variable Fields

Representation	Type of Information
[dec]	Decimal integer
[char]	Single character
[chars]	Character string
[enet]	Ethernet address (for example, 0000.FEED.00C0)
[hex]	Hexadecimal integer
[inet]	Internet address

Error Message Traceback Reports

Some messages describe internal errors and contain traceback information. Include this information when you report a problem to your technical support representative.

This message example includes traceback information:

```
-Process= "Exec", level= 0, pid= 17
-Traceback= 1A82 1AB4 6378 A072 1054 1860
```

Some system messages ask you to copy the error messages and take further action.

Output Interpreter

The Output Interpreter provides additional information and suggested resolutions based on the output of many CLI commands, such as the **show tech-support** privileged EXEC command.

<https://www.cisco.com/pcgi-bin/Support/OutputInterpreter/home.pl>

Bug Toolkit

The Bug Toolkit provides information on open and closed caveats. You can search for all known bugs in a specific Cisco IOS Release.

<http://tools.cisco.com/Support/BugToolKit/>

Smart Install System Messages

Error Message SMI-3-IMAGELIST_FAILED: Default imagelist creation failed.

Explanation The creation of the default image list file failed in flash memory. Possible reasons for this failure are that there is insufficient space in the flash memory of the Smart Install director, an error occurred while the default image list file was created, or there is no default image configured.

Recommended Action Verify that the director flash memory has sufficient space. If necessary, free some flash memory space (a default image list file would need about 100 bytes of space). If necessary, reconfigure the director.

Error Message SMI-3-IMG_CFG_NOT_CONFIGURED: [chars] (IP Address :[inet]) : The Director does not have a image list file or a configuration file configured for this Product-ID

Explanation The Smart Install director does not have an image list file or configuration file for the device, preventing a successful upgrade. [chars] is the Smart Install device on which the message is displayed, which can be either the client or director, and [inet] it the IP address of that device.



Note When the message appears on the director, [chars] provides redundant information.

Recommended Action Make sure that the device is added to a built-in group or user-defined group. Configure an image list file or configuration file for the group by using the **vstack group built-in** global configuration command for the built-in group or **vstack group custom** global configuration command for the user-defined group.

Error Message SMI-3-INTERNAL_ERROR: [chars] - [dec]

Explanation An internal software error occurred on the Smart Install director switch. [chars] describes the error, and [dec] is the error return code.

Recommended Action Copy the message exactly as it appears on the console or in the system log. Research and attempt to resolve the error by using the Output Interpreter. Use the Bug Toolkit to look for similar reported problems. If you still require assistance, open a case with the TAC, or contact your Cisco technical support representative, and provide the representative with the gathered information.

Error Message SMI-3-NOMEMORY: Smart Install memory allocation failure; could not allocate [chars]

Explanation The Smart Install client switch has failed to allocate memory. [chars] is the data table that is allocated during initialization for MIB objects.

Recommended Action Copy the message exactly as it appears on the console or in the system log. Research and attempt to resolve the error by using the Output Interpreter. Use the Bug Toolkit to look for similar reported problems. If you still require assistance, open a case with the TAC, or contact your Cisco technical support representative, and provide the representative with the gathered information.

Error Message SMI-3-SMI_CLIENT_BACKUP_FAILURE: Client Device startup configuration backup fail on repository

Explanation The Smart Install client switch has failed to back up its startup configuration to the repository. (This message appears only on the client switch.)

Recommended Action Verify that you can ping the director switch from the client switch. Verify that the client switch can reach the repository. On the director, look at the output of the **show vstack config** privileged EXEC command to verify that the configuration parameters are correct and that the backup mode is on. Verify that the directory setting on the repository is correct, especially if the repository is an external TFTP server.

Error Message SMI-3-SMI_DIRECTOR_BACKUP_FAILURE: Client Device ([inet]) startup configuration backup fail on repository: [chars] - reason: [chars]

Explanation The Smart Install client switch has failed to back up its startup configuration to the repository. [inet] is the IP address of the client switch. The first [chars] is the repository path, and the seconds [chars] is the reason for the failure. (This message appears only on the director switch.)

Recommended Action Verify that you can ping the director switch from the client switch. Verify that the client switch can reach the repository. On the director, look at the output of the **show vstack config** privileged EXEC command to verify that the configuration parameters are correct and that the backup mode is on. Verify that the directory setting on the repository is correct, especially if the repository is an external TFTP server.

Error Message SMI-3-TAILOR_FAILED: Legacy switches will not be upgraded

Explanation The creation of a tailored Smart Install configuration file failed. Possible reasons for this failure are that there is insufficient space in the director flash memory or an error occurred while the new configuration file was created.

Recommended Action Verify that the director flash memory has sufficient space. If necessary, free some flash memory space (a tailored configuration would need about 100 bytes of space). If necessary, reconfigure the director.

Error Message SMI-3-UPGRD_FAILED: Device (IP address: [inet]) [chars] upgrade failed

Explanation The Smart Install client switch could not upgrade. [inet] is the IP address of the client switch. [chars] is the image or the configuration.

Recommended Action Verify that the configuration on the director switch is correct. Verify that the client switch can reach the TFTP server. Verify that the image or configuration file exists on the TFTP server and is specified correctly.

Error Message SMI-5-CLIENT: Smart Install Client feature is enabled. It is recommended to disable the Smart Install feature when it is not actively used. To disable feature execute 'no vstack' in configuration mode

Explanation If the Smart Install client feature is enabled, this message is displayed on the device console, on an hourly basis.

Recommended Action If you are not using the Smart Install feature, disable it by entering the **no vstack** command in global configuration mode.

Error Message SMI-5-DIRECTOR: Director is [chars]

Explanation The status of the Smart Install director changed. [chars] is the status (*Enabled* or *Disabled*).

Recommended Action No action is required.

Error Message SMI-6-AUTOINSTALL: [chars] AUTOINSTALL

Explanation The auto install and Smart Install processes stopped or continued. [chars] is the status of the processes, which can be either *aborted* or *continued*.

Recommended Action No action is required.

Error Message SMI-6-CLIENT_CONN_FAILED: Device (IP address: [inet]) failed to connect to Director (IP address : [inet])

Explanation A Smart Install client did not connect to the director because it did not have the IP address of the director or could not reach the director for other reasons. The first [inet] is the IP address of the client, and the second [inet] is the IP address of the director.

Recommended Action Verify that the IP address of the director is correctly configured on the client.

Error Message SMI-6-INCORRECT_CFG: No image and config configured for this [chars] [chars]

Explanation The Smart Install director does not have a configuration for the device. The first [chars] is the type of device (*switch*, *switch-stack*, or *sku type*). If the type of device is *sku type*, the second [chars] is the model number.

Recommended Action Configure a group with a configuration for the device.

Error Message SMI-6-SMI_CLIENT_BACKUP_SUCCESS: Client Device startup configuration backup successful on repository

Explanation The Smart Install client switch has successfully backed up its startup configuration to the repository. (This message appears only on the client switch.)

Recommended Action No action is required.

Error Message SMI-6-SMI_DHCP_ERR: Device failed to [chars] DHCP [chars]

Explanation The Smart Install director did not configure or remove a DHCP parameter, such as a DHCP pool, subnet, or DHCP pool option. The first [chars] is the status, which can be *configure* or *remove*, and the second [chars] is the DHCP parameter.

Recommended Action Verify that the DHCP parameter is a permitted value.

Error Message SMI-6-SMI_DIRECTOR_BACKUP_SUCCESS: Client Device ([inet]) startup configuration backup successful on repository: [chars]

Explanation The Smart Install client switch has successfully backed up its startup configuration to the repository. [inet] is the IP address of the client switch. [chars] is the repository path. (This message appears only on the director switch.)

Recommended Action No action is required.

Error Message SMI-6-SMI_INVALID_MESSAGE: Received invalid message from [chars] (IP Address : [inet]), SMI Version : [dec] Message Type : [dec]

Explanation The Smart Install client or director received an invalid message type. This occurs when a newer version of the Smart Install Protocol interoperates with an older version of the protocol that does not support the new message. [chars] is the Smart Install device, which can be either the client or the director, and [inet] is the IP address of that device. The first [dec] is the Smart Install Protocol version on the device that sent the invalid message, and the second [dec] is the type of invalid message.

Recommended Action Make sure that the director switch runs the latest version of the Smart Install Protocol. A director switch that runs the latest version of the protocol can interoperate with a client switch that runs an older version, but not the other way around.

Error Message SMI-6-SMI_JOIN_WINDOW_MESSAGE: SMI Join window [chars] on IBD(IP address: [inet])

Explanation A Smart Install join window was opened or closed. [chars] is the status of the window, which can be either *Start* or *End*, and [inet] is the IP address of the device on which the join window was opened or closed.

Recommended Action No action is required.

Error Message SMI-6-SWITCH_ADD: New Device detected by Director with mac address: [enet]

Explanation The Smart Install director detected a new device and added it to the database. [enet] is the Ethernet address of the new device.

Recommended Action No action is required.

Error Message SMI-6-SWITCH_REMOVE: Device [enet] removed from the Director Database

Explanation A device stopped communicating and was removed from the Smart Install director database. The device might have also been removed from the Smart Install network. [enet] is the Ethernet address of the device.

Recommended Action No action is required.

Error Message SMI-6-SWITCH_REPLACE: Device [enet] is being replaced by [enet] Device

Explanation A device was replaced by another device in a Smart Install network. The first [enet] is the Ethernet address of the device that was replaced, and the second [enet] is the Ethernet address of the replacement device.

Recommended Action No action is required.

Error Message SMI-6-UPGRD_STARTED: Device (IP address: [inet]) [chars] upgrade has started

Explanation An image or configuration file upgrade started on the Smart Install client. [inet] is the IP address of the client, and [chars] is the name of the image or configuration file.

Recommended Action No action is required.

Error Message SMI-6-UPGRD_SUCCESS: Device (IP address: [inet]) [chars] has upgraded successfully

Explanation The Smart Install client was upgraded with a new image or configuration file. [inet] is the IP address of the client, and [chars] is the name of the new image or configuration file.

Recommended Action No action is required.

