Access switches,
industrial switches

MES14xx, MES24xx, MES3708P

MES Ethernet switches monitoring and configuration via SNMP, firmware version 10.2.7.2

Document Version	Issue Date	Revisions
Version 1.9	30.11.2021	Synchronization with firmware version 10.2.7.2 Changes in sections: - 3.1 Operation with SFTP, TFTP servers - 16.8 DCS
Version 1.8	08.10.2021	Synchronization with firmware version 10.2.7 Changes in sections: - 4.1 System resources - 4.2 Device management - 7.4 L2PT configuration - 16.2 Port security functions - 16.4 Port-based client authentication (802.1x) - 16.12 Configuring protection against DOS attacks - 17 Functions of the DHCP Relay Agent - 18.1 QoS configuration Sections added: - 4.3 Firmware image management - 6.1 View MAC table contents - 11.5 IGMP join authorization using a RADIUS server
Version 1.7	12.07.2022	Synchronization with version 10.2.6.3
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Version 1.3	27.10.2020	Changes in sections: - 7.1 Ethernet interface parameters - 7.2 VLAN Configuration

		Sections added: - 6 Operations with MAC tables - 16.1 PPPoE Intermediate-agent
Version 1.2	07.09.2020	Changes in sections: - 4.1 System resources - 7.1 Ethernet interface parameters - 7.2 VLAN Configuration Sections added: - 7.4 L2PT configuartion - 12 Control functions - 18 Quality of Service – QoS
Version 1.1	08.07.2020	First issue
Firmware Version	MES14xx/MES24xx/MES3708P — 10.2.7.2	

CONTENTS

SYMBOLS

Symbol	Description
[ ]	Square brackets are used to indicate optional parameters in the command line; when entered, they provide additional options.
{}	In the command line, mandatory parameters are shown in curly braces.
«,» **«-»**	In the command description, these characters are used to define ranges.
«|»	In the command description, this character means 'or'.
«/»	This sign separates possible and default values when specifying variable values.
Calibri Italic	Calibri Italic is used to indicate variables and parameters that should be replaced with an appropriate word or string.
Bold	Notes and warnings are shown in semibold italic.
<Bold Italic>	Keyboard keys are shown in bold italic within angle brackets.
`Courier New`	Command examples are shown in Courier New Bold.

Notes and Warnings

Notes contain important information, tips, or recommendations on device operation and configuration.

Warnings inform the user about situations that may be harmful to the user, cause damage to the device, malfunction or data loss.

1 CONFIGURING SNMP SERVER AND SNMP-TRAP SENDING

SNMPv2 server configuration

```
snmp user ReadUser
snmp user WriteUser
snmp group ReadGroup user ReadUser security-model v2c
snmp group WriteGroup user WriteUser security-model v2c
snmp access ReadGroup v2c read iso
snmp access WriteGroup v2c read iso write iso
snmp community index 1 name private security WriteUser
snmp community index 2 name public security ReadUser
snmp view iso 1 included
```

Trap SNMPv2 configuration

```
snmp TrapUser
snmp group TrapGroup user TrapUser security-model v2c
snmp access TrapGroup v2c notify iso
snmp community index 1 name Traps security TrapUser
snmp view iso 1 included
snmp targetparams TrapParams user TrapUser security-model v2c message-processing v2c
snmp notify TrapNotify tag TrapTag type trap
snmp targetaddr FirstHost param TrapParams 192.168.1.1 taglist TrapTag
```

SNMPv3 server configuration

```
snmp user UserNoAuthNoPriv
snmp user UserAuthNoPriv auth md5 PasswordAuthMD5
snmp user UserAuthPriv auth sha PasswordAuthSHA priv DES PasswordPrivDES
snmp group GroupNoAuthNoPriv user UserNoAuthNoPriv security-model v3
snmp group GroupAuthNoPriv user UserAuthNoPriv security-model v3
snmp group GroupAuthPriv user UserAuthPriv security-model v3
snmp access GroupNoAuthNoPriv v3 noauth read iso write iso notify iso
snmp access GroupAuthNoPriv v3 auth read iso write iso notify iso
snmp access GroupAuthPriv v3 priv read iso write iso notify iso
snmp view iso 1 included
```

Trap SNMPv3 configuration

```
snmp user TrapUserNoAuthNoPriv
snmp user TrapUserAuthNoPriv auth md5 PasswordAuthMD5
snmp user TrapUserAuthPriv auth sha PasswordAuthSHA priv DES PasswordPrivDES
snmp group GroupNoAuthNoPriv user TrapUserNoAuthNoPriv security-model v3
snmp group GroupAuthNoPriv user TrapUserAuthNoPriv security-model v3
snmp group GroupAuthPriv user TrapUserAuthPriv security-model v3
snmp access GroupNoAuthNoPriv v3 noauth notify iso
snmp access GroupAuthNoPriv v3 auth notify iso
snmp access GroupAuthPriv v3 priv notify iso
snmp view iso 1 included
snmp targetparams ParamsTrapUserNoAuthNoPriv user TrapUserNoAuthNoPriv security-model v3 noauth
message-processing v3
```

snmp targetparams ParamsTrapUserAuthNoPriv user TrapUserAuthNoPriv security-model v3 auth message-processing v3
snmp targetparams ParamsTrapUserAuthPriv user TrapUserAuthPriv security-model v3 priv message-processing v3
snmp notify NotifyNoAuthNoPriv tag TagNoAuthNoPriv type trap
snmp notify NotifyAuthNoPriv tag TagAuthNoPriv type trap
snmp notify NotifyAuthPriv tag TagAuthPriv type trap
snmp targetaddr HostNoAuthNoPriv param ParamsTrapUserNoAuthNoPriv 10.0.0.1 taglist TagNoAuthNoPriv
snmp targetaddr HostAuthNoPriv param ParamsTrapUserAuthNoPriv 10.0.0.2 taglist TagAuthNoPriv
snmp targetaddr HostAuthPriv param ParamsTrapUserAuthPriv 10.0.0.3 taglist TagAuthPriv

2 SHORT DESCRIPTIONS

- **ifIndex** — port index;

May take the following values:

1. Access switches

Switch model	Indexes
MES1428 MES2428	- indexes 1-28 — GigabitEthernet 0/1-28; - indexes 64-72 — Port-Channel 1-8.
MES2408	- indexes 1-8 — GigabitEthernet 0/1-8; - indexes 64-72 — Port-Channel 1-8.
MES3708P	- indexes 1-10 — GigabitEthernet 0/1-10; - indexes 64-72 — Port-Channel 1-8.

- **index-l3** — L3 interface index. It is possible to create up to 8 L3 interfaces on MES14xx/MES24x/MES3708P devices. When creating L3 interface via CLI, indexes are assigned in order starting from 74. It is recommended to assign indexes for L3 interfaces within 74-81. Index 73 is always an L3 interface of vlan 1.
- **IP address** — IP address for switch management;
  In the examples given in the document, the following IP address is used for management: **192.168.1.30**;
- **ip address of tftp server** — TFTP server IP address;
  In the examples given in the document the following TFTP server IP address is used: **192.168.1.1**;
- **community** — community string (password) for the access via SNMP.

In the examples given in the document the following *communities* are used:

private — rights for recording (rw);
public — rights for reading (ro).

3 FILE OPERATIONS

3.1 *Operation with SFTP, TFTP servers*

Copying the configuration from the non-volatile memory to TFTP, SFTP server

MIB: fsiss.mib

Tables used: issRunConfig — 1.3.6.1.4.1.2076.81.19

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.81.19.1.0 i {tftp(1), sftp(2)} \
1.3.6.1.4.1.2076.81.19.2.0 i {unknown(0), ipv4(1), ipv6(2), ipv4z(3), ipv6z(4),
dns(16)} \
1.3.6.1.4.1.2076.81.19.3.0 d "IP-address" \
1.3.6.1.4.1.2076.81.19.4.0 s "UsernameSFTP" \
1.3.6.1.4.1.2076.81.19.5.0 s "PasswordSFTP" \
1.3.6.1.4.1.2076.81.19.6.0 s "FileName" \
1.3.6.1.4.1.2076.81.19.10.0 i {true(1), false(2)}
```

Example of copying from startup-config to TFTP server

CLI command:

```
copy startup-config tftp://192.168.1.1/MES-config.conf
```

SNMP command:

```
snmpset -v2c -c private -Ln 192.168.1.30 \
1.3.6.1.4.1.2076.81.19.1.0 i 1 \
1.3.6.1.4.1.2076.81.19.2.0 i 1 \
1.3.6.1.4.1.2076.81.19.3.0 d 1 192.168.1.1 \
1.3.6.1.4.1.2076.81.19.6.0 s "Mes-config.conf" \
1.3.6.1.4.1.2076.81.19.10.0 i 1
```

Example of copying from startup-config to SFTP server

CLI command:

```
copy startup-config sftp://UsernameSFTP:PasswordSFTP@192.168.1.1/MES-
config.conf
```

SNMP command:

```
snmpset -v2c -c private -Ln 192.168.1.30 \
1.3.6.1.4.1.2076.81.19.1.0 i 2 \
1.3.6.1.4.1.2076.81.19.2.0 i 1 \
1.3.6.1.4.1.2076.81.19.3.0 d 192.168.1.1 \
1.3.6.1.4.1.2076.81.19.4.0 s "UsernameSFTP"\
1.3.6.1.4.1.2076.81.19.5.0 s "PasswordSFTP"\
1.3.6.1.4.1.2076.81.19.6.0 s "Mes-config.conf" \
1.3.6.1.4.1.2076.81.19.10.0 i 1
```

Copying of configuration to the non-volatile memory from TFTP, SFTP servers

MIB: fsiss.mib

Tables used: issSystem — 1.3.6.1.4.1.2076.81.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.81.1.61.0 i {tftp(1), sftp(2)} \
1.3.6.1.4.1.2076.81.1.15.0 i {noRestore (1), restore (2)} \
1.3.6.1.4.1.2076.81.1.16.0 d IP-address \
```

```
1.3.6.1.4.1.2076.81.1.62.0 s “UsernameSFTP” \
1.3.6.1.4.1.2076.81.1.63.0 s "PasswordSFTP" \
1.3.6.1.4.1.2076.81.1.17.0 s “FileName” \
1.3.6.1.4.1.2076.81.1.18.0 i {true(1), false(2)}
```

Example of copying from a TFTP server to startup-config

CLI command:

```
copy tftp://192.168.1.1/MES-config.conf startup-config
```

SNMP command:

```
snmpset -v2c -c private -Ln -t 3 192.168.1.30 \
1.3.6.1.4.1.2076.81.1.61.0 i 1 \
1.3.6.1.4.1.2076.81.1.15.0 i 2 \
1.3.6.1.4.1.2076.81.1.16.0 a 192.168.1.1 \
1.3.6.1.4.1.2076.81.1.17.0 s “Mes-config.conf” \
1.3.6.1.4.1.2076.81.1.18.0 i 1
```

Example of copying from a SFTP server to startup-config

CLI command:

```
copy    sftp://UsernameSFTP:PasswordSFTP@192.168.1.1/MES-config.conf    startup-
config
```

SNMP command:

```
snmpset -v2c -c private -Ln  192.168.1.30 \
1.3.6.1.4.1.2076.81.1.61.0 i 2 \
1.3.6.1.4.1.2076.81.1.15.0 i 2 \
1.3.6.1.4.1.2076.81.1.16.0 a 192.168.1.1 \
1.3.6.1.4.1.2076.81.1.62.0 s “UsernameSFTP”\
1.3.6.1.4.1.2076.81.1.63.0 s “PasswordSFTP”\
1.3.6.1.4.1.2076.81.1.17.0 s “Mes-config.conf” \
1.3.6.1.4.1.2076.81.1.18.0 i 1
```

Copying the configuration from the volatile memory to TFTP, SFTP server

MIB: fsiss.mib

Tables used: issRunConfig — 1.3.6.1.4.1.2076.81.19

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.81.19.1.0 i {tftp(1), sftp(2)} \
1.3.6.1.4.1.2076.81.19.2.0 i {unknown(0), ipv4(1), ipv6(2), ipv4z(3), ipv6z(4),
dns(16)} \
1.3.6.1.4.1.2076.81.19.3.0 d “IP-address” \
1.3.6.1.4.1.2076.81.19.4.0 s “UsernameSFTP” \
1.3.6.1.4.1.2076.81.19.5.0 s "PasswordSFTP" \
1.3.6.1.4.1.2076.81.19.6.0 s “FileName” \
1.3.6.1.4.1.2076.81.19.9.0 i {true(1), false(2)}
```

Example of copying from running-config to TFTP server

CLI command:

```
copy running-config tftp://192.168.1.1/MES-config.conf
```

SNMP command:

```
snmpset -v2c -c private -Ln 192.168.1.30 \
1.3.6.1.4.1.2076.81.19.1.0 i 1 \
1.3.6.1.4.1.2076.81.19.2.0 i 1 \
1.3.6.1.4.1.2076.81.19.3.0 d 192.168.1.1 \
1.3.6.1.4.1.2076.81.19.6.0 s “Mes-config.conf” \
1.3.6.1.4.1.2076.81.19.9.0 i 1
```

Example of copying from running-config to SFTP server

CLI command:

```
copy running-config sftp://UsernameSFTP:PasswordSFTP@192.168.1.1/MES-config.conf
```

SNMP command:

```
snmpset -v2c -c private -Ln 192.168.1.30 \
1.3.6.1.4.1.2076.81.19.1.0 i 2 \
1.3.6.1.4.1.2076.81.19.2.0 i 1 \
1.3.6.1.4.1.2076.81.19.3.0 d 192.168.1.1 \
1.3.6.1.4.1.2076.81.19.4.0 s "UsernameSFTP"\
1.3.6.1.4.1.2076.81.19.5.0 s "PasswordSFTP"\
1.3.6.1.4.1.2076.81.19.6.0 s "Mes-config.conf" \
1.3.6.1.4.1.2076.81.19.9.0 i 1
```

Copying of configuration to the non-volatile memory from TFTP, SFTP servers

MIB: fsiss.mib

Tables used: issRunConfig — 1.3.6.1.4.1.2076.81.19

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.81.19.1.0 i {tftp(1), sftp(2)} \
1.3.6.1.4.1.2076.81.19.2.0 i {unknown(0), ipv4(1), ipv6(2), ipv4z(3), ipv6z(4), dns(16)} \
1.3.6.1.4.1.2076.81.19.3.0 d IP-address \
1.3.6.1.4.1.2076.81.19.4.0 s "UsernameSFTP" \
1.3.6.1.4.1.2076.81.19.5.0 s "PasswordSFTP" \
1.3.6.1.4.1.2076.81.19.6.0 s "FileName" \
1.3.6.1.4.1.2076.81.19.7.0 i {true(1), false(2)}
```

Example of copying from a TFTP server to running-config

CLI command:

```
copy tftp://192.168.1.1/MES-config.cfg running-config
```

SNMP command:

```
snmpset -v2c -c private -Ln 192.168.1.30 \
1.3.6.1.4.1.2076.81.19.1.0 i 1 \
1.3.6.1.4.1.2076.81.19.2.0 i 1 \
1.3.6.1.4.1.2076.81.19.3.0 d 192.168.1.1 \
1.3.6.1.4.1.2076.81.19.6.0 s "Mes-config.conf" \
1.3.6.1.4.1.2076.81.19.7.0 i 1
```

Example of copying from a SFTP server to running-config

CLI command:

```
copy sftp://UsernameSFTP:PasswordSFTP@192.168.1.1/MES-config.cfg running-config
```

SNMP command:

```
snmpset -v2c -c private -Ln 192.168.1.30 \
1.3.6.1.4.1.2076.81.19.1.0 i 2 \
1.3.6.1.4.1.2076.81.19.2.0 i 1 \
1.3.6.1.4.1.2076.81.19.3.0 a 192.168.1.1 \
1.3.6.1.4.1.2076.81.19.4.0 s "UsernameSFTP"\
1.3.6.1.4.1.2076.81.19.5.0 s "PasswordSFTP"\
1.3.6.1.4.1.2076.81.19.6.0 s "Mes-config.conf" \
1.3.6.1.4.1.2076.81.19.7.0 i 1
```

Viewing copying to non-volatile memory status

MIB: fsiss.mib

Tables used: issSystem — 1.3.6.1.4.1.2076.81.1

```
snmpwalk -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.81.1.19.0
```

Viewing copy status in startup-config

SNMP command:
```
snmpwalk -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.2076.81.1.19.0
```

Possible states:

restoreInprogress (1) — copying is in progress
restoreSuccessful (2) — copying has been completed successfully
restoreFailed (3) — an error occurred during the copy
notInitiated (4) — copying was not initiated

Viewing copying to volatile memory status

MIB: fsiss.mib

Tables used: issRunConfig — 1.3.6.1.4.1.2076.81.19

```
snmpwalk -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.81.19.8
```

Viewing copy status in running-config

SNMP command:
```
snmpwalk -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.2076.81.19.8
```

Possible states:

restoreInprogress (1) — copying is in progress
restoreSuccessful (2) — copying has been completed successfully
restoreFailed (3) — an error occurred during the copy
notInitiated (4) — copying was not initiated

Copying the configuration from volatile memory to non -volatile memory

MIB: fsiss.mib

Tables used: issSystem — 1.3.6.1.4.1.2076.81.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.81.1.10.0    i    {noSave(1),    flashSave(2),    remoteSave(3),
startupConfig(4)} \
1.3.6.1.4.1.2076.81.1.13.0 i {true(1), false(2)}
```

Example of copying the configuration

CLI command:
```
write startup-config
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.2076.81.1.10.0 i 4 \
1.3.6.1.4.1.2076.81.1.13.0 i 1
```

Viewing copy status

MIB: fsiss.mib

Tables used: issSystem — 1.3.6.1.4.1.2076.81.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.81.1.10.0
```

Viewing copy status

SNMP command:
```
snmpwalk -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.2076.81.1.14.0
```

Possible states:

restoreInprogress (1) — copying is in progress
restoreSuccessful (2) — copying has been completed successfully
restoreFailed (3) — an error occurred during the copy
notInitiated (4) — copying was not initiated

3.2 *Switch autoconfiguration*

Enable/disable auto-configuration on the switch

MIB: fsiss.mib

Tables used: issZtpConfigStatus — 1.3.6.1.4.1.2076.81.18.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.81.18.1.0 i {enable(1), disable(2)}
```

Example of enabling auto-configuration

CLI command:
```
ZTP enable
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.2076.81.18.1 i 1
```

Viewing the auto-configuration status on the switch

MIB: fsiss.mib

Tables used: issZtp — 1.3.6.1.4.1.2076.81.18

```
snmpwalk -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.81.18.2.0
```

Example of viewing the auto-configuration status

CLI command:
```
show ztp status
```

SNMP command:
```
snmpwalk -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.2076.81.18.2.0
```

Possible states:

notstarted (1) — autoconfiguration was not started
complatestate (5) — autoconfiguration is completed
erroredstate (6) — autoconfiguration error

3.3 *Firmware update*

View active firmware version

MIB: fsiss.mib

Tables used: issSystem — 1.3.6.1.4.1.2076.81.1

```
snmpwalk -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.81.1.3.0
```

View active firmware version

CLI command:
```
show bootvar
```

SNMP command:
```
snmpwalk -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.2076.81.1.3.0
```

Firmware update

MIB: fsiss.mib

Tables used: issSystem — 1.3.6.1.4.1.2076.81.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.81.1.55.0 i {tftp(1), sftp(2)} \
1.3.6.1.4.1.2076.81.1.83.0 i {unknown(0), ipv4(1), ipv6(2), ipv4z(3), ipv6z(4),
dns(16)} \
1.3.6.1.4.1.2076.81.1.84.0 d IP-address \
1.3.6.1.4.1.2076.81.1.56.0 s "UsernameSFTP" \
1.3.6.1.4.1.2076.81.1.57.0 s "PasswordSFTP" \
1.3.6.1.4.1.2076.81.1.121.0 i {firmware(1), bootloader(2)} \
1.3.6.1.4.1.2076.81.1.21.0 s "filename" \
1.3.6.1.4.1.2076.81.1.22 i {true(1), false(2)}
```

Example of firmware update via TFTP

CLI command:
```
copy tftp://192.168.1.1/mes2400-10.1.9-R3.iss image
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.2076.81.1.55.0 i 1 \
1.3.6.1.4.1.2076.81.1.84.0 d 192.168.1.1 \
```

```
1.3.6.1.4.1.2076.81.1.121.0 i 1 \
1.3.6.1.4.1.2076.81.1.21.0 s "mes2400-10.1.9-R3.iss" \
1.3.6.1.4.1.2076.81.1.22.0 i 1
```

Example of bootloader update via SFTP

CLI command:

```
copy sftp://user:password@192.168.1.1/mes2400-10.1.9-R3.boot boot
```

SNMP command:

```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.2076.81.1.55.0 i 2 \
1.3.6.1.4.1.2076.81.1.56.0 s "UsernameTFTP" \
1.3.6.1.4.1.2076.81.1.57.0 s "PasswordSFTP" \
1.3.6.1.4.1.2076.81.1.84.0 d 192.168.1.1 \
1.3.6.1.4.1.2076.81.1.121.0 i 2 \
1.3.6.1.4.1.2076.81.1.21.0 s "mes2400-10.1.9-R3.boot" \
1.3.6.1.4.1.2076.81.1.22.0 i 1
```

Viewing firmware update status

MIB: fsiss.mib

Tables used: issSystem — 1.3.6.1.4.1.2076.81.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.81.1.10.0
```

Example of viewing copy status

SNMP command:

```
snmpwalk -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.2076.81.1.28.0
```

Possible states:

restoreInprogress (1) — copying is in progress
restoreSuccessful (2) — copying has been completed successfully
restoreFailed (3) — an error occurred during the copy
notInitiated (4) — copying was not initiated

4 SYSTEM MANAGEMENT

4.1 *System resources*

View device uptime

MIB: SNMPv2-MIB

Tables used: sysUpTime — 1.3.6.1.2.1.1.3

```
snmpwalk -v2c -c <community> <IP address> \
1.3.6.1.2.1.1.3.0
```

Example of viewing device uptime

CLI command:
```
show system information
```

SNMP command:
```
snmpwalk -v2c -c public 192.168.1.30 \
1.3.6.1.2.1.1.3.0
```

View device System Description

MIB: SNMPv2-MIB

Tables used: system — 1.3.6.1.2.1.1

```
snmpwalk -v2c -c <community> <IP address> \
1.3.6.1.2.1.1.1.0
```

Example of viewing device sysDescr

CLI command:
```
show system information
```

SNMP command:
```
snmpwalk -v2c -c public 192.168.1.30 \
1.3.6.1.2.1.1.1.0
```

CPU load monitoring

MIB: ELTEX-MES-ISS-CPU-UTIL-MIB.mib

Tables used: eltMesIssCpuUtilGlobalStat — 1.3.6.1.4.1.35265.1.139.6.1.1.2

```
snmpwalk -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.6.1.1.2.{5 seconds(1), 1 minute(2), 5 minutes(3)}.0
```

CPU load monitoring example

CLI command:
```
show env cpu
```

SNMP command:
```
snmpwalk -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.6.1.1.2.1.0
```

Process load monitoring

MIB: ELTEX-MES-ISS-CPU-UTIL-MIB.mib

Tables used: eltMesIssCpuUtilTaskStatTable — 1.3.6.1.4.1.35265.1.139.6.1.2.2.1

```
snmpwalk -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.6.1.2.2.1.1.{5 seconds(3), 1 minute(4), 5
minutes(5)}.{task-id}
```

CPU load monitoring example

CLI command:
```
show env tascs
```

SNMP command:
```
snmpwalk -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.6.1.2.2.1.1.3.30
```

Binding indexes to processes:

TMR#(1)
LOGF(2)
PKTT(3)
VcmT(4)
SMT(5)
CFA(6)
IPDB(7)
L2DS(8)
BOXF(9)
ERRD(10)
ELMT(11)
EOAT(12)
FMGT(13)
AstT(14)
PIf(15)
LaTT(16)
CMNT(17)
VLAN(18)
FDBP(19)
SnpT(20)
QOS(21)
SMGT(22)
CPUU(23)
RT6(24)
IP6(25)
PNG6(26)
RTM(27)
IPFW(28)
UDP(29)
ARP(30)
PNG(31)
SLT(32)
SAT(33)
TCP(34)
RAD(35)

TACT(36)
DHRL(37)
DHC(38)
DCS(39)
PIA(40)
L2SN(41)
CLIC(42)
CTS(43)
SSH(44)
LLDP(45)
LDB(46)
SNT(47)
STOC(48)
HWPK(49)
MSR(50)
C267(51)

RAM load monitoring

MIB: fsiss.mib

Tables used: issSystem — 1.3.6.1.4.1.2076.81.1

```
snmpwalk -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.81.1.73.0
```

Example of RAM load monitoring

CLI command:
```
show env RAM
```

SNMP command:
```
snmpwalk -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.2076.81.1.73.0
```

FLASH load monitoring

MIB: fsiss.mib

Tables used: issSystem — 1.3.6.1.4.1.2076.81.1

```
snmpwalk -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.81.1.75.0
```

Example of FLASH load monitoring

CLI command:
```
show env flash
```

SNMP command:
```
snmpwalk -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.2076.81.1.75.0
```

View number of MAC addresses in VLAN

MIB: Q-BRIDGE-MIB

Tables used: dot1qFdbEntry — 1.3.6.1.2.1.17.7.2.1.1

```
snmpwalk -v2c -c <community> <IP address> \
1.3.6.1.2.1.17.7.1.2.1.1.2.{vlan}
```

Example of viewing the number of MAC addresses in vlan 5

CLI command:
```
show mac-ad
```

SNMP command:
```
snmpwalk -v2c -c public 192.168.1.30 \
1.3.6.1.2.1.17.7.1.2.1.1.2.5
```

View switch serial number

MIB: fsiss.mib

Tables used: issSystem — 1.3.6.1.4.1.2076.81.1

```
snmpwalk -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.81.1.120.0
```

Example of viewing switch serial number

CLI command:
```
show system information
```

SNMP command:
```
snmpwalk -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.2076.81.1.120.0
```

View hardware version

MIB: fsiss.mib

Tables used: issSystem — 1.3.6.1.4.1.2076.81.1

```
snmpwalk -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.81.1.2.0
```

Example of viewing hardware version

CLI command:
```
show system information
```

SNMP command:
```
snmpwalk -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.2076.81.1.2.0
```

View system MAC address of the switch

MIB: fsiss.mib

Tables used: issSystem — 1.3.6.1.4.1.2076.81.1

```
snmpwalk -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.81.1.32.0
```

Example of viewing system MAC address of the switch

CLI command:
```
show nvram
```

SNMP command:
```
snmpwalk -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.2076.81.1.32.0
```

View port uptime

MIB: SNMPv2-MIB, IF-MIB

Tables used: sysUpTime — 1.3.6.1.2.1.1.3, ifEntry — 1.3.6.1.2.1.2.2.1

```
snmpwalk -v2c -c <community> <IP address> \
1.3.6.1.2.1.1.3
snmpwalk -v2c -c <community> <IP address> \
1.3.6.1.2.1.2.2.1.9.{ifindex}
```

Example of viewing GigabitEthernet 0/2 port Uptime

CLI command:
```
show interface status GigabitEthernet 0/2
```

SNMP command:
```
snmpwalk -v2c -c public 192.168.1.30 \
1.3.6.1.2.1.1.3
snmpwalk -v2c -c public 192.168.1.30 \
1.3.6.1.2.1.2.2.1.9.2
```

The output of the first command must be removed from the output of the second command. The obtained value will be the port uptime.

View information about the firmware and bootloader versions

MIB: ELTEX-MES-ISS-SYSTEM-MIB.mib

Tables used: eltMesIssSysBootVarTable – 1.3.6.1.4.1.35265.1.139.18.1.1

```
snmpwalk -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.18.1.1.3.1.1.{index}.{firmware}
```

Example of viewing information about the bootloader version

CLI command:
```
show bootvar
```

SNMP command:
```
snmpwalk -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.18.1.1.3.1.1.4.2
```

There are the following index values:

4 — firmware and bootloader versions;

5 — firmware commit and bootloader version numbers;

6 — firmware build number;

7 — firmware and bootloader MD5 Digest numbers;

8 — date and time of firmware and bootloader builds.

There are the following firmware values:

1 — firmware;

2 — bootloader.

View the battery state

MIB: ELTEX-MES-ISS-ENV-MIB.mib

Tables used: eltMesIssBatteryStatus– 1.3.6.1.4.1.35265.1.139.12.1.3.1.1.2

```
snmpget -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.12.1.3.1.1.2.0
```

Example of viewing the battery state

CLI command:

```
show env power
```

SNMP command:

```
snmpget -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.12.1.3.1.1.2.0
```

Possible states:

notoperational(1) — the battery is not supported;

notpresent(2) — the battery is not connected;

recharge(3) — the battery is charging;

low(4) — low battery charge;

discharge(5) — the battery is discharging;

operational(6) — the battery is connected and charged.

View the battery charge level in %

MIB: ELTEX-MES-ISS-ENV-MIB.mib

Tables used: eltMesIssBatteryLevel– 1.3.6.1.4.1.35265.1.139.12.1.3.1.1.3

```
snmpget -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.12.1.3.1.1.3.0
```

Example of battery charge level

CLI command:
```
show env power
```

SNMP command:
```
snmpget -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.12.1.3.1.1.3.0
```

View the acceptable fan speeds table

MIB: ELTEX-MES-ISS-ENV-MIB.mib

Tables used: eltMesIssEnvFanThresholdTable — 1.3.6.1.4.1.35265.1.139.12.1.5.2

```
snmpget -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.12.1.5.2.1.{min(2), max(3)}.{fanIndex}.{level(1-4)}
```

Example of viewing the table

CLI command:
```
show env fan thresholds
```

SNMP command:
```
snmpget -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.12.1.5.2.1
```

View the fan speed

MIB: ELTEX-MES-ISS-ENV-MIB.mib

Tables used: eltMesIssEnvFanEntry — 1.3.6.1.4.1.35265.1.139.12.1.5.1.1

```
snmpget -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.12.1.5.1.1.1.{fanIndex}
```

Example of viewing the first fan speed

CLI command:
```
show env fan
```

SNMP command:
```
snmpget -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.12.1.5.1.1.1.1
```

View the fan speed level

MIB: ELTEX-MES-ISS-ENV-MIB.mib

Tables used: eltMesIssEnvFanEntry — 1.3.6.1.4.1.35265.1.139.12.1.5.1.1

```
snmpget -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.12.1.5.1.1.2.{fanIndex}
```

Example of viewing the first fan speed level

CLI command:
```
show env fan
```

SNMP command:
```
snmpget -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.12.1.5.1.1.2.1
```

View the fan status

MIB: fsiss.mib

Tables used: eltMesIssEnvFanEntry — 1.3.6.1.4.1.2076.81.13.1.1

```
snmpget -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.81.13.1.1.2.{fanIndex}
```

Example of viewing the first fan speed

CLI command:
```
show env fan
```

SNMP command:
```
snmpget -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.81.13.1.1.2.1
```

4.2 *Device management*

Set/change hostname on the device

MIB: SNMPv2-MIB

Tables used: system — 1.3.6.1.2.1.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.2.1.1.5.0 s "{hostname}"
```

Example of hostname "mes2428" assignment

CLI command:
```
hostname mes2428
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.2.1.1.5.0 s "mes2428"
```

Switch reboot

MIB: fsiss.mib

Tables used: issSystem — 1.3.6.1.4.1.2076.81.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.81.1.9.0 i 1
```

Example of switch reboot

CLI command:
```
Reload
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.81.1.9.0 i 1
```

Switch reboot after a specified time

MIB: ELTEX-MES-ISS-SYSTEM-MIB.mib

Tables used: eltMesIssReloadParams — 1.3.6.1.4.1.35265.1.139.18.1.1.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.18.1.1.1.1.0 s "hhh.mm"
1.3.6.1.4.1.35265.1.139.18.1.1.1.2.0 i 1
```

Example of switch reboot after 5 minutes

CLI command:
```
reload in 0 5
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.18.1.1.1.1.0 s "000:05" \
1.3.6.1.4.1.35265.1.139.18.1.1.1.2.0 i 1
```

Switch reboot at a specified time

MIB: ELTEX-MES-ISS-SYSTEM-MIB.mib

Tables used: eltMesIssReloadParams — 1.3.6.1.4.1.35265.1.139.18.1.1.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.18.1.1.1.1.0 s "hh:mm:ss dd MM"
1.3.6.1.4.1.35265.1.139.18.1.1.1.2.0 i 2
```

Example of switch reboot at 00:00:00 01 01

CLI command:
```
reload at 00:00:00 01 01
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.18.1.1.1.1.0 s "00:00:00 01 01" \
1.3.6.1.4.1.35265.1.139.18.1.1.1.2.0 i 2
```

Canceling the switch reboot at/after the specified time

MIB: ELTEX-MES-ISS-SYSTEM-MIB.mib

Tables used: eltMesIssReloadParams — 1.3.6.1.4.1.35265.1.139.18.1.1.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.18.1.1.1.2.0 i 3
```

Example of canceling the switch reboot at/after the specified time

CLI command:
```
reload cancel
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.18.1.1.1.2.0 i 3
```

Enable/disable sending snmp-trap about coldstart

MIB: fsiss.mib

Tables used: futuresnmp3 — 1.3.6.14.1.2076.112

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.112.11.0 i {enable(1), disable(2)}
```

Example of enabling snmp-trap coldstart sending

CLI command:
```
snmp enable traps coldstart
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.112.11.0 i 1
```

Enable/disable sending snmp-trap about warmstart

MIB: fsiss.mib

Tables used: eltMesIssSnmp3Globals — 1.3.6.1.4.1.35265.1.139.19.1.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.19.1.1.1.0 i {enable(1), disable(2)}
```

Example of enabling snmp-trap warmstart sending

CLI command:
```
snmp enable traps warmstart
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.19.1.1.1.0 i 1
```

Enable/disable battery monitoring

MIB: ELTEX-MES-ISS-ENV-MIB.mib

Tables used: eltMesIssBatteryMonitorEnable — 1.3.6.1.4.1.35265.1.139.12.1.3.2

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.12.1.3.2.0 i {true(1), false(2)}
```

Example of enabling battery monitoring

CLI command:
```
env battery monitor enable
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.12.1.3.2.0 i 1
```

Enable/disable Dying-gasp sending

MIB: ELTEX-MES-ISS-ENV-MIB.mib

Tables used: eltMesIssDyingGaspStatus — 1.3.6.1.4.1.35265.1.139.12.1.4.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.12.1.4.1.0 i {true(1), false(2)}
```

Example of enabling dying-gasp sending

CLI command:
```
env dying-gasp enable
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.12.1.4.1.0 i 1
```

Enable/disable telnet server

MIB: ARICENT-ISS-MIB

Tables used: issTelnetStatus — 1.3.6.1.4.1.2076.81.1.97

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.81.1.97.0 i {enable(1), disable(2)}
```

Example of disabling telnet server

CLI command:
```
no feature telnet
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.2076.81.1.97.0 i 2
```

Enable/disable snmp-trap and syslog messages sending at the device restart

MIB: ELTEX-MES-ISS-SYSTEM-MIB.mib

Tables used: eltMesIssSysLoggingParams — 1.3.6.1.4.1.35265.1.139.18.1.1.2

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.18.1.1.2.2.0 i {true(1), false(2)}
```

Example of disabling snmp-trap and syslog messages sending at the device restart

CLI command:
```
no logging events reload
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.18.1.1.2.2.0 i 2
```

4.3 *Firmware images management*

View device firmware images information

MIB: ELTEX-MES-ISS-SYSTEM-MIB.mib

Tables used: eltMesIssSysBootVarTable — 1.3.6.1.4.1.35265.1.139.18.1.1.3.1

```
snmpwalk -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.18.1.1.3.1.1.{firmware     validity(3),     version(4),
commit(5), build(6), MD5 digest(7), time(8)}.{image(1)| boot(2)}.{number(1|2)}
```

Example of a command for viewing firmware version

CLI command:
```
show bootvar
```

SNMP command:
```
snmpwalk -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.18.1.1.3.1.1.4.1.1
```

Change active firmware image

MIB: ELTEX-MES-ISS-SYSTEM-MIB.mib

Tables used: eltMesIssSysBootVarTable — 1.3.6.1.4.1.35265.1.139.18.1.1.3.1

```
snmpset -v2c -c <community> <IP address>
\1.3.6.1.4.1.35265.1.139.18.1.1.3.1.1.9.1.{number(1|2)} i {active{1} |
inactive(2)}
```

Example of changing active firmware image from 1 to 2

CLI command:
```
boot system inactive
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.18.1.1.3.1.1.9.1.2 i 1
```

5 CONFIGURING SYSTEM TIME

Configuring date and time

MIB: fsiss.mib

Tables used: issSystem — 1.3.6.1.4.1.2076.81.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.81.1.34.0 s "hh:mm:ss dd MM YY"
```

Example of date configuring on the switch

CLI command:
```
clock set 00:00:00: 01 01 2020
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.81.1.34.0 s "00:00:00 01 01"
```

Configuring date and time obtainment from SNTP server

MIB: fsclkiwf.mib

Tables used: fsClkIwfGeneralGroup — 1.3.6.1.4.1.29601.2.46.1.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.46.1.1.4.0 i 80
```

Example of date configuring on the switch

CLI command:
```
clock time source ntp
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.29601.2.46.1.1.4.0 i 80
```

Configuring IPv4 SNTP server address

MIB: fssntp.mib

Tables used: fsSntpUnicastServerEntry — 1.3.6.1.4.1.2076.149.1.2.5.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.149.1.2.5.1.8.1.4.{server IP-address} i {createAndWait 5(5)} \
1.3.6.1.4.1.2076.149.1.2.5.1.3.1.4.{server IP-address} i {version 3(3), version
4(4)) \
1.3.6.1.4.1.2076.149.1.2.5.1.4.1.4.{server IP-address} i {port} \
1.3.6.1.4.1.2076.149.1.2.5.1.5.1.4.{server IP-address} i {primary(1),
secondary(2)} \
1.3.6.1.4.1.2076.149.1.2.5.1.8.1.4.{server IP-address} i {Active (1)}
```

Example of configuring IPv4 address of main SNTP server version 3

CLI command:
```
set sntp unicast-server ipv4 192.168.1.1 primary version 3
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.149.1.2.5.1.8.1.4.192.168.1.1 i 5
1.3.6.1.4.1.2076.149.1.2.5.1.3.1.4.192.168.1.1 i 3 \
1.3.6.1.4.1.2076.149.1.2.5.1.4.1.4.192.168.1.1 i 123 \
1.3.6.1.4.1.2076.149.1.2.5.1.5.1.4.192.168.1.1 i 1 \
1.3.6.1.4.1.2076.149.1.2.5.1.8.1.4.192.168.1.1 i 1
```

The port field can take values 1025-36564. By default, the port number is 123.

Configuring IPv6 SNTP server address

MIB: fssntp.mib

Tables used: fsSntpUnicastServerEntry — 1.3.6.1.4.1.2076.149.1.2.5.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.149.1.2.5.1.8.2.16.{server IP-address} i {createAndWait 5(5)}
\
1.3.6.1.4.1.2076.149.1.2.5.1.3.2.16.{server IP-address} i {version 3(3),
version 4(4)) \
1.3.6.1.4.1.2076.149.1.2.5.1.4.2.16.{server IP-address} i {port} \
1.3.6.1.4.1.2076.149.1.2.5.1.5.2.16.{server IP-address} i {primary(1),
secondary(2)} \
1.3.6.1.4.1.2076.149.1.2.5.1.8.2.16.{server IP-address} i {Active (1)}
```

Example of configuring IPv6 address of main SNTP server version 3

CLI command:
```
set sntp unicast-server ipv6 2001:db8::2 primary version 3
```
SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.149.1.2.5.1.8.2.16.32.1.13.184.0.0.0.0.0.0.0.0.0.0.2 i 5 \
1.3.6.1.4.1.2076.149.1.2.5.1.3.2.16.32.1.13.184.0.0.0.0.0.0.0.0.0.0.2 i 3 \
1.3.6.1.4.1.2076.149.1.2.5.1.4.2.16.32.1.13.184.0.0.0.0.0.0.0.0.0.0.2 i 123 \
1.3.6.1.4.1.2076.149.1.2.5.1.5.2.16.32.1.13.184.0.0.0.0.0.0.0.0.0.0.2 i 1 \
1.3.6.1.4.1.2076.149.1.2.5.1.8.2.16.32.1.13.184.0.0.0.0.0.0.0.0.0.0.2 i 1
```

The port field can take values 1025-36564. By default, the port number is 123.

Configuring daylight saving change

MIB: fssntp.mib

Tables used: fsSntpScalars — 1.3.6.1.4.1.2076.149.1.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.149.1.1.12.0 s "weekofmonth-weekofday-mounth,HH:MM" \
1.3.6.1.4.1.2076.149.1.1.13.0 s "weekofmonth-weekofday-mounth,HH:MM"
```

Example of configuring daylight saving change

CLI command:
```
set sntp client clock-summer-time second-thu-aug,00:00 second-thu-aug,01:00
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.149.1.1.12.0 s "second-thu-aug,00:00" \
1.3.6.1.4.1.2076.149.1.1.13.0 s "second-thu-aug,01:00"
```

Enable/disable SNTP client on the switch

MIB: fssntp.mib

Tables used: fsSntpScalars — 1.3.6.1.4.1.2076.149.1.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.149.1.1.3.0 i {enable(1), disable(0)}
```

Example of enabling an SNTP client on a switch

CLI command:
```
set sntp client enabled
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.149.1.1.3.0 i 1
```

Configuring SNTP timezone

MIB: fssntp.mib

Tables used: fsSntpScalars — 1.3.6.1.4.1.2076.149.1.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.149.1.1.11.0 s "(+/-)HH:MM"
```

Example of configuring SNTP timezone

CLI command:
```
set sntp client time-zone +07:00
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.149.1.1.11.0 s "+07:00"
```

Configuring unicast SNTP requests sending interval

MIB: fssntp.mib

Tables used: fsSntpUnicast — 1.3.6.1.4.1.2076.149.1.2

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.149.1.2.2.0 u {interval in seconds}
```

Example of configuring SNTP requests sending interval

CLI command:
```
set sntp unicast-poll-interval 4096
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.149.1.2.2.0 u 4096
```

The interval can take values 16-16384 and should be the degree of two. For example, 16, 32, 64, etc.

Configuring maximum response time from the SNTP server

MIB: fssntp.mib

Tables used: fsSntpUnicast — 1.3.6.1.4.1.2076.149.1.2

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.149.1.2.3.0 u {1-30 seconds}
```

Example of configuring the SNTP server response waiting time

CLI command:
```
set sntp client unicast-max-poll-timeout 30
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.149.1.2.3.0 u 30
```

Configuring maximum number of SNTP server connection attempts

MIB: fssntp.mib

Tables used: fsSntpUnicast — 1.3.6.1.4.1.2076.149.1.2

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.149.1.2.4.0 u {1-10}
```

Example of configuring the SNTP server response waiting time

CLI command:
```
set sntp client unicast-max-poll-retry 10
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.149.1.2.4.0 u 10
```

6 MAC TABLES OPERATIONS

6.1 *View MAC table content*

View table content via VLAN

MIB: Q-BRIDGE-MIB.mib

Tables used: dot1qTpFdbEntry — 1.3.6.1.2.1.17.7.1.2.2.1

```
snmpwalk -v2c -c <community> <IP address> \
1.3.6.1.2.1.17.7.1.2.2.1.{vlan-id}
```

Example of viewing MAC table content via VLAN 5

CLI command:
```
show mac-address-table vlan 5
```

SNMP command:
```
snmpwalk -v2c -c public 192.168.1.30 \
 1.3.6.1.2.1.17.7.1.2.2.1.5
```

View table content via interfaces

MIB: Q-BRIDGE-MIB.mib

Tables used: eltMesIssVlanFdbPortEntry — 1.3.6.1.4.1.35265.1.139.3.1.1.1.1

```
snmpwalk -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.3.1.1.1.1.{ifindex}
```

Example of viewing MAC table content on gi0/2

CLI command:
```
show mac-address-table interface gi 0/2
```

SNMP command:
```
snmpwalk -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.3.1.1.1.1.2
```

6.2 *Configuring MAC Address Notification feature*

Enable/disable MAC Address Notification

MIB: CISCO-MAC-NOTIFICATION-MIB.mib

Tables used: cmnGlobalObjects — 1.3.6.1.4.1.9.9.215.1.1

```
snmpwalk -v2c -c <community> <IP address> \
1.3.6.1.4.1.9.9.215.1.1.1.0 i {true(1), false(2)}
```

Example of enabling MAC address notification on the device

CLI command:
```
mac-address-table notification change
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.9.9.215.1.1.1.0 i 1
```

Example of disabling MAC address notification on the device

CLI command:
```
no mac-address-table notification change
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.9.9.215.1.1.1.0 i 2
```

Setting maximum time span between SNMP notifications sending

MIB: CISCO-MAC-NOTIFICATION-MIB.mib

Tables used: cmnGlobalObjects — 1.3.6.1.4.1.9.9.215.1.1

```
snmpwalk -v2c -c <community> <IP address> \
1.3.6.1.4.1.9.9.215.1.1.2.0 u {0-604800}
```

Example of setting maximum time span between SNMP notifications sending

CLI command:
```
mac-address-table notification change interval 10
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.9.9.215.1.1.2.0 u 10
```

Enabling sending traps to syslog about MAC addresses learning or deleting events

MIB: CISCO-MAC-NOTIFICATION-MIB.mib

Tables used: cmnGlobalObjects — 1.3.6.1.4.1.9.9.215.1.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.9.9.215.1.1.5.0 i {true(1), false (2)}
```

Example of enabling sending traps to syslog about MAC addresses learning or deleting events

CLI command:
```
logging events mac-address-table change
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.9.9.215.1.1.5.0 i 1
```

Setting maximum number of the MAC table state change events saved to history

MIB: CISCO-MAC-NOTIFICATION-MIB.mib

Tables used: cmnGlobalObjects — 1.3.6.1.4.1.9.9.215.1.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.9.9.215.1.1.7.0 u {0-500}
```

Example of setting 5 events of MAC table state change that will be saved to history

CLI command:
```
mac-address-table notification change history 5
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.9.9.215.1.1.7.0 u 5
```

Enable MAC addresses state change events notification generation on each interface

MIB: CISCO-MAC-NOTIFICATION-MIB.mib

Tables used: cmnGlobalObjects — 1.3.6.1.4.1.9.9.215.1.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.9.9.215.1.2.1.1.{Learnt(1), Removed(2)}.{ifindex} i {true(1),
false(2)}
```

Example of enabling notification generation on GigabitEthernet 0/12

CLI command:
```
interface gigabitethernet 0/12
   snmp trap mac-address-table change learnt
   snmp trap mac-address-table change removed
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.9.9.215.1.2.1.1.1.12 i 1 \
1.3.6.1.4.1.9.9.215.1.2.1.1.2.12 i 1
```

Display all MAC addresses state change events notifications saved to history

MIB: CISCO-MAC-NOTIFICATION-MIB.mib

Tables used: cmnGlobalObjects — 1.3.6.1.4.1.9.9.215.1.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.9.9.215.1.1
```

Example of displaying all MAC addresses state change events notifications saved to history

CLI command:
```
show mac-address-table notification change history
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.9.9.215.1.1
```

6.3 *MAC flapping*

Enable MAC Flapping Detection

MIB: ELTEX-MAC-NOTIFICATION-MIB.mib

Tables used: eltexMnFlappingObjects — 1.3.6.1.4.1.35265.33.1.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.33.1.1.1.0 i {true(1), false(2)}
```

Example of disabling MAC Flapping Detection on the device (enabled by default)

CLI command:
```
no mac-address-table notification flapping
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.35265.33.1.1.1.0 i 2
```

Enable MAC Flapping Logging

MIB: ELTEX-MAC-NOTIFICATION-MIB.mib

Tables used: eltexMnFlappingObjects — 1.3.6.1.4.1.35265.33.1.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.33.1.1.1.0 i {true(1), false(2)
```

Example of disabling MAC Flapping Logging on the device (enabled by default)

CLI command:
```
no logging events mac-address-table flapping
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.35265.33.1.1.2.0 i 2
```

6.4 *MAC-based VLAN configuring*

MAC groups configuring

MIB: ELTEX-MES-ISS-VLAN-MIB.mib

Tables used: eltMesIssMacBasedVlanGroupTable — 1.3.6.1.4.1.35265.1.139.3.1.3.2

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.3.1.3.2.1.4.{mac1}.{mac2}.{mac3}.{mac4}.{mac5}.{mac6}.{
mask1}.{mask2}.{mask3}.{mask4}.{mask5}.{mask6} i {active(1), create and
wait(5), destroy(6)}

snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.3.1.3.2.1.3.{mac1}.{mac2}.{mac3}.{mac4}.{mac5}.{mac6}.{
mask1}.{mask2}.{mask3}.{mask4}.{mask5}.{mask6} i {group-id}
```

Example of creating MAC group with number 5 including MAC addresses range from 00:00:00:00:aa:00 to 00:00:00:00:aa:ff for MAC-based VLAN functionality

CLI command:

```
map mac 00:00:00:00:aa:00 ff:ff:ff:ff:ff:00 macs-group 5
```

SNMP command:

```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.3.1.3.2.1.4.0.0.0.0.170.0.255.255.255.255.255.0 i 5 \
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.3.1.3.2.1.3.0.0.0.0.170.0.255.255.255.255.255.0 i 5 \
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.3.1.3.2.1.4.0.0.0.0.170.0.255.255.255.255.255.0 i 1
```

Example of deleting MAC group with number 5 including MAC addresses range from 00:00:00:00:aa:00 to 00:00:00:00:aa:ff for MAC-based VLAN functionality

CLI command:

```
no map mac 00:00:00:00:aa:00 ff:ff:ff:ff:ff:00 macs-group 5
```

SNMP command:

```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.3.1.3.2.1.4.0.0.0.0.170.0.255.255.255.255.255.0 i 6
```

{mac1-6} — MAC address represented in decimal notation;
{mask1-6} — MAC addresses range mask represented in decimal notation.

MAC group binding to an interface

MIB: ELTEX-MES-ISS-VLAN-MIB.mib

Tables used: eltMesIssMacBasedVlanGroupTable — 1.3.6.1.4.1.35265.1.139.3.1.3.2

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.3.1.2.3.1.4.{ifindex}.{group-id} i {active(1), create
and wait(5), destroy(6)}
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.3.1.2.3.1.2.{ifindex}.{group-id} u {vlan-id}
```

Example of binding MAC group with number 5 to gi0/2 interface and vlan 10

CLI command:

```
interface gi 0/2
switchport map macs-group 5 vlan 10
```

SNMP command:

```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.3.1.2.3.1.4.2.5 i 5
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.3.1.2.3.1.2.2.5 u 10
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.3.1.2.3.1.4.2.5 i 1
```

Example of deleting binding of the MAC group with number 5 to gi0/2 interface

CLI command:
```
interface gi 0/2
no switchport map macs-group 5 vlan 10
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.3.1.2.3.1.4.2.5 i 6
```

6.5 *Configuring protocol-based VLAN*

Protocol groups configuring

MIB: Q-BRIDGE-MIB

Tables used: dot1vProtocolGroupEntry — 1.3.6.1.2.1.17.7.1.5.1.1

Creating protocol groups

```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.2.1.17.7.1.5.1.1.4.{frame-type}.2.{ethertype-1}.{ethertype-2} i
{active(1), create and wait(5), destroy(6)}
snmpset -v2c -c private 192.168.1.30 \ 1.3.6.1.2.1.17.7.1.5.1.1.3.{frame-
type}.2.{ethertype-1}.{ethertype-2} i {group-id}
```

Example of creating a protocol group with number 100 including Ethernet frames with ethertype ab:cd

CLI command:
```
map protocol other ab:cd Enet-v2 protocols-group 100
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.2.1.17.7.1.5.1.1.4.1.2.171.205 i 5
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.2.1.17.7.1.5.1.1.3.1.2.171.205 i 100
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.2.1.17.7.1.5.1.1.4.1.2.171.205 i 1
```

Example of deleting a protocol group with number 100 including Ethernet frames with ethertype ab:cd

CLI command:
```
no map protocol other ab:cd enet-v2
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.2.1.17.7.1.5.1.1.4.1.2.171.205 i 6
```

{frame-type} — frame encapsulation type, may take values:

- **ethernet (1);**
- **rfc1042(snap) (2);**
- **llcOther (5).**

{ethertype-1}, {ethertype-2} — first and second ethertype fields in decimal notation.

Protocol group binding to an interface

MIB: Q-BRIDGE-MIB

Tables used: dot1vProtocolGroupEntry — 1.3.6.1.2.1.17.7.1.5.2

```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.2.1.17.7.1.5.2.1.3.{ifindex}.{group-id} i {create and go(4),
destroy(6)}

snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.2.1.17.7.1.5.2.1.2.{ifindex}.{group-id} i {vlan-id}
```

Example of binding a protocol group with number 100 to gi0/5 interface and vlan 10

CLI command:
```
interface gi 0/5
switchport map protocol-group 100 vlan 10
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.2.1.17.7.1.5.2.1.3.5.100 i 4
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.2.1.17.7.1.5.2.1.2.5.100 i 10
```

Example of deleting the binding of protocol group with number 100 to gi0/5 interface

CLI command:
```
interface gi 0/2
no switchport map protocol-group 100
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
 1.3.6.1.2.1.17.7.1.5.2.1.3.5.100 i 6
```

7 INTERFACE CONFIGURATION

7.1 *Ethernet interface parameters*

View port Description

MIB: IF-MIB

Tables used: ifXentry — 1.3.6.1.2.1.31.1.1.1

```
snmpwalk -v2c -c <community> <IP address> \
1.3.6.1.2.1.31.1.1.1.18.{ifIndex}
```

Example of viewing Description on GigabitEthernet 0/1 interface

CLI command:
```
show interfaces description GigabitEthernet 0/1
```

SNMP command:
```
snmpwalk -v2c -c public 192.168.1.30 \
1.3.6.1.2.1.31.1.1.1.18.1
```

View speed on the interface

MIB: IF-MIB

Tables used: ifXentry — 1.3.6.1.2.1.31.1.1.1

```
snmpwalk -v2c -c <community> <IP address> \
1.3.6.1.2.1.31.1.1.1.15.{ifindex}
```

Example of viewing GigabitEthernet 0/2 speed

CLI command:
```
show interface status GigabitEthernet 0/2
```

SNMP command:
```
snmpwalk -v2c -c public 192.168.1.30 \
1.3.6.1.2.1.31.1.1.1.15.2
```

View administrative state of the port

MIB: IF-MIB

Tables used: ifEntry — 1.3.6.1.2.1.2.2.1

```
snmpwalk -v2c -c <community> <IP address> \
1.3.6.1.2.1.2.2.1.7.{ifIndex}
```

Example of viewing GigabitEthernet 0/1 port status

CLI command:
```
show interfaces status GigabitEthernet 0/1
```

SNMP command:
```
snmpwalk -v2c -c public 192.168.1.30 \
1.3.6.1.2.1.2.2.1.7.1
```

Possible options:
up(1);
down(2);
testing(3).

Enable/disable configured interface

MIB: IF-MIB

Tables used: ifEntry — 1.3.6.1.2.1.2.2.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.2.1.2.2.1.7.{ifIndex} i {up(1),down(2)}
```

Example of disabling GigabitEthernet 0/2 interface

CLI command:
```
interface GigabitEthernet 0/2
shutdown
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.2.1.2.2.1.7.2 i 2
```

View operative state of the port

MIB: IF-MIB

Tables used: ifEntry — 1.3.6.1.2.1.2.2.1

```
snmpwalk -v2c -c <community> <IP address> \
1.3.6.1.2.1.2.2.1.8.{ifIndex}
```

Example of viewing GigabitEthernet 0/1 port status

CLI command:
```
show interfaces status GigabitEthernet 0/1
```

SNMP command:
```
snmpwalk -v2c -c public 192.168.1.30 \
1.3.6.1.2.1.2.2.1.8.1
```

Possible options
up(1);
down(2).

View the counter of unicast packets on the interface

MIB: IF-MIB

Tables used: ifEntry — 1.3.6.1.2.1.2.2.1

```
snmpwalk -v2c -c <community>  <IP address> \
1.3.6.1.2.1.2.2.1.11.{ifIndex}
```

Example of viewing the counter of incoming unicast packets on GigabitEthernet 0/2 interface

CLI command:
```
show interface counters GigabitEthernet 0/2
```

SNMP command:
```
snmpwalk -v2c -c public 192.168.1.30 \
1.3.6.1.2.1.2.2.1.11.2
```

View the counter of multicast packets on the interface

MIB: IF-MIB

Tables used: ifXentry — 1.3.6.1.2.1.31.1.1.1

```
snmpwalk -v2c -c <community>  <IP address> \
1.3.6.1.2.1.31.1.1.1.2.{ifindex}
```

Example of viewing the counter of incoming multicast packets on GigabitEthernet 0/2 interface

CLI command:
```
show interface counters GigabitEthernet 0/2
```

SNMP command:
```
snmpwalk -v2c -c public 192.168.1.30 \
1.3.6.1.2.1.31.1.1.1.2.2
```

View the counter of broadcast packets on the interface

MIB: IF-MIB

Tables used: ifXentry — 1.3.6.1.2.1.31.1.1.1

```
snmpwalk -v2c -c <community>  <IP address> \
1.3.6.1.2.1.31.1.1.1.3.{ifindex}
```

Example of viewing the counter of incoming broadcast packets on GigabitEthernet 0/2 interface

CLI command:
```
show interface counters GigabitEthernet 0/2
```

SNMP command:
```
snmpwalk -v2c -c public 192.168.1.30 \
1.3.6.1.2.1.31.1.1.1.3.2
```

Viewing the octet counter on the interface

MIB: IF-MIB

Tables used: ifEntry — 1.3.6.1.2.1.2.2.1

```
snmpwalk -v2c -c <community>  <IP address> \
1.3.6.1.2.1.2.2.1.10.{ifindex}
```

Example of viewing the counter of received octets on GigabitEthernet 0/2 interface

CLI command:
```
show interface counters GigabitEthernet 0/2
```

SNMP command:
```
snmpwalk -v2c -c public 192.168.1.30 \
1.3.6.1.2.1.2.2.1.10.50
```

Octet is the number of bytes.

1 octet = 1 byte

View CRC Errors counter on the interface

MIB: EtherLike-MIB

Tables used: dot3StatsEntry — 1.3.6.1.2.1.10.7.2.1

```
snmpwalk -v2c -c <community>  <IP address> \
1.3.6.1.2.1.10.7.2.1.2.{ifindex}
```

Example of viewing the counter of CRC Errors on GigabitEthernet 0/2 interface

CLI command:
```
show interface GigabitEthernet 0/2
```

SNMP command:
```
snmpwalk -v2c -c public 192.168.1.30 \
1.3.6.1.2.1.10.7.2.1.2.2
```

View Symbol Errors counter on the interface

MIB: EtherLike-MIB

Tables used: dot3StatsEntry — 1.3.6.1.2.1.10.7.2.1

```
snmpwalk -v2c -c <community>  <IP address> \
1.3.6.1.2.1.10.7.2.1.18.{ifindex}
```

Example of viewing the counter of Symbol Errors on GigabitEthernet 0/2 interface

CLI command:
```
show interface GigabitEthernet 0/2
```

SNMP command:
```
snmpwalk -v2c -c public 192.168.1.30 \
1.3.6.1.2.1.10.7.2.1.18.2
```

Monitoring of incoming switch ports load

MIB: ELTEX-MES-ISS-MIB.mib

Tables used: eltMesIssQosMIB — 1.3.6.1.4.1.35265.1.139.5

```
snmpwalk -v2c -c <community>  <IP address> \
1.3.6.1.4.1.35265.1.139.5.1.5.1.1.{PPS(3),   KBPPS(4)}.{ifindex}.{interval   in
seconds}
```

Example of viewing load on GigabitEthernet 0/2 interface

CLI command:
```
show interface utilization GigabitEthernet 0/2
```

SNMP command:
```
snmpwalk -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.5.1.5.1.1.3.2.5
```

Monitoring of outgoing switch ports load

MIB: ELTEX-MES-ISS-MIB.mib

Tables used: eltMesIssQosMIB — 1.3.6.1.4.1.35265.1.139.5

```
snmpwalk -v2c -c <community>  <IP address> \
1.3.6.1.4.1.35265.1.139.5.1.5.1.1.{PPS(5), KBPPS(6)}.{ifindex}.{5 seconds(5), 1
minute (60), 5 minutes(300)}
```

Example of viewing outgoing load on GigabitEthernet 0/23 interface

CLI command:
```
show interfaces GigabitEthernet 0/2
```

SNMP command:
```
snmpwalk -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.5.1.5.1.1.5.23.300
```

Speed autonegotiation configuration

MIB: fsiss.mib

Tables used: issPortCtrlEntry — 1.3.6.1.4.1.2076.81.2.2.1

```
snmpset -v2c -c <community>  <IP address> \
1.3.6.1.4.1.2076.81.2.2.1.2.{ifindex} i {auto(1), {no negotiation(2)}
```

Example of disabling autonegotiation on GigabitEthernet 0/1 interface

CLI command:
```
no negotiation
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.81.2.2.1.2.1 i 2
```

Duplex mode configuration

MIB: fsiss.mib

Tables used: issPortCtrlEntry — 1.3.6.1.4.1.2076.81.2.2.1

```
snmpset -v2c -c <community>  <IP address> \
1.3.6.1.4.1.2076.81.2.2.1.3.{ifindex} i {full(1), half(2)}
```

Example of enabling half duplex mode on GigabitEthernet 0/1 interface

CLI command:
```
duplex half
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.81.2.2.1.3.1 i 2
```

Before configuring the duplex mode, you need to disable autonegotiation.

Configuring Interface speed

MIB: fsiss.mib

Tables used: issPortCtrlEntry — 1.3.6.1.4.1.2076.81.2.2.1

```
snmpset -v2c -c <community>  <IP address> \
1.3.6.1.4.1.2076.81.2.2.1.4.{ifindex} i {10M(1), 100M(2), 1G(3), 10G(4)}
```

Example of configuring speed on GigabitEthernet 0/1 interface

CLI command:
```
speed 100
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.81.2.2.1.4.1 i 2
```

Before configuring the speed, you need to disable autonegotiation.

Configurng combo port mode

MIB: ELTEX-MES-ISS-INTERFACES-MIB.mib

Tables used: eltMesIssPortCtrlTable — 1.3.6.1.4.1.35265.1.139.4.1.2.1.1

```
snmpset -v2c -c <community>  <IP address> \
1.3.6.1.4.1.35265.1.139.4.1.2.1.1.1.{ifindex}    i    {force-fiber(1),    force-
copper(2), prefer-fiber(3)}
```

Example of configuring GigabitEthernet 0/25 interface

CLI command:
```
media-type force-copper
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.4.1.2.1.1.1.25 i 2
```

View list of ports united in port-channel

MIB: stdla.mib

Tables used: dot3adAggPortEntry — 1.2.840.10006.300.43.1.2.1.1

```
snmpwalk -v2c -c <community>  <IP address> \
1.2.840.10006.300.43.1.2.1.1.4.{ifindex}
```

Example of viewing GigabitEthernet 0/2 interface membership in port-channel

CLI command:
```
show interfaces GigabitEthernet 0/2 etherchannel
```

SNMP command:
```
snmpwalk -v2c -c public 192.168.1.30 \
1.2.840.10006.300.43.1.2.1.1.4.2
```

Configuring system MTU

MIB: ELTEX-MES-ISS-CFA-MIB.mib

Tables used: eltMesIssCfaGlobalMtu – 1.3.6.1.4.1.35265.1.139.20.1.1.1.0

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.20.1.1.1.0 i {mtu 128-12288}
```

Example of configuring system MTU

CLI command:
```
system mtu 9000
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.20.1.1.1.0 i 9000
```

Configuring MTU on the interface

MIB: fscfa.mib

Tables used: ifMainTable — 1.3.6.1.4.1.2076.27.1.4

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.27.1.4.1.3.{ifindex} i {mtu 128-12288}
```

Example of configuring MTU on GigabitEthernet 0/2 interface

CLI command:
```
interface gi 0/2
system mtu 9000
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.27.1.4.1.3.2 i 9000
```

Enable/disable MAC addresses learning on interface

MIB: fsvlan.mib

Tables used: dot1qFutureVlanPortUnicastMacLearning — 1.3.6.1.4.1.2076.65.1.10.1.8

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.65.1.10.1.8.{ifindex} i {enable(1), disable(2)}
```

Example of disabling MAC addresses learning for GigabitEthernet 0/3

CLI command:
```
interface GigabitEthernet 0/3
switchport unicast-mac learning disable
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.65.1.10.1.8.3 i 2
```

Configuring interface autonegotiation parameters

MIB: ELTEX-MES-ISS-INTERFACES-MIB

Tables used: eltMesIssPortCtrlEntry — 1.3.6.1.4.1.35265.1.139.4.1.2.1.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.4.1.2.1.1.3.{ifindex} x "{AN-bits} 00"
```

Example of 10f 100f 1000f modes configuring for gi0/5 interface

CLI command:
```
int gi 0/5
negotiation 10f 100f 1000f
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.4.1.2.1.1.3.5 x "15 00"
```

AN-bits:
default (0)
unknown (1)
half10M (2)
full10M (3)
half100M (4)
full100M (5)
full1G (7)

Reset interface settings

MIB: ELTEX-MES-ISS-INTERFACES-MIB

Tables used: eltMesIssInterfacesGlobals — 1.3.6.1.4.1.35265.1.139.4.1.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.4.1.1.1.0 i {ifIndex}
```

Example of resetting gi0/15 interface settings

CLI command:
```
default interface gi 0/15
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.4.1.1.1.0 i 15
```

7.2 *Configuring VLAN*

Create/delete VLAN

MIB: Q-BRIDGE-MIB

Tables used: dot1qVlanStaticTable — 1.3.6.1.2.1.17.7.1.4.3.1

```
snmpset -v2c -c <community>  <IP address> \
1.3.6.1.2.1.17.7.1.4.3.1.5.{vlan} i {create and wait(5), destroy(6), active(1),
notinService(2)}\
1.3.6.1.2.1.17.7.1.4.3.1.5.{vlan} i { create and wait(5), destroy(6), active(1),
notinService(2)}
```

Example of creating vlan 5 on a device

CLI command:
```
vlan 5
vlan active
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.2.1.17.7.1.4.3.1.5.5 i 5 \
1.3.6.1.2.1.17.7.1.4.3.1.5.5 i 1
```

Example of deleting vlan 5 on a device

CLI command:
```
no vlan 5
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.2.1.17.7.1.4.3.1.5 i 6
```

Configuring port mode

MIB: fsiss.mib

Tables used: dot1qFutureVlanPortEntry — 1.3.6.1.4.1.2076.65.1.10.1

```
snmpset -v2c -c <community>  <IP address> \
1.3.6.1.4.1.2076.65.1.10.1.2.{ifindex} i {access(1), trunk(2), general(3)}
```

Example of configuring the GigabitEthernet 0/2 interface in trunk mode

CLI command:
```
switchport mode trunk
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.65.1.10.1.2.2 i 2
```

Assign pvid to interface

MIB: Q-BRIDGE-MIB.mib

Tables used: dot1qPortVlanTable — 1.3.6.1.2.1.17.7.1.4.5

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.2.1.17.7.1.4.5.1.1.{ifindex} u {1-4094}
```

Example of pvid 15 assignment for the GigabitEthernet 0/2

CLI command:
```
interface GigabitEthernet 0/2
switchport general pvid 15
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.2.1.17.7.1.4.5.1.1.2 u 15
```

Adding VLAN to port

MIB: Q-BRIDGE-MIB.mib

Tables used: dot1qVlanStaticEntry — 1.3.6.1.2.1.17.7.1.4.3.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.2.1.17.7.1.4.3.1.{tagged(2), forbidden(3), untagged(4)}.{Vlan} x {port
in form of bitmask}
```

Example of adding vlan 5 to the GigabitEthernet 0/2 interface in tagged mode

CLI command:
```
interface GigabitEthernet 0/2
switchport mode general
switchport general allowed vlan add 5
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.2.1.17.7.1.4.3.1.2.5 x 4000000000
```

Example of adding vlan 5 to the GigabitEthernet 0/1 interface in untagged mode

CLI command:
```
interface GigabitEthernet 0/1
switchport mode general
switchport general allowed vlan add 5 untagged
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.2.1.17.7.1.4.3.1.2.5 x 8000000000 \
1.3.6.1.2.1.17.7.1.4.3.1.4.5 x 8000000000
```

1. To set the port to Untagged mode, the port must be in Tagged mode on the desired VLAN.
2. An example of making a bitmap mask is given in the «APPENDIX A. Bitmask calculation method» section.

Access port configuration

MIB: Q-BRIDGE-MIB.mib

Tables used: dot1qVlanStaticEntry — 1.3.6.1.2.1.17.7.1.4.3.1,
dot1qPortVlanEntry — 1.3.6.1.2.1.17.7.1.4.3.1.2,
dot1qFutureVlanPortEntry — 1.3.6.1.4.1.2076.65.1.10.1.

```
snmpset -v2c -c <community>  <IP address> \
1.3.6.1.2.1.17.7.1.4.3.1.2.{vlan} x {ifindex in the form of bitmask}
1.3.6.1.2.1.17.7.1.4.3.1.4.{vlan} x {ifindex in the form of bitmask}
1.3.6.1.2.1.17.7.1.4.5.1.1.{ifindex} u {vlan}
1.3.6.1.4.1.2076.65.1.10.1.2.{ifindex} i 1
1.3.6.1.2.1.17.7.1.4.5.1.2.{ifindex} i 3
```

Example of configuring the GigabitEthernet 0/4 interface in access vlan 10 mode

CLI command:
```
switchport mode access
switchport acceptable-frame-type untaggedAndPrioritytagged
switchport access vlan 10
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.2.1.17.7.1.4.3.1.2.10 x 10000000000000000000000000000000000000000 \
1.3.6.1.2.1.17.7.1.4.3.1.4.10 x 10000000000000000000000000000000000000000 \
1.3.6.1.2.1.17.7.1.4.5.1.1.4 u 101.3.6.1.4.1.2076.65.1.10.1.2.4 i 1 \
1.3.6.1.2.1.17.7.1.4.5.1.2.4 i 3
```

Selective-qinq rules configuration

MIB: ELTEX-VLAN-TRANSLATION-MIB.mib

Tables used: eltexSqinqPortEntry — 1.3.6.1.4.1.35265.54.1.1.2.1.1

```
snmpwalk -v2c -c <community>  <IP address> \
1.3.6.1.4.1.35265.54.1.1.2.1.1.5.{ifindex}.{ingress(1),egress(2)}.{c-vlan}    i
{CreateAndWait(5), Destroy(6), Active(1)} \
1.3.6.1.4.1.35265.54.1.1.2.1.1.3.{ifindex}.{ingress(1),  egress(2)}.{c-vlan}  i
{overrideVlan(1), addVlan(2)} \
1.3.6.1.4.1.35265.54.1.1.2.1.1.4.{ifindex}.{ingress(1),  egress(2)}.{c-vlan}  i
{s-vlan} \
1.3.6.1.4.1.35265.54.1.1.2.1.1.5.{ifindex}.{ingress(1),  egress(2)}.{c-vlan}  i
{CreateAndWait(5), Destroy(6), Active(1)}
```

Example of adding ingress s-vlan 1000 for ingress c-vlan 127 on GigabitEthernet 0/2 interface

CLI command:
```
interface GigabitEthernet 0/2
selective-qinq list ingress add-vlan 1000 ingress-vlan 127
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.35265.54.1.1.2.1.1.5.2.1.127 i 5 \
1.3.6.1.4.1.35265.54.1.1.2.1.1.3.2.1.127 i 2 \
1.3.6.1.4.1.35265.54.1.1.2.1.1.4.2.1.127 i 1000 \
1.3.6.1.4.1.35265.54.1.1.2.1.1.5.2.1.127 i 1
```

Example of changing to ingress s-vlan 2000 for ingress c-vlan 129 on GigabitEthernet 0/2 interface

CLI command:
```
interface GigabitEthernet 0/2
selective-qinq list ingress override-vlan 2000 ingress-vlan 129
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.35265.54.1.1.2.1.1.5.2.1.129 i 5 \
1.3.6.1.4.1.35265.54.1.1.2.1.1.3.2.1.129 i 1 \
1.3.6.1.4.1.35265.54.1.1.2.1.1.4.2.1.129 i 2000 \
1.3.6.1.4.1.35265.54.1.1.2.1.1.5.2.1.129 i 1
```

To delete this setting, set the Destroy(6) parameter in field 1.3.6.1.4.1.35265.54.1.1.2.1.1.5.{ifindex}.{ingress(1), egress(2)}.{c-vlan}

Assign Vlan name

MIB: Q-BRIDGE-MIB.mib

Tables used: dot1qVlanStaticEntry — 1.3.6.1.2.1.17.7.1.4.3.1

```
snmpwalk -v2c -c <community>  <IP address> \
1.3.6.1.2.1.17.7.1.4.3.1.1.{Vlan} s "vlan name"
```

Example of assigning vlan 10 name

CLI command:
```
name vlan name
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.2.1.17.7.1.4.3.1.1.10 s "vlan name"
```

View Vlan name

MIB: Q-BRIDGE-MIB.mib

Tables used: dot1qVlanStaticEntry — 1.3.6.1.2.1.17.7.1.4.3.1

```
snmpwalk -v2c -c <community>  <IP address> \
1.3.6.1.2.1.17.7.1.4.3.1.1.{Vlan}
```

Example of viewing vlan 10 name

CLI command:
```
show vlan
```

SNMP command:
```
snmpwalk -v2c -c private 192.168.1.30 \
1.3.6.1.2.1.17.7.1.4.3.1.1.10
```

Deny default VLAN on interface

MIB: ELTEX-MES-ISS-VLAN-MIB.mib

Tables used: eltMesIssVlanPortDefaultVlanForbidden — 1.3.6.1.4.1.35265.1.139.3.1.2.1.1.8

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.3.1.2.1.1.8.{ifindex} i {true(1), false(2)}
```

Example of denying the default vlan for GigabitEthernet 0/3

CLI command:
```
interface GigabitEthernet 0/3
switchport forbidden default-vlan
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.3.1.2.1.1.8.3 i 1
```

Enable/disable GARP module

MIB: fsvlan.mib

Tables used: dot1qFutureVlan — 1.3.6.1.4.1.2076.65.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.65.1.6.0 i {shutdown(1) | no shutdown(2)}
```

Example of enabling GARP module

CLI command:
```
no shutdown garp
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.65.1.6.0 i 2
```

Enable/disable GVRP globally

MIB: Q-BRIDGE-MIB

Tables used: dot1qBase — 1.3.6.1.2.1.17.7.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.2.1.17.7.1.1.5.0 i {enable(1) | disable(2)}
```

Example of enabling GVRP globally

CLI command:
```
gvrp enable
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.2.1.17.7.1.1.5.0 i 1
```

Enable/disable GVRP on interfaces

MIB: Q-BRIDGE-MIB

Tables used: dot1qPortVlanEntry — 1.3.6.1.2.1.17.7.1.4.5.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.2.1.17.7.1.4.5.1.4.{ifindex} {enable(1) | disable(2)}
```

Example of enabling GVRP on gi0/1 interface

CLI command:
```
interface gi0/1
gvrp enable
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.2.1.17.7.1.4.5.1.4.1 i 1
```

Configuring GARP timers

MIB: fsvlnext.mib, ELTEX-MES-ISS-VLAN-TUNNEL-MIB.mib

Tables used: fsVlanTunnelObjects — 1.3.6.1.4.1.2076.137.2,
eltMesIssVlanTunnelObjects -1.3.6.1.4.1.35265.1.139.21.1.

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.2.1.17.6.1.3.1.1.{join(1) | leave(2) | leaveall(3)}.{ifindex} i
{centisec}
```

Example of configuring GARP join timer 300 ms on gi0/1 interface

CLI command:
```
interface gi0/1
set garp timer join 300
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
```

Configuring GVRP VLAN restricted registration

MIB: Q-BRIDGE-MIB

Tables used: dot1qPortVlanEntry — 1.3.6.1.2.1.17.7.1.4.5.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.2.1.17.7.1.4.5.1.7.{ifindex} i {enable(1) | disable(1)}
```

Example of enabling GVRP restricted registration on gi0/1 interface

CLI command:
```
interface gi0/1
vlan restricted enable
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.2.1.17.7.1.4.5.1.7.1 i 1
```

View GVRP statistics

MIB: fsvlan.mib, Q-BRIDGE-MIB

Tables used: fsMIDot1qFutureVlanPortTable — 1.3.6.1.4.1.2076.120.1.3.1,
dot1qPortVlanEntry — 1.3.6.1.2.1.17.7.1.4.5.1

```
snmpwalk -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.120.1.3.1{counter}.{ifindex}
```

Example of displaying GVRP JoinEmptyTxCount for gi0/1 interface

CLI command:
```
show gvrp statistics
```

SNMP command:
```
snmpwalk -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.120.1.3.1.22
```

Counter:

JoinEmptyTxCount – 22;
JoinEmptyRxCount – 23;
JoinInTxCount – 24;
JoinInRxCount – 25;
LeaveInTxCount – 26;
LeaveInRxCount – 27;
LeaveEmptyTxCount – 28;
LeaveEmptyRxCount – 29;
EmptyTxCount – 30;
EmptyRxCount – 31;
LeaveAllTxCount – 32;
LeaveAllRxCount – 33;
DiscardCount – 34;
FailedRegistrations – 5;
LastPduOrigin – 6.

View FailedRegistrations and LastPduOrigin via 1.3.6.1.2.1.17.7.1.4.5.{ifindex} table.

7.3 *Configuring port isolation*

Adding Port-isolation rules

MIB: fsiss.mib

Tables used: issPortIsolationTable — 1.3.6.1.4.1.2076.81.2.3

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.81.2.3.1.5.{ifindex_src}.0.{ifindex_dst} i {create and
go(4)|destroy(6)}
```

Example of configuring gi0/1 interface isolation in gi0/5

CLI command:
```
interface gi0/1
port-isolation add gi 0/5
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.81.2.3.1.5.1.0.5 i 4
```

Example of removing gi0/1 interface isolation in gi0/5

CLI command:
```
interface gi0/1
port-isolation add gi 0/5
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.81.2.3.1.5.1.0.5 i 4
```

Adding switchport protected rules

MIB: fsvlan.mib

Tables used: dot1qFutureVlanPortTable — 1.3.6.1.4.1.2076.65.1.10

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.120.1.3.1.6.{ifindex} i { enabled(1)| disabled(2)}
```

Example of switchport protected configuration on gi0/5

CLI command:
```
interface gi0/5
switchport protected
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.120.1.3.1.6.5 i 1
```

Example of removing switchport protected from gi0/5

CLI command:
```
interface gi0/5
no switchport protected
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.120.1.3.1.6.5 i 2
```

7.4 *Configuring L2PT*

Changing destination MAC address

MIB: fsvlnext.mib, ELTEX-MES-ISS-VLAN-TUNNEL-MIB.mib

Tables used: fsVlanTunnelObjects — 1.3.6.1.4.1.2076.137.2,
eltMesIssVlanTunnelObjects — 1.3.6.1.4.1.35265.1.139.21.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.137.2.{STP(2)| LACP(3)| LLDP(13)| IGMP(17) | ISIS-l1(18)|
ISIS-l2(19)| Flow-control(20)}.0 x {multicast mac-address}

snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.21.1.{ PVST(1)| VTP(2)| OSPF(3)| RIP(4)| VRRP(5)}.0 x
{multicast mac-address}
```

Example of changing destination address for RIP L2PT protocol

CLI command:
```
rip-tunnel-address 01:aa:aa:aa:aa:aa
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.21.1.4.0 x 01aaaaaaaaaa
```

Enabling L2PT for the interface

MIB: fsvlnext.mib, ELTEX-MES-ISS-VLAN-TUNNEL-MIB.mib

Tables used: fsVlanTunnelProtocolTable — 1.3.6.1.4.1.2076.137.2.8
eltMesIssVlanTunnelProtocolTable — 1.3.6.1.4.1.35265.1.139.21.1.5

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.137.2.8.1.{LACP(2) | STP(3)| IGMP(6)| LLDP(10)| ISIS-l1(14)|
ISIS-l2(15)| Flow-control(16)}.{ifindex} i {peer(1) | tunnel(2)}

snmpset -v2c -c <community> <IP address>\
1.3.6.1.4.1.35265.1.139.21.1.5.1.{PVST(1)| VTP(2)| OSPF(3)| RIP(4) |
VRRP(5)}.{ifindex} i {peer(1) | tunnel(2)}
```

Example of enabling L2PT for the RIP protocol on the gi0/7 interface

CLI command:
```
interface gi0/7
l2protocol-tunnel rip
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.21.1.5.1.4.7 i 2
```

Example of disabling L2PT for the RIP protocol on the gi0/7 interface

CLI command:
```
interface gi0/7
no l2protocol-tunnel rip
```

SNMP command:
```
snmpset -v2c –c private 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.21.1.5.1.4.7 i 1
```

View L2PT counters

MIB: fsvlnext.mib, ELTEX-MES-ISS-VLAN-TUNNEL-MIB.mib

Tables used: fsVlanTunnelProtocolStatsTable — 1.3.6.1.4.1.2076.137.2.9
eltMesIssVlanTunnelProtocolStatsTable — 1.3.6.1.4.1.35265.1.139.21.1.6

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.137.2.9
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.21.1.6
```

Example of viewing L2PT counters

CLI command:
```
show l2protocol-tunnel
```

SNMP command:
```
snmpwalk -v2c –c private 192.168.1.30 \
1.3.6.1.4.1.2076.137.2.9
snmpwalk -v2c –c private 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.21.1.6
```

7.5 *Managing errdisable*

View errdisable interfaces table

MIB: ELTEX-ERRDISABLE-MIB.mib

Tables used: eltexErrdisableObjects — 1.3.6.1.4.1.35265.53.1

```
snmpwalk -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.53.1.3.1
```

Example of command for viewing interfaces table in errdisable state

CLI command:
```
show errdisable interfaces
```

SNMP command:
```
snmpwalk -v2c –c private 192.168.1.30 \
1.3.6.1.4.1.35265.53.1.3.1
```

Manual interface recovery

MIB: ELTEX-ERRDISABLE-MIB.mib

Tables used: eltexErrdisableObjects — 1.3.6.1.4.1.35265.53.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.53.1.1.1.0 i { ifindex | all(0)}
```

Example of clearing errdisable state for gi0/13 interface

CLI command:
```
set interface active gi 0/13
```

SNMP command:
```
snmpset -v2c –c private 192.168.1.30 \
1.3.6.1.4.1.35265.53.1.1.1.0 i 13
```

Configuring timeout for interface recovery

MIB: ELTEX-ERRDISABLE-MIB.mib

Tables used: eltexErrdisableObjects — 1.3.6.1.4.1.35265.53.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.53.1.1.2.0 i {errdisable_interval}
```

Example of configuring 30 seconds interval for interfaces recovery

CLI command:
```
errdisable recovery interval 30
```

SNMP command:
```
snmpwalk -v2c –c private 192.168.1.30 \
1.3.6.1.4.1.35265.53.1.1.2.0 i 30
```

Enable automatic interfaces recovery for certain events

MIB: ELTEX-ERRDISABLE-MIB.mib

Tables used: eltexErrdisableObjects — 1.3.6.1.4.1.35265.53.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.53.1.2.1.1.2.{cause} i {enable(1) | disable(2)}
```

Example of enabling automatic interfaces recovery after errdisable for storm-control triggering

CLI command:
```
errdisable recovery cause storm-control
```

SNMP command:
```
snmpwalk -v2c –c private 192.168.1.30 \
1.3.6.1.4.1.35265.53.1.2.1.1.2.1 i 1
```

Cause:
storm-control (1);
loopback-detection (2);
udld (3).

Managing SNMP traps for errdisable events

MIB: ELTEX-ERRDISABLE-MIB.mib

Tables used: eltexErrdisableObjects — 1.3.6.1.4.1.35265.53.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.53.1.2.1.1.3.{cause} i {enable(1) | disable(2)}
```

Example of disabling traps sending after errdisable for storm-control triggering

CLI command:

```
no snmp-server enable traps errdisable storm-control
```

SNMP command:

```
snmpset -v2c –c private 192.168.1.30 \
1.3.6.1.4.1.35265.53.1.2.1.1.3.1 i 2
```

8 CONFIGURING RING TOPOLOGY CONTROL PROTOCOLS

8.1 *Configuring xSTP protocols*

8.1.1 RSTP

Change spanning tree mode from MSTP to RSTP

MIB: fsmst.mib, fsrst.mib

Tables used: dot1sFutureMst — 1.3.6.1.4.1.2076.80.1, dot1wFutureRst — 1.3.6.1.4.1.2076.79.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.80.1.1 i 2 \
1.3.6.1.4.1.2076.79.1.1 i 1 \
1.3.6.1.4.1.2076.79.1.2 i 1
```

Example of enabling RSTP mode

CLI command:
```
spanning-tree mode rst
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.80.1.1 i 2 \
1.3.6.1.4.1.2076.79.1.1 i 1 \
1.3.6.1.4.1.2076.79.1.2 i 1
```

Configuring STP compatibility in RSTP mode

MIB: BRIDGE-MIB

Tables used: dot1dStp — 1.3.6.1.2.1.17.2

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.2.1.17.2.16.0 i {stp(0) | rstp(2)}
```

Example of enabling STP compatibility mode

CLI command:
```
spanning-tree compatibility stp
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.2.1.17.2.16.0 i 0
```

Example of disabling STP compatibility mode

CLI command:
```
no spanning-tree compatibility
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.2.1.17.2.16.0 i 2
```

Enable/disable RSTP globally

MIB: fsrst.mib

Tables used: dot1wFutureRst — 1.3.6.1.4.1.2076.79.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.79.1.2.0 i {enabled(1)| disabled(2)}
```

Example of disabling RSTP globally

CLI command:
```
no spanning-tree
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.79.1.2.0 i 2
```

Example of enabling RSTP globally

CLI command:
```
spanning-tree
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.79.1.2.0 i 1
```

Enable/disable RSTP on specific interfaces

MIB: BRIDGE-MIB

Tables used: dot1dStp — 1.3.6.1.2.1.17.2

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.2.1.17.2.15.1.4.{ifindex} i {enable(1) | disable(2)}
```

Example of disabling RSTP on gi0/5 interface

CLI command:
```
spanning-tree disable
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.2.1.17.2.15.1.4.5 i 2
```

Example of enabling RSTP on gi0/5 interface

CLI command:
```
no spanning-tree disable
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.2.1.17.2.15.1.4.5 i 1
```

Enable/disable pathcost dynamic

MIB: fsrst.mib

Tables used: dot1wFutureRst — 1.3.6.1.4.1.2076.79.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.79.1.13.0 i {true(1) | false(2)}
```

Example of enabling pathcost dynamic

CLI command:
```
spanning-tree pathcost dynamic
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.79.1.13.0 i 1
```

Example of disabling pathcost dynamic

CLI command:
```
no spanning-tree pathcost dynamic
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.79.1.13.0 i 2
```

Enable/disable pathcost dynamic lag-speed

MIB: fsrst.mib

Tables used: dot1wFutureRst — 1.3.6.1.4.1.2076.79.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.79.1.14.0 i {true(1) | false(2)}
```

Example of enabling pathcost dynamic lag-speed

CLI command:
```
spanning-tree pathcost dynamic
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.79.1.14.0 i 1
```

Example of disabling pathcost dynamic lag-speed

CLI command:
```
no spanning-tree pathcost dynamic lag-speed
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.79.1.14.0 i 2
```

Configuring Bridge Priority

MIB: BRIDGE-MIB

Tables used: dot1dStp — 1.3.6.1.2.1.17.2

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.2.1.17.2.2.0 i {priority}
```

Example of configuring spanning-tree priority 16384

CLI command:
```
spanning-tree priority 16384
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.2.1.17.2.2.0 i 16384
```

Enable/disable auto-edge on interfaces

MIB: fsrst.mib

Tables used: dot1wFutureRst — 1.3.6.1.4.1.2076.79.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.79.1.12.1.21.{ifindex} i {true(1) | false(2)}
```

Example of enabling auto-edge on gi0/5 interface

CLI command:
```
interface gi0/5
spanning-tree auto-edge
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.79.1.12.1.21.5 i 1
```

Example of disabling auto-edge on gi0/5 interface

CLI command:
```
interface gi0/5
no spanning-tree auto-edge
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.79.1.12.1.21.5 i 2
```

Enable/disable portfast on interfaces

MIB: RSTP-MIB

Tables used: dot1dStpExtPortTable — 1.3.6.1.2.1.17.2.19

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.2.1.17.2.19.1.2.{ifindex} i {true(1) | false(2)}
```

Example of enabling portfast on gi0/5 interface

CLI command:
```
interface gi0/5
spanning-tree portfast
shutdown
no shutdown
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.2.1.17.2.19.1.2.5 i 1
1.3.6.1.2.1.2.2.1.7.5 i 2
1.3.6.1.2.1.2.2.1.7.5 i 1
```

Example of disabling portfast on gi0/5 interface

CLI command:
```
interface gi0/5
no spanning-tree portfast
shutdown
no shutdown
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.2.1.17.2.19.1.2.5 i 2
1.3.6.1.2.1.2.2.1.7.5 i 2
1.3.6.1.2.1.2.2.1.7.5 i 1
```

Configuring spanning-tree cost on interfaces

MIB: RSTP-MIB

Tables used: dot1dStpExtPortTable — 1.3.6.1.2.1.17.2.19

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.2.1.17.2.19.1.6.{ifindex} i {cost}
```

Example of configuring spanning-tree cost on gi0/5 interface

CLI command:
```
interface gi0/5
spanning-tree cost 100
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.2.1.17.2.19.1.6.5 i 100
```

Example of returning spanning-tree cost on gi0/5 interface to default value

CLI command:
```
interface gi0/5
no spanning-tree cost
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.2.1.17.2.19.1.6.5 i 0
```

Configuring spanning-tree port-priority on interfaces

MIB: BRIDGE-MIB

Tables used: dot1dStp — 1.3.6.1.2.1.17.2

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.2.1.17.2.15.1.2.{ifindex} i {port-priority}
```

Example of configuring spanning-tree port-priority 64 on gi0/5 interface

CLI command:
```
interface gi0/5
spanning-tree port-priority 64
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.2.1.17.2.15.1.2.5 i 64
```

Configuring spanning-tree restricted-role on interfaces

MIB: RSTP-MIB

Tables used: dot1dStpExtPortTable — 1.3.6.1.2.1.17.2.19

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.79.1.12.1.22.{ifindex} i {true(1) | false(2)}
```

Example of enabling spanning-tree restricted-role on gi0/5 interface

CLI command:
```
interface gi0/5
spanning-tree restricted-role
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.79.1.12.1.22.5 i 1
```

Example of disabling spanning-tree restricted-role on gi0/5 interface

CLI command:
```
interface gi0/5
no spanning-tree restricted-role
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.79.1.12.1.22.5 i 2
```

Configuring spanning-tree restricted-TCN on interfaces

MIB: RSTP-MIB

Tables used: dot1dStpExtPortTable — 1.3.6.1.2.1.17.2.19

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.79.1.12.1.23.{ifindex} i {true(1) | false(2)}
```

Example of enabling spanning-tree restricted-tcn on gi0/5 interface

CLI command:
```
interface gi0/5
spanning-tree restricted-tcn
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.79.1.12.1.23.5 i 1
```

Example of disabling spanning-tree restricted-tcn on gi0/5 interface

CLI command:
```
interface gi0/5
no spanning-tree restricted-tcn
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.79.1.12.1.23.5 i 2
```

Configuring spanning-tree bpdufilter on interfaces

MIB: RSTP-MIB

Tables used: dot1dStpExtPortTable — 1.3.6.1.2.1.17.2.19

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.79.1.12.1.24.{ifindex} i {true(1) | false(2)}\
1.3.6.1.4.1.2076.79.1.12.1.25.{ifindex} i {true(1) | false(2)}
```

Example of enabling spanning-tree bpdufilter on gi0/5 interface

CLI command:
```
interface gi0/5
spanning-tree bpdufilter enable
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.79.1.12.1.24.5 i 2
1.3.6.1.4.1.2076.79.1.12.1.25.5 i 2
```

Example of disabling spanning-tree bpdufilter on gi0/5 interface

CLI command:
```
interface gi0/5
no spanning-tree bpdufilter
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.79.1.12.1.24.5 i 1
1.3.6.1.4.1.2076.79.1.12.1.25.5 i 1
```

Configuring spanning-tree loopguard on interfaces

MIB: RSTP-MIB

Tables used: dot1dStpExtPortTable — 1.3.6.1.2.1.17.2.19

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.79.1.12.1.28.{ifindex} i {true(1) | false(2)}
```

Example of enabling spanning-tree loopguard on gi0/5 interface

CLI command:
```
interface gi0/5
spanning-tree guard loop
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.79.1.12.1.28.5 i 1
```

Example of disabling spanning-tree loopguard on gi0/5 interface

CLI command:
```
interface gi0/5
no spanning-tree guard
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.79.1.12.1.28.5 i 2
```

Configuring spanning-tree bpduguard on interfaces

MIB: RSTP-MIB

Tables used: dot1dStpExtPortTable — 1.3.6.1.2.1.17.2.19

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.79.1.12.1.34.{ifindex} i {none(0) | enabled(1)}

snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.79.1.12.1.40.{ifindex} i {disable-discarding(1)|admin-down(2)}
```

Example of enabling spanning-tree bpduguard on gi0/5 interface in admin-down mode

CLI command:
```
interface gi0/5
spanning-tree bpduguard enable admin-down
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.79.1.12.1.34.5 i 1 \
1.3.6.1.4.1.2076.79.1.12.1.40.5 i 2
```

Example of disabling spanning-tree bpduguard on gi0/5 interface

CLI command:
```
interface gi0/5
spanning-tree bpduguard none
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.79.1.12.1.34.5 i 0
```

Configuring spanning-tree rootguard on interfaces

MIB: RSTP-MIB

Tables used: dot1dStpExtPortTable — 1.3.6.1.2.1.17.2.19

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.79.1.12.1.35.{ifindex} i {true(1) | false(2)}
```

Example of enabling spanning-tree rootguard on gi0/5 interface

CLI command:
```
interface gi0/5
spanning-tree guard root
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.79.1.12.1.35.5 i 1
```

Example of disabling spanning-tree rootguard on gi0/5 interface

CLI command:
```
interface gi0/5
no spanning-tree guard
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.79.1.12.1.35.5 i 2
```

8.1.2 MSTP

Change Spanning Tree mode from RSTP to MSTP

MIB: fsmst.mib, fsrst.mib

Tables used: dot1sFutureMst — 1.3.6.1.4.1.2076.80.1, dot1wFutureRst — 1.3.6.1.4.1.2076.79.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.79.1.1 i 2 \
1.3.6.1.4.1.2076.80.1.1 i 1 \
1.3.6.1.4.1.2076.80.1.2 i 1
```

Example of enabling RSTP mode

CLI command:
```
spanning-tree mode mst
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.79.1.1 i 2 \
1.3.6.1.4.1.2076.80.1.1 i 1 \
1.3.6.1.4.1.2076.80.1.2 i 1
```

Configuring STP compatibility in MSTP mode

MIB: fsmst.mib

Tables used: dot1sFutureMst — 1.3.6.1.4.1.2076.80.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.80.1.23.0 i {stp(0) | rstp(2)| mstp(3)}
```

Example of enabling STP compatibility mode

CLI command:
```
spanning-tree compatibility stp
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.80.1.23.0 i 0
```

Example of disabling STP compatibility mode

CLI command:
```
no spanning-tree compatibility
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.80.1.23.0 i 3
```

Configuring MSTP instances

MIB: fsmst.mib

Tables used: dot1sFutureMst — 1.3.6.1.4.1.2076.80.1

Configuring MSTP revision

MIB: fsmst.mib

Tables used: dot1sFutureMst — 1.3.6.1.4.1.2076.80.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.80.1.27.0 i {revision} \
1.3.6.1.4.1.35265.1.139.14.1.1.1.1.1.1.0 i {commit(1) | revert (2)}
```

Example of setting MSTP revision = 123

CLI command:
```
spanning-tree mst configuration
revision 123
exit
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.80.1.27.0 i 123\
1.3.6.1.4.1.35265.1.139.14.1.1.1.1.1.1.0 i 1
```

Example of removing MSTP revision

CLI command:
```
spanning-tree mst configuration
no revision
exit
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.80.1.27.0 i 0\
1.3.6.1.4.1.35265.1.139.14.1.1.1.1.1.1.0 i 1
```

Configuring MSTP name

MIB: fsmst.mib

Tables used: dot1sFutureMst — 1.3.6.1.4.1.2076.80.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.80.1.26.0 s {name} \
1.3.6.1.4.1.35265.1.139.14.1.1.1.1.1.1.0 i {commit(1) | revert (2)}
```

Example of setting MSTP name = test

CLI command:
```
spanning-tree mst configuration
name test
exit
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.80.1.26.0 s "test" \
1.3.6.1.4.1.35265.1.139.14.1.1.1.1.1.1.0 i 1
```

Configuring MSTP mapping to vlan instance

MIB: fsmst.mib

Tables used: dot1sFutureMst — 1.3.6.1.4.1.2076.80.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.80.1.39.1.2.{instance} i {vlan-id} \
1.3.6.1.4.1.35265.1.139.14.1.1.1.1.1.1.0 i {commit(1) | revert (2)}

snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.80.1.39.1.3.{instance} i {vlan-id} \
1.3.6.1.4.1.35265.1.139.14.1.1.1.1.1.1.0 i {commit(1) | revert (2)}
```

Example of setting instance 50 vlan 50 mapping

CLI command:
```
spanning-tree mst configuration
instance 50 vlan 50
exit
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.80.1.39.1.2.50 i 50 \
1.3.6.1.4.1.35265.1.139.14.1.1.1.1.1.1.0 i 1
```

Example of removing instance 50 vlan 50 mapping

CLI command:
```
spanning-tree mst configuration
no instance 50 vlan 50
exit
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.80.1.39.1.3.50 i 50 \
1.3.6.1.4.1.35265.1.139.14.1.1.1.1.1.1.0 i 1
```

View pending configuration for spanning-tree mst configuration mode

MIB: ELTEX-MES-ISS-MST-MIB.mib

Tables used: eltMesIssMstConfigPending — 1.3.6.1.4.1.35265.1.139.14.1.1.1.1.1

```
snmpwalk -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.14.1.1.1.1.1.{version(3), name (2), instance-vlan
mapping(4)}
```

Example of command for viewing MSTP instance-vlan mapping

CLI command:
```
spanning-tree mst configuration
show pending
```

SNMP command:
```
snmpwalk -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.14.1.1.1.1.1.4
```

Enable/disable MSTP globally

MIB: fsmst.mib

Tables used: dot1sFutureMst — 1.3.6.1.4.1.2076.80.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.80.1.2.0 i {enabled(1)| disabled(2)}
```

Example of disabling MSTP globally

CLI command:
```
no spanning-tree
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.80.1.2.0 i 2
```

Example of enabling MSTP globally

CLI command:
```
spanning-tree
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.80.1.2.0 i 1
```

Enable/disable MSTP on specific interfaces

MIB: fsmst.mib

Tables used: dot1sFutureMst — 1.3.6.1.4.1.2076.80.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.80.1.40.1.13.{ifindex} i {disabled(0) | enabled(1)}
```

Example of disabling MSTP on gi0/5 interface

CLI command:
```
interface gi0/5
spanning-tree disable
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.80.1.40.1.13.5 i 0
```

Example of enabling MSTP on gi0/5 interface

CLI command:
```
interface gi0/5
no spanning-tree disable
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.80.1.40.1.13.5 i 1
```

Enable/disable pathcost dynamic

MIB: fsmst.mib

Tables used: dot1sFutureMst — 1.3.6.1.4.1.2076.80.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.80.1.42.0 i {true(1) | false(2)}
```

Example of enabling pathcost dynamic

CLI command:
```
spanning-tree pathcost dynamic
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.80.1.42.0 i 1
```

Example of disabling pathcost dynamic

CLI command:
```
no spanning-tree pathcost dynamic
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.80.1.42.0 i 2
```

Enable/disable pathcost dynamic lag-speed

MIB: fsmst.mib

Tables used: dot1sFutureMst — 1.3.6.1.4.1.2076.80.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.80.1.43.0 i {true(1) | false(2)}
```

Example of enabling pathcost dynamic lag-speed

CLI command:
```
spanning-tree pathcost dynamic lag-speed
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.80.1.43.0 i 1
```

Example of disabling pathcost dynamic lag-speed

CLI command:
```
no spanning-tree pathcost dynamic lag-speed
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.80.1.43.0 i 2
```

Configuring Bridge Priority

MIB: fsmst.mib

Tables used: dot1sFutureMst — 1.3.6.1.4.1.2076.80.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.80.1.12.0 i {priority}
```

Example of configuring spanning-tree priority 16384

CLI command:
```
spanning-tree priority 16384
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.80.1.12.0 i 16384
```

Configuring Bridge Priority per instance

MIB: fsmst.mib

Tables used: dot1sFutureMst — 1.3.6.1.4.1.2076.80.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.80.1.12.0 i {priority}
```

Example of configuring spanning-tree priority 16384

CLI command:
```
spanning-tree priority 16384
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.80.1.12.0 i 16384

per-instance priority
fsMstMstiBridgePriority
1.3.6.1.4.1.2076.80.1.38.1.3 i {priority}
```

Enable/disable auto-edge on interfaces

MIB: fsmst.mib

Tables used: dot1sFutureMst — 1.3.6.1.4.1.2076.80.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.80.1.40.1.43.{ifindex} i {true(1) | false(2)}
```

Example of enabling auto-edge on gi0/5 interface

CLI command:
```
interface gi0/5
spanning-tree auto-edge
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.80.1.40.1.43.5 i 1
```

Example of disabling auto-edge on gi0/5 interface

CLI command:
```
interface gi0/5
no spanning-tree auto-edge
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
 1.3.6.1.4.1.2076.80.1.40.1.43.5 i 2
```

Enable/disable portfast on interfaces

MIB: fsmst.mib

Tables used: dot1sFutureMst — 1.3.6.1.4.1.2076.80.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.80.1.40.1.9.{ifindex} i {true(1) | false(2)}
```

Example of enabling portfast on gi0/5 interface

CLI command:
```
interface gi0/5
spanning-tree portfast
shutdown
no shutdown
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.80.1.40.1.9.5 i 1
1.3.6.1.2.1.2.2.1.7.5 i 2
1.3.6.1.2.1.2.2.1.7.5 i 1
```

Example of disabling portfast on gi0/5 interface

CLI command:
```
interface gi0/5
no spanning-tree portfast
shutdown
no shutdown
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.80.1.40.1.9.5 i 2
1.3.6.1.2.1.2.2.1.7.5 i 2
1.3.6.1.2.1.2.2.1.7.5 i 1
```

Configuring spanning-tree cost on interfaces

MIB: fsmst.mib

Tables used: dot1sFutureMst — 1.3.6.1.4.1.2076.80.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.80.1.40.1.46.{ifindex} i {cost}
```

Example of configuring spanning-tree cost 100 on gi0/5 interface

CLI command:
```
interface gi0/5
spanning-tree cost 100
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.80.1.40.1.46.5 i 100
```

Example of resetting spanning-tree cost on gi0/5 interface to default

CLI command:
```
interface gi0/5
no spanning-tree cost
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.80.1.40.1.46.5 i 0
```

Configuring spanning-tree port-priority on interfaces

MIB: fsmst.mib

Tables used: dot1sFutureMst — 1.3.6.1.4.1.2076.80.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.80.1.40.1.3.{ifindex} i {port-priority}
```

Example of configuring spanning-tree port-priority 64 on gi0/5 interface

CLI command:
```
interface gi0/5
spanning-tree cost port-priority 64
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.80.1.40.1.3.5 i 64
```

Configuring spanning-tree restricted-role on interfaces

MIB: fsmst.mib

Tables used: dot1sFutureMst — 1.3.6.1.4.1.2076.80.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.80.1.40.1.44.{ifindex} i {true(1) | false(2)}
```

Example of enabling spanning-tree restricted-role on gi0/5 interface

CLI command:
```
interface gi0/5
spanning-tree restricted-role
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.80.1.40.1.44.5 i 1
```

Example of disabling spanning-tree restricted-role on gi0/5 interface

CLI command:
```
interface gi0/5
no spanning-tree restricted-role
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.80.1.40.1.44.5 i 2
```

Configuring spanning-tree restricted-TCN on interfaces

MIB: fsmst.mib

Tables used: dot1sFutureMst — 1.3.6.1.4.1.2076.80.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.80.1.40.1.45.{ifindex} i {true(1) | false(2)}
```

Example of enabling spanning-tree restricted-tcn on gi0/5 interface

CLI command:
```
interface gi0/5
spanning-tree restricted-tcn
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.80.1.40.1.45.5 i 1
```

Example of disabling spanning-tree restricted-tcn on gi0/5 interface

CLI command:
```
interface gi0/5
no spanning-tree restricted-tcn
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.80.1.40.1.45.5 i 2
```

Configuring spanning-tree bpdufilter on interfaces

MIB: fsmst.mib

Tables used: dot1sFutureMst — 1.3.6.1.4.1.2076.80.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.80.1.40.1.47.{ifindex} i {true(1) | false(2)} \
1.3.6.1.4.1.2076.80.1.40.1.48.{ifindex} i {true(1) | false(2)}
```

Example of enabling spanning-tree bpdufilter on gi0/5 interface

CLI command:
```
interface gi0/5
spanning-tree bpdufilter enable
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.80.1.40.1.47.5 i 2 \
1.3.6.1.4.1.2076.80.1.40.1.48.5 i 2
```

Example of disabling spanning-tree bpdufilter on gi0/5 interface

CLI command:
```
interface gi0/5
no spanning-tree bpdufilter
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.80.1.40.1.47.5 i 1 \
1.3.6.1.4.1.2076.80.1.40.1.48.5 i 1
```

Configuring spanning-tree loopguard on interfaces

MIB: fsmst.mib

Tables used: dot1sFutureMst — 1.3.6.1.4.1.2076.80.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.80.1.40.1.51.{ifindex} i {true(1) | false(2)}
```

Example of enabling spanning-tree loopguard on gi0/5 interface

CLI command:
```
interface gi0/5
spanning-tree guard loop
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.80.1.40.1.51.5 i 1
```

Example of disabling spanning-tree loopguard on gi0/5 interface

CLI command:
```
interface gi0/5
no spanning-tree guard
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.80.1.40.1.51.5 i 2
```

Configuring spanning-tree bdpuguard on interfaces

MIB: fsmst.mib

Tables used: dot1sFutureMst — 1.3.6.1.4.1.2076.80.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.80.1.40.1.55.{ifindex} i {none(0) | enabled(1)}

snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.80.1.40.1.60.{ifindex} i {disable-discarding(1)|admin-down(2)}
```

Example of enabling spanning-tree bdpuguard on gi0/5 interface in admin-down mode

CLI command:
```
interface gi0/5
spanning-tree bpduguard enable admin-down
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.80.1.40.1.55.5 i 1 \
1.3.6.1.4.1.2076.80.1.40.1.60.5 i 2
```

Example of disabling spanning-tree bdpuguard on gi0/5 interface

CLI command:
```
interface gi0/5
spanning-tree bpduguard none
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.80.1.40.1.55.5 i 0
```

Configuring spanning-tree rootguard on interfaces

MIB: fsmst.mib

Tables used: dot1sFutureMst — 1.3.6.1.4.1.2076.80.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.80.1.40.1.56.{ifindex} i {true(1) | false(2)}
```

Example of enabling spanning-tree rootguard on gi0/5 interface

CLI command:
```
interface gi0/5
spanning-tree guard root
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.80.1.40.1.56.5 i 1
```

Example of disabling spanning-tree rootguard on gi0/5 interface

CLI command:
```
interface gi0/5
no spanning-tree guard
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.80.1.40.1.56.5 i 2
```

8.2 *Configuring LLDP protocol*

Enable/disable LLDP module operation

MIB: fslldp.mib

Tables used: fsLldpSystem — 1.3.6.1.4.1.2076.158.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.158.1.1.0 {start(1), shutdownInProgress(2), shutdown(3)}
```

Example of disabling LLDP module operation

CLI command:
```
shutdown lldp
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.158.1.1.0 i 3
```

Allow/deny the switch to use LLDP

MIB: fslldp.mib

Tables used: fsLldpSystem — 1.3.6.1.4.1.2076.158.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.158.1.2.0 {enabled(1), disabled(2)}
```

Example of allowing LLDP use

CLI command:
```
set lldp enable
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.158.1.2.0 i 1
```

Set LLDP version

MIB: fslldp.mib

Tables used: fslldpv2Config — 1.3.6.1.4.1.2076.158.5

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.158.5.1.0 i {lldpv1(1), lldpv2(2)}
```

Example of setting v2 version

CLI command:
```
set lldp version v2
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.158.5.1.0 i 2
```

Set LLDP BPDU packets filtering mode

MIB: ELTEX-MES-ISS-LLDP-MIB

Tables used: eltMesIssLldpGlobalConfig — 1.3.6.1.4.1.35265.1.139.10.1.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.10.1.1.1.0 i {filtering(1), flooding(2)}
```

Example of setting LLDP BPDU flooding mode

CLI command:
```
lldp lldpdu flooding
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.10.1.1.1.0 i 2
```

Set chassis-id-subtype for lldp frame

MIB: fslldp.mib

Tables used: fsLldpTLV — 1.3.6.1.4.1.2076.158.2

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.158.2.1.0 i {chassiscomp(1), ifalias(2), portcomp(3),
macaddr(4), nwaddr(5), ifname(6), local(7)}
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.158.2.2.0 s {string}
```

Example of setting chassis-id-subtype with TEST1 value

CLI command:
```
lldp chassis-id-subtype local TEST1
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.158.2.1.0 i 7
snmpset -v2c -c public 192.168.1.30\
1.3.6.1.4.1.2076.158.2.2.0 s TEST1
```

Set lldp frames transmission interval

MIB: stdlldp.mib

Tables used: lldpConfiguration — 1.0.8802.1.1.2.1.1

```
snmpset -v2c -c <community> <IP address> \
1.0.8802.1.1.2.1.1.1.0 i {interval}
```

Example of setting transmission interval

CLI command:
```
lldp transmit-interval 10
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.0.8802.1.1.2.1.1.1.0 i 10
```

Set reinitialization delay

MIB: stdlldp.mib

Tables used: lldpConfiguration — 1.0.8802.1.1.2.1.1

```
snmpset -v2c -c <community> <IP address> \
1.0.8802.1.1.2.1.1.3.0 i {delay}
```

Example of setting reinitialization delay

CLI command:
```
lldp reinitialization-delay 7
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.0.8802.1.1.2.1.1.3.0 i 7
```

Set minimum delay duration between successive LLDP frames

MIB: stdlldp.mib

Tables used: lldpConfiguration — 1.0.8802.1.1.2.1.1

```
snmpset -v2c -c <community> <IP address> \
1.0.8802.1.1.2.1.1.4.0 i {value}
```

CLI command:
```
lldp tx-delay 3
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.0.8802.1.1.2.1.1.4.0 i 3
```

Set maximum LLDP frames transmission rates

MIB: stdlldp.mib

Tables used: lldpConfiguration — 1.0.8802.1.1.2.1.1

```
snmpset -v2c -c <community> <IP address> \
1.0.8802.1.1.2.1.1.5.0 i {seconds}
```

CLI command:
```
lldp notification-interval 20
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.0.8802.1.1.2.1.1.5.0 i 20
```

Allow/deny packets transmission/reception via LLDP on interface

MIB: stdlldp.mib

Tables used: lldpPortConfigEntry — 1.0.8802.1.1.2.1.1.6.1

```
snmpset -v2c -c <community> <IP address> \
1.0.8802.1.1.2.1.1.6.1.2.{ifIndex} i {txOnly(1), rxOnly(2), txAndRx(3),
disabled(4)}
```

Example of denying packets transmission/reception on gi0/12 interface

CLI command:

```
interface gigabitethernet 0/12
lldp transmit
no lldp receive
exit
```

SNMP command:

```
snmpset -v2c -c public 192.168.1.30 \
1.0.8802.1.1.2.1.1.6.1.2.12 i 4
```

Select basic optional TLV fields that will be included by the device in the transmitted LLDP packet

MIB: stdlldp.mib

Tables used: lldpPortConfigEntry — 1.0.8802.1.1.2.1.1.6.1

```
snmpset -v2c -c <community> <IP address> \
1.0.8802.1.1.2.1.1.6.1.2.{ifIndex} x {portDesc(80) | sysName(40) | sysDesc(20)
| sysCap(10)}
```

Example of enabling port-descr, sys-name, sys-descr options on gi0/12 interface

CLI command:

```
interface gigabitethernet 0/12
lldp tlv-select basic-tlv port-descr
lldp tlv-select basic-tlv sys-name
lldp tlv-select basic-tlv sys-descr
exit
```

SNMP command:

```
snmpset -v2c -c public 192.168.1.30 \
1.0.8802.1.1.2.1.1.6.1.4.12 x E0
```

Enable/disable sending traps on LLDP events

MIB: stdlldp.mib, fslldp.mib

Tables used: lldpPortConfigEntry — 1.0.8802.1.1.2.1.1.6.1,
fsLldpLocPortTable - 1.3.6.1.4.1.2076.158.2.3

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.158.2.3.1.3.{ifIndex} i {remTabChg (1), misCfg(2),
remTabChgAndMisCfg(3)}
1.0.8802.1.1.2.1.1.6.1.3.{ifIndex} i {true(1), false(2) }
```

Example of enabling sending traps when changing the remote side table for gi0/12 interface

CLI command:
```
interface gigabitethernet 0/12
lldp notification remote-table-chg
exit
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.158.2.3.1.3.12 i 1 \
1.0.8802.1.1.2.1.1.6.1.3.12 i 1
```

Setting ID Port Subtype for LLDP frame

MIB: fslldp.mib

Tables used: fsLldpLocPortTable - 1.3.6.1.4.1.2076.158.2.3

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.158.2.3.1.1.{ifIndex} i {ifalias(1), portcomp(2), macaddr(3),
nwaddr(4), ifname(5), agentcircuitid(6), local(7)}
```

Example of setting ifName for gi0/12 interface

CLI command:
```
interface gigabitethernet 0/12
lldp port-id-subtype if-name
exit
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.158.2.3.1.1.12 i 5
```

Identify the control address declared on the interface

MIB: fslldp.mib

Tables used: fsLldpLocPortTable - 1.3.6.1.4.1.2076.158.2.3

```
snmpset -v2c -c <community> <IP address> \
1.0.8802.1.1.2.1.1.7.1.1.1.4.{ip1}.{ip2}.{ip3}.{ip4} x {portlist}
```

Example of identifying 192.168.0.20 control address on gi0/1, gi0/12 interface

CLI command:
```
interface gigabitethernet 0/1
lldp tlv-select basic-tlv mgmt-addr ipv4 192.168.0.20
exit
interface gigabitethernet 0/12
lldp tlv-select basic-tlv mgmt-addr ipv4 192.168.0.20
exit
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.0.8802.1.1.2.1.1.7.1.1.1.4.192.168.0.20 x "80 10 00 00 00 00 00"
```

Select TLV fields that will be included in the transmitted LLDP packet

MIB: stdot3lldo.mib

Tables used: lldpXdot3PortConfigTable — 1.0.8802.1.1.2.1.5.4623.1.1.1

```
snmpset -v2c -c <community> <IP address> \
1.0.8802.1.1.2.1.5.4623.1.1.1.1.1.{ifIndex} x {macPhyConfigStatus(80) |
linkAggregation(20) | maxFrameSize(10)}
```

Example of selecting macphy-config and link-aggregation fields on gi0/16 interface

CLI command:
```
interface gigabitethernet 0/16
lldp tlv-select dot3tlv macphy-config
lldp tlv-select dot3tlv link-aggregation
exit
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.0.8802.1.1.2.1.5.4623.1.1.1.1.1.16 x A0
```

Include/exclude port-vlan-id field in/from transmitted LLDP packet

MIB: stdot3lldo.mib

Tables used: lldpXdot3PortConfigTable — 1.0.8802.1.1.2.1.5.4623.1.1.1

```
snmpset -v2c -c <community> <IP address> \
1.0.8802.1.1.2.1.5.32962.1.1.1.1.1.{ifindex} i {true(1), false(2)}
```

Example of including port-vlan-id field in LLDP packet on gi0/16 interface

CLI command:
```
interface gigabitethernet 0/16
lldp tlv-select dot1tlv port-vlan-id
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.0.8802.1.1.2.1.5.32962.1.1.1.1.1.16 i 1
```

Include/exclude vlan-name field in/from transmitted LLDP packet

MIB: stdot3lldo.mib

Tables used: lldpXdot3PortConfigTable — 1.0.8802.1.1.2.1.5.4623.1.1.1

```
snmpset -v2c -c <community> <IP address> \
1.0.8802.1.1.2.1.5.32962.1.1.2.1.1.{ifindex}.{vlan-id} i {true(1), false(2)}
```

Example of including vlan-name field in LLDP packet on gi0/16 interface for vlan 30

CLI command:
```
interface gigabitethernet 0/16
lldp tlv-select dot1tlv vlan-name 30
exit
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.0.8802.1.1.2.1.5.32962.1.1.2.1.1.16.30 i 1
```

Include/exclude protocol-vlan-id field in/from transmitted LLDP packet

MIB: stdot3lldo.mib

Tables used: lldpXdot1ConfigProtoVlanTable — 1.0.8802.1.1.2.1.5.32962.1.1.3

```
snmpset -v2c -c <community> <IP address> \
1.0.8802.1.1.2.1.5.32962.1.1.3.1.1.{ifindex}.0 i {true(1), false (2)}
```

Example of including protocol-vlan-id field in LLDP packet on gi0/16 interface

CLI command:
```
interface gigabitethernet 0/16
lldp tlv-select dot1tlv protocol-vlan-id all
exit
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.0.8802.1.1.2.1.5.32962.1.1.3.1.1.16.0 i 1
```

Include/exclude vid-usage-digest field in/from transmitted LLDP packet

MIB: stdot3lldo.mib

Tables used: lldpV2Xdot1ConfigVidUsageDigestTable — 1.3.111.2.802.1.1.13.1.5.32962.1.1.5

```
snmpset -v2c -c <community> <IP address> \
1.3.111.2.802.1.1.13.1.5.32962.1.1.5.1.1.{ifindex} i {true(1), false (2)}
```

Example of including vid-usage-digest field in LLDP packet on gi0/16 interface

CLI command:
```
interface gigabitethernet 0/16
lldp tlv-select dot1tlv vid-usage-digest
exit
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.111.2.802.1.1.13.1.5.32962.1.1.5.1.1.16 i 1
```

Include/exclude mgmt-vid field in/from transmitted LLDP packet

MIB: stdot3lldo.mib

Tables used: lldpV2Xdot1ConfigVidUsageDigestTable — 1.3.111.2.802.1.1.13.1.5.32962.1.1.6

```
snmpset -v2c -c <community> <IP address> \
1.3.111.2.802.1.1.13.1.5.32962.1.1.6.1.1.{ifindex} i {true(1), false (2)}
```

Example of including mgmt-vid field in LLDP packet on gi0/16 interface

CLI command:
```
interface gigabitethernet 0/16
lldp tlv-select dot1tlv mgmt-vid
exit
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.111.2.802.1.1.13.1.5.32962.1.1.6.1.1.16 i 1
```

Show LLDP information announced by ports

MIB: fslldp.mib, stdlldp.mib

Tables used: fsLldpTLV — 1.3.6.1.4.1.2076.158.2,
lldpLocalSystemData — 1.0.8802.1.1.2.1.3,
lldpXdot3LocalData — 1.0.8802.1.1.2.1.5.4623.1.2,
lldpXdot1LocalData — 1.0.8802.1.1.2.1.5.32962.1.2

```
snmpwalk -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.158.2
snmpwalk -v2c -c <community> <IP address> \
1.0.8802.1.1.2.1.3
snmpwalk -v2c -c <community> <IP address> \
1.0.8802.1.1.2.1.5.4623.1.2
snmpwalk -v2c -c <community> <IP address> \
1.0.8802.1.1.2.1.5.32962.1.2
```

Example of viewing the information

CLI command:
```
show lldp local
```

SNMP command:
```
snmpwalk -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.2076.158.2
snmpwalk -v2c –c public 192.168.1.30 \
1.0.8802.1.1.2.1.3
snmpwalk -v2c –c public 192.168.1.30 \
1.0.8802.1.1.2.1.5.4623.1.2
snmpwalk -v2c –c public 192.168.1.30 \
1.0.8802.1.1.2.1.5.32962.1.2
```

Show information about neighboring devices running LLDP

MIB: stdlldp.mib

Tables used: lldpRemoteSystemsData — 1.0.8802.1.1.2.1.4,
lldpXdot1RemoteData — 1.0.8802.1.1.2.1.5.32962.1.3
lldpXdot3RemoteData — 1.0.8802.1.1.2.1.5.4623.1.3

```
snmpwalk -v2c -c <community> <IP address> \
1.0.8802.1.1.2.1.4
snmpwalk -v2c -c <community> <IP address> \
1.0.8802.1.1.2.1.5.32962.1.3
snmpwalk -v2c -c <community> <IP address> \
1.0.8802.1.1.2.1.5.4623.1.3
```

Example of viewing the information

CLI command:
```
show lldp local
```

SNMP command:
```
snmpwalk -v2c –c public 192.168.1.30 \
1.0.8802.1.1.2.1.4
snmpwalk -v2c –c public 192.168.1.30 \
1.0.8802.1.1.2.1.5.32962.1.3
snmpwalk -v2c –c public 192.168.1.30 \
1.0.8802.1.1.2.1.5.4623.1.3
```

Show LLDP statistics

MIB: stdlldp.mib

Tables used: lldpStatistics — 1.0.8802.1.1.2.1.2

```
snmpwalk -v2c -c <community> <IP address> \
1.0.8802.1.1.2.1.2
```

Example of viewing the information

CLI command:
```
show lldp traffic
show lldp statistics
```

SNMP command:
```
snmpwalk -v2c –c public 192.168.1.30 \
1.0.8802.1.1.2.1.2
```

Configuring Rootguard for specific MSTI

MIB: ELTEX-MES-ISS-MST-MIB.mib

Tables used: eltMesIssMstMstiConfig — 1.3.6.1.4.1.35265.1.139.14.1.1.1.1.2

```
snmpwalk -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.14.1.1.1.1.2.1.1.1.{ifindex}.{msti} i {true(1) |
false(2)}
```

Example of enabling Rootguard in msti 10 on gi0/5 interface

CLI command:
```
interface gi 0/5
spanning-tree mst 10 guard root
```

SNMP command:
```
snmpwalk -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.14.1.1.1.1.2.1.1.1.5.10 i 1
```

8.3 *Configuring ARP*

Enable/disable gratuitous arp messages sending

MIB: ELTEX-MES-ISS-MST-MIB.mib

Tables used: eltMesIssArpInterfaceTable — 1.3.6.1.4.1.35265.1.139.26.1.1.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.26.1.1.1.1.1.{ifIndex} i {true(1), false(2)}
```

Example of disabling gratuitous arp messages sending on vlan 1 interface

CLI command:
```
interface vlan 1
no ip arp gratuitous periodic
exit
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.26.1.1.1.1.1.89 i 2
```

Setting interval between gratuitous arp messages sending

MIB: ELTEX-MES-ISS-MST-MIB.mib

Tables used: eltMesIssArpGlobals — 1.3.6.1.4.1.35265.1.139.26.1.2

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.26.1.2.1.0 i {interval}
```

Example of setting interval between gratuitous arp messages sending

CLI command:
```
arp gratuitous interval 200
```

SNMP command:
```
snmpset -v2c –c public 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.26.1.2.1.0 i 200
```

8.4 *Configuring loopback-detection*

8.4.1 Global loopback-detection settings

MIB: fslbd.mib

Tables used: fsLbdSystems — 1.3.6.1.4.1.29601.2.123.1

Enable/disable loopback-detection on the device

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.123.1.2.0 i {enabled(1) | disabled(2)}
```

Example of enabling loopback-detection globally

CLI command:
```
loopback-detection enable
```

SNMP command:
```
snmpset -v2c –c private 192.168.1.30 \
1.3.6.1.4.1.29601.2.123.1.2.0 i 1
```

Example of disabling loopback-detection globally

CLI command:
```
loopback-detection disable
```

SNMP command:
```
snmpset -v2c –c private 192.168.1.30 \
1.3.6.1.4.1.29601.2.123.1.2.0 i 2
```

Changing loopback-detection messages sending interval

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.123.1.3.0 i {interval}
```

Example of setting 5 seconds loopback-detection messages sending interval

CLI command:
```
loopback-detection interval 5
```

SNMP command:
```
snmpset -v2c –c private 192.168.1.30 \
 1.3.6.1.4.1.29601.2.123.1.3.0 i 5
```

Changing loopback-detection messages destination address

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.123.1.4.0 x {address}
```

Example of setting destination address for loopback-detection messages

CLI command:
```
loopback-detection destination-address ff:ff:ff:ff:ff:01
```

SNMP command:
```
snmpset -v2c –c private 192.168.1.30 \
1.3.6.1.4.1.29601.2.123.1.4.0 x "ff ff ff ff ff 01"
```

8.4.2 Configuring loopback-detection on interfaces

MIB: fslbd.mib

Tables used: fsLbdSystems — 1.3.6.1.4.1.29601.2.123.1

Enable/disable loopback-detection on interface

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.123.2.1.1.7.{ifindex} i {create and go(4)| destroy(6)}
```

Example of enabling loopback-detection on gi0/11 interface

CLI command:
```
interface gi 0/11
loopback-detection enable
```

SNMP command:
```
snmpset -v2c –c private 192.168.1.30 \
1.3.6.1.4.1.29601.2.123.2.1.1.7.11 i 4
```

Example of disabling loopback-detection on gi0/11 interface

CLI command:
```
interface gi 0/11
loopback-detection disable
```

SNMP command:
```
snmpset -v2c –c private 192.168.1.30 \
1.3.6.1.4.1.29601.2.123.2.1.1.7.11 i 6
```

8.4.3 View loopback-detection statictics

MIB: fslbd.mib

Tables used: fsLbdSystems — 1.3.6.1.4.1.29601.2.123.1

View loopback-detection statistics on interface

```
snmpwalk -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.123.2.1.1.{tx-count(3) | rx-count(4)|
state(5)|pktTxFromPort(6)}.{ifindex}
```

Example of viewing loopback-detection statistics on gi0/11 interface

CLI command:
```
interface gi 0/11
show loopback-detection on gi 0/11
```

SNMP command:
```
snmpwalk -v2c –c private 192.168.1.30 \
 1.3.6.1.4.1.29601.2.123.2.1.1.5.11
```

Clear loopback-detection statistics on interface

```
snmpwalk -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.123.2.1.1.8.{ifindex} i 1
```

Example of clearing loopback-detection statistics on gi0/11 interface

CLI command:
```
interface gi 0/11
clear loopback-detection on gi 0/11
```

SNMP command:
```
snmpwalk -v2c –c private 192.168.1.30 \
 1.3.6.1.4.1.29601.2.123.2.1.1.8.11 i 1
```

9 IPV4 ADDRESSING CONFIGURATION

View the indexl3 — vlan compliance

MIB: fscfa.mib

Tables used: ifmainEntry — 1.3.6.1.4.1.2076.27.1.4.1

```
snmpwalk -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.27.1.4.1.21
```

Example of viewing the indexl3 — vlan compliance

SNMP command:

```
snmpwalk -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.27.1.4.1.21
```

Shutdown/no shutdown interface vlan

MIB: fscfa.mib

Tables used: ifmainEntry — 1.3.6.1.4.1.2076.27.1.4.1

```
snmpset -v2c -c <community>  <IP address> \
1.3.6.1.4.1.2076.27.1.4.1.4.{index-l3} i {up(1), down(2)}
```

Example of enabling interface vlan

CLI command:

```
no shutdown
```

SNMP command:

```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.27.1.4.1.4.74 i 1
```

Create interface vlan

MIB: fscfa.mib, IF-MIB

Tables used: ifmainEntry — 1.3.6.1.4.1.2076.27.1.4.1
ifXEntry — 1.3.6.1.2.1.31.1.1.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.27.1.4.1.8.{index-l3} i {Active(1), CreatAndWaite(5),
Destroy(6)} \
1.3.6.1.2.1.31.1.1.1.18.{index-l3} s vlan{vid} \
1.3.6.1.4.1.2076.27.1.4.1.2.{index-l3} i 136 \
1.3.6.1.4.1.2076.27.1.4.1.8.{index-l3} i {Active(1), CreatAndWaite(5),
Destroy(6)}
```

Example of creating L3 Vlan 10

CLI command:
```
interface vlan 10
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.27.1.4.1.8.74 i 5 \
1.3.6.1.2.1.31.1.1.1.18.74 s vlan10 \
1.3.6.1.4.1.2076.27.1.4.1.2.74 i 136 \
1.3.6.1.4.1.2076.27.1.4.1.8.74 i 1
```

Create IP address on interface vlan

MIB: fscfa.mib

Tables used: ifipentry — 1.3.6.1.4.1.2076.27.1.5.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.27.1.5.1.2.{index-l3} a {ip address (DEC)} \
1.3.6.1.4.1.2076.27.1.5.1.3.{index-l3} a {netmask}
```

Example of setting 192.168.10.30/24 address on vlan 30

CLI command:
```
interface vlan 30
ip address 192.168.10.30 255.255.255.0
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.27.1.5.1.2.74 a 192.168.10.30 \
1.3.6.1.4.1.2076.27.1.5.1.3.74 a 255.255.255.0
```

View IP address on interface vlan

MIB: fscfa.mib

Tables used: ifipentry — 1.3.6.1.4.1.2076.27.1.5.1

```
snmpwalk -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.27.1.5.1.2
```

Example of setting 192.168.10.30/24 address on vlan 30

CLI command:
```
show ip interfaces
```

SNMP command:
```
snmpwalk -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.27.1.5.1.2
```

10 IPV6 ADDRESSING CONFIGURATION

Enable/disable IPv6 addressing on interface vlan

MIB: fsipv6.mib

Tables used: fsipv6IF — 1.3.6.1.4.1.2076.28.1.2.1.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.28.1.2.1.1.6.{index-l3} i {enable(1), disable(2)}
```

Example of enabling IPv6 addressing on vlan interface

CLI command:
```
interface vlan 2
ipv6 enable
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.28.1.2.1.1.6.74 i 1
```

Create IPv6 address on interface vlan

MIB: fsipv6.mib

Tables used: fsipv6Addr — 1.3.6.1.4.1.2076.28.1.2.4.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.28.1.2.4.1.4.{index-l3}.{ each byte is decimal with
separator}.{prefix} i {Active(1), Create and wait(5), Destroy(6)} \
1.3.6.1.4.1.2076.28.1.2.4.1.5.{index-l3}.{ each byte is decimal with
separator}.{prefix} i {global unicast(1), anycast(2), linklocal(3)} \
1.3.6.1.4.1.2076.28.1.2.4.1.4.{index-l3}.{ each byte is decimal with
separator}.{prefix} i {Active(1), Create and wait(5), Destroy(6)}
```

Example of setting address: 2001:db08::100/64 interface vlan

CLI command:
```
ipv6 address 2001:db08::100/64 unicast
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.28.1.2.4.1.4.74.32.1.219.8.0.0.0.0.0.0.0.0.0.0.1.0.64 i 5 \
1.3.6.1.4.1.2076.28.1.2.4.1.5.74.32.1.219.8.0.0.0.0.0.0.0.0.0.0.1.0.64 i 1 \
1.3.6.1.4.1.2076.28.1.2.4.1.4.74.32.1.219.8.0.0.0.0.0.0.0.0.0.0.1.0.64 i 1 \
```

11 MULTICAST ADDRESSING

11.1 *Multicast addressing rules*

Configuring multicast-tv vlan (MVR)

MIB: ELTEX-MES-ISS-VLAN-MIB.mib

Tables used: eltMesIssVlanPortTable — 1.3.6.1.4.1.35265.1.139.3.1.2.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.3.1.2.1.1.6.{ifIndex} u {vlan-id} \
1.3.6.1.4.1.35265.1.139.3.1.2.1.1.7.{ifindex} i {tagged(1), untagged(2)}
```

Example of configuring multicast-tv vlan 622 on GigabitEthernet 0/2 interface into tagged mode

CLI command:
```
interface GigabitEthernet 0/2
switchport multicast-tv vlan 622 tagged
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.3.1.2.1.1.6.2 u 622 \
1.3.6.1.4.1.35265.1.139.3.1.2.1.1.7.2 i 1
```

Configuring multicast filtering mode

MIB: fssnp.mib

Tables used: fsSnoopInstanceConfigTable — 1.3.6.1.4.1.2076.105.2.2

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.2.2.1.16.0.1 i {enabled(1), disabled(2)}
```

Example of enabling multicast filtering mode

CLI command:
```
ip igmp snooping multicast-vlan enable
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.105.2.2.1.16.0.1 i 1
```

Configuring multicast traffic processing mode

MIB: fssnp.mib

Tables used: fsSnoopInstanceGlobalTable — 1.3.6.1.4.1.2076.105.2.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.2.1.1.2.0 i {ipbased(1), macbased(2)}
```

Example of configuring multicast traffic processing mode by IP address

CLI command:
```
snooping multicast-forwarding-mode ip
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.105.2.1.1.2.0 i 1
```

Configuring leave processing configuration level (configuration based on VLAN/port)

MIB: fssnp.mib

Tables used: fsSnoopInstanceGlobalTable — 1.3.6.1.4.1.2076.105.2.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.2.1.1.4.0 i {vlan-based(1), port-based(2)}
```

Example of configuration processing based on port

CLI command:
```
snooping leave-process config-level port
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.105.2.1.1.4.0 i 2
```

Configuring ports on which received reports are processed

MIB: fssnp.mib

Tables used: fsSnoopInstanceGlobalTable — 1.3.6.1.4.1.2076.105.2.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.2.1.1.6.0 i {non-router-ports(1), all-ports(2)}
```

Example of configuring received reports processing on all ports

CLI command:
```
snooping report-process config-level all-Ports
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.105.2.1.1.6.0 i 2
```

11.2 *IGMP Snooping*

Enable/disable IGMP/MLD Snooping module operation

MIB: fssnp.mib

Tables used: fsSnoopInstanceGlobalTable — 1.3.6.1.4.1.2076.105.2.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.2.1.1.3.0 i {start(1), shutdown(2)}
```

Example of disabling IGMP/MLD Snooping module

CLI command:
```
shutdown snooping
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.105.2.1.1.3.0 i 2
```

Allow/deny IGMP Snooping

MIB: fssnp.mib

Tables used: fsSnoopInstanceConfigTable — 1.3.6.1.4.1.2076.105.2.2

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.2.2.1.3.0.1 i {enabled(1), disabled(2)}
```

Example of allowing IGMP Snooping

CLI command:
```
ip igmp snooping
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.105.2.2.1.3.0.1 i 1
```

Allow/deny IGMP Snooping for specific VLAN interface

MIB: fssnp.mib

Tables used: fsSnoopVlanFilterTable — 1.3.6.1.4.1.2076.105.3.4

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.3.4.1.12.0.{vlan_id}.1 i {notInService(2),
createAndWait(5), destroy(6)}
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.3.4.1.4.0.{vlan_id}.1 i {enabled(1), disabled(2)}
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.3.4.1.12.0.{vlan_id}.1 i {active(1)}
```

Example of allowing IGMP Snooping for vlan 3 interface

CLI command:
```
ip igmp snooping vlan 3
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.105.3.4.1.12.0.3.1 i 5
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.105.3.4.1.4.0.3.1 i 1
 snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.105.3.4.1.12.0.3.1 i 1
```

Example of denying IGMP Snooping for vlan 3 interface

CLI command:
```
no ip igmp snooping vlan 3
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.105.3.4.1.12.0.3.1 i 2
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.105.3.4.1.4.0.3.1 i 2
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.105.3.4.1.12.0.3.1 i 1
```

Define the port to which a multicast router is connected for a given VLAN

MIB: fssnp.mib

Tables used: fsSnoopVlanFilterTable — 1.3.6.1.4.1.2076.105.3.4

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.3.4.1.12.0.{vlan_id}.1 i {notInService(2),
createAndWait(5), destroy(6)}
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.3.4.1.11.0.{vlan-id}.1 x {portlist}
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.3.4.1.12.0.{vlan_id}.1 i {active(1)}
```

Example of defining gi0/1, gi0/7 as ports to which a multicast router is connected for vlan 3 interface

CLI command:
```
vlan 3
ip igmp snooping mrouter gigabitethernet 0/1,0/7
exit
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.105.3.4.1.12.0.3.1 i 2
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.105.3.4.1.11.0.3.1 x 0x8200
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.105.3.4.1.12.0.3.1 i 1
```

Enable/disable IGMP Snooping Immediate-Leave process on VLAN interface

MIB: fssnp.mib

Tables used: fsSnoopVlanFilterTable — 1.3.6.1.4.1.2076.105.3.4

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.3.4.1.12.0.{vlan_id}.1 i {notInService(2)}
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.3.4.1.7.0.{vlan-id}.1 i {enabled(1), disabled(2)}
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.3.4.1.12.0.{vlan-id}.1 i {active(1)}
```

Example of enabling IGMP Snooping Immediate-Leave process on vlan 3 interface

CLI command:
```
vlan 3
ip igmp snooping immediate-leave
exit
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.105.3.4.1.12.0.3.1 i 2
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.105.3.4.1.7.0.3.1 i 1
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.105.3.4.1.12.0.3.1 i 1
```

Enable/disable source address substitution by switch for a specified IP address in IGMP-report packets in the given VLAN

MIB: ELTEX-MES-ISS-SNOOP-MIB.mib

Tables used: eltMesIssSnoopVlanFilterTable — 1.3.6.1.4.1.35265.1.139.8.1.2.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.8.1.2.1.1.3.0.{vlan-id}.1 x {InetAddress}
```

Example of enabling source address substitution by switch for 192.168.0.1 address in IGMP-report packets in vlan 3

CLI command:
```
vlan 3
ip igmp snooping replace source-ip 192.168.10.1
exit
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.8.1.2.1.1.3.0.7.1 x "0xC0 A8 0A 01"
```

Setting time interval in seconds after which the device sends group-query to mrouter

MIB: fssnp.mib

Tables used: fsSnoopInstanceConfigTable — 1.3.6.1.4.1.2076.105.2.2

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.2.2.1.9.0.1 i {2-5}
```

Example of setting 5 seconds interval

CLI command:
```
vlan 3
ip igmp snooping group-query-interval 5
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.105.2.2.1.9.0.1 i 5
```

Setting time interval after which mrouter is removed if it does not receive IGMP reports

MIB: fssnp.mib

Tables used: fsSnoopInstanceConfigTable — 1.3.6.1.4.1.2076.105.2.2

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.2.2.1.6.0.1 i {130-1225}
```

Example of setting 200 seconds interval

CLI command:
```
vlan 3
ip igmp snooping port-purge-interval 200
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.105.2.2.1.6.0.1 i 200
```

Enable/disable sending query to all ports

MIB: fssnp.mib

Tables used: fsSnoopInstanceConfigTable — 1.3.6.1.4.1.2076.105.2.2

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.2.2.1.18.0.1 i {allports(1), nonrtrports(2)}
```

Example of sending query to all ports

CLI command:
```
vlan 3
ip igmp snooping query-forward all-ports
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.105.2.2.1.18.0.1 i 1
```

Setting time interval for which IGMPv2 reports for the same group will not be redirected

MIB: fssnp.mib

Tables used: fsSnoopInstanceConfigTable — 1.3.6.1.4.1.2076.105.2.2

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.2.2.1.7.0.1 i {1-25}
```

Example of setting 10 seconds interval

CLI command:
```
vlan 3
ip igmp snooping report-suppression-interval 10
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.105.2.2.1.7.0.1 i 10
```

Setting maximum number of queries related to the group sent to mrouter

MIB: fssnp.mib

Tables used: fsSnoopInstanceConfigTable — 1.3.6.1.4.1.2076.105.2.2

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.2.2.1.8.0.1 i {1-5}
```

Example of setting maximum number of query to 5 packets

CLI command:
```
vlan 3
ip igmp snooping retry-count 5
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.105.2.2.1.8.0.1 i 5
```

Allow/deny query packets transmission on the device

MIB: fssnp.mib

Tables used: fsSnoopInstanceConfigTable — 1.3.6.1.4.1.2076.105.2.2

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.2.2.1.13.0.1 i {enabled(1), disabled(2)}
```

Example of allowing query packets transmission on the device

CLI command:
```
vlan 3
ip igmp snooping send-query enable
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.105.2.2.1.13.0.1 i 1
```

Allow/deny IGMP filtering functions on interfaces

MIB: fssnp.mib

Tables used: fsSnoopInstanceConfigTable — 1.3.6.1.4.1.2076.105.2.2

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.2.2.1.15.0.1 i {enabled(1), disabled(2)}
```

Example of allowing IGMP filtering functions on interfaces

CLI command:
```
vlan 3
ip igmp snooping filter
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.105.2.2.1.15.0.1 i 1
```

Setting 802.1p value for IGMP packets to be used by the switch on the VLAN interface

MIB: ELTEX-MES-ISS-SNOOP-MIB.mib

Tables used: eltMesIssSnoopVlanFilterTable

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.8.1.2.1.1.1.0.{vlan-id}.1 i {cos(0-7), disabled(255)}
```

Example of setting 802.1p value to 5 on vlan 3 interface

CLI command:
```
vlan 3
ip igmp snooping cos 5
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.8.1.2.1.1.1.0.3.1 i 5
```

Setting IGMP version on VLAN interface

MIB: fssnp.mib

Tables used: fsSnoopVlanFilterTable — 1.3.6.1.4.1.2076.105.3.4

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.3.4.1.6.0.{vlan-id}.1 i {v1(1), v2(2), v3(3)}
```

Example of setting v2 version on vlan 3 interface

CLI command:
```
vlan 3
ip igmp snooping version v2
exit
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.105.3.4.1.6.0.3.1 i 2
```

Setting maximum query response time

MIB: fssnp.mib

Tables used: fsSnoopVlanFilterTable — 1.3.6.1.4.1.2076.105.3.8

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.3.8.1.8.0.2.1 {vlan-id}.1 i {0..65025)
```

Example of setting 4 seconds maximum request response time on the vlan 3 interface

CLI command:
```
vlan 3
ip igmp snooping max-response-code 40
exit
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.105.3.8.1.8.0.3.1 i 40
```

Setting IGMP version of the router port for VLAN

MIB: fssnp.mib

Tables used: fsSnoopRtrPortTable — 1.3.6.1.4.1.2076.105.5.3

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.5.3.1.5.{ifIndex}.{vlan-id}.1 i {v1(1), v2(2), v3(3)}
```

Example of setting v2 version for gi0/2 port on vlan 3 interface

CLI command:
```
vlan 3
ip igmp snooping mrouter-port gigabitethernet 0/2 version v2
exit
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.105.5.3.1.5.2.3.1 i 2
```

Enable/disable support for issuing igmp-query by the switch in VLAN

MIB: fssnp.mib

Tables used: fsSnoopVlanFilterEntry — 1.3.6.1.4.1.2076.105.3.4.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.3.4.1.12.0.{vlan-id}.1 i {notInService(2)}
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.3.4.1.9.0.{vlan-id}.1 i {enabled(1), disabled(2)}
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.3.4.1.12.0.{vlan-id}.1 i {active(1)
```

Example of enabling support for issuing igmp-query by the switch in vlan 3

CLI command:
```
vlan 3
ip igmp snooping querier
exit
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.105.3.4.1.12.0.3.1 i 2
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.105.3.4.1.9.0.3.1 i 1
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.105.3.4.1.12.0.3.1 i 1
```

Setting timeout by which the system sends basic queries to all multicast group members to check their activity

MIB: fssnp.mib

Tables used: fsSnoopVlanFilterEntry — 1.3.6.1.4.1.2076.105.3.4.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.3.4.1.12.0.{vlan-id}.1 i {notInService(2)}
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.3.4.1.10.0.{vlan-id}.1 i (15-150)
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.3.4.1.12.0.{vlan-id}.1 i {active(1)
```

Example of setting 100 seconds timeout

CLI command:
```
vlan 3
ip igmp snooping query-interval 100
exit
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.105.3.4.1.12.0.3.1 i 2
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.105.3.4.1.10.0.3.1 i 100
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.105.3.4.1.12.0.3.1 i 1
```

Enable/disable unregistered traffic filtering mode in VLAN

MIB: ELTEX-MES-ISS-SNOOP-MIB.mib

Tables used: eltMesIssSnoopVlanFilterTable

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.8.1.2.1.1.2.0.{vlan_id}.1 i {enable (1), disable (2)}
```

Example of enabling unregistered traffic filtering mode in vlan 3

CLI command:
```
vlan 3
ip igmp snooping sparse-mode enable
exit
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.8.1.2.1.1.2.0.3.1 i 1
```

Create/delete static entry in multicast table

MIB: fssnp.mib

Tables used: fsSnoopVlanStaticMcastGrpTable — 1.3.6.1.4.1.2076.105.3.9

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.3.9.1.7.0.{vlan_id}.1.4.0.0.0.0.4.{IP-address} i
{createAndWait(5), destroy(6)}
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.3.9.1.6.0.{vlan_id}.1.4.0.0.0.0.4. {IP-address} x
{portlist}
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.3.9.1.7.0.{vlan_id}.1.4.0.0.0.0.4.{IP-address} i
{active(1)}
```

Example of creating static entry for 233.3.2.1 group in vlan 3

CLI command:
```
vlan 3
ip igmp snooping static-group 233.3.2.1 ports gi 0/1
exit
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.105.3.9.1.7.0.3.1.4.0.0.0.0.4.233.3.2.1 i 5
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.105.3.9.1.6.0.3.1.4.0.0.0.0.4.233.3.2.1 x 80
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.105.3.9.1.7.0.3.1.4.0.0.0.0.4.233.3.2.1 i
```

Example of deleting static entry for 233.3.2.1 group in vlan 3

CLI command:
```
vlan 3
no ip igmp snooping static-group 233.3.2.1 ports gi 0/1
exit
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.105.3.9.1.7.0.3.1.4.0.0.0.0.4.233.3.2.1 i 6
```

Configuring multicast-tv vlan (MVR)

MIB: ELTEX-MES-ISS-SNOOP-MIB.mib

Tables used: eltMesIssVlanPortTable — 1.3.6.1.4.1.35265.1.139.3.1.2.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.3.1.2.1.1.6.{ifIndex} u {vlan-id} \
1.3.6.1.4.1.35265.1.139.3.1.2.1.1.7.{ifindex} i {tagged(1), untagged(2)}
```

Example of configuring multicast-tv vlan 622 on GigabitEthernet 0/2 interface in tagged mode

CLI command:
```
interface GigabitEthernet 0/2
switchport multicast-tv vlan 622 tagged
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.3.1.2.1.1.6.2 u 622 \
1.3.6.1.4.1.35265.1.139.3.1.2.1.1.7.2 i 1
```

Allow IGMP Snooping configuring on interface

MIB: fssnp.mib

Tables used: fsSnoopPortTable — 1.3.6.1.4.1.2076.105.5.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.5.1.1.11.{ifIndex}.1 i {createAndGo(4)}
```

Example of configuring gi0/2 interface

```
CLI command is missing, executed in any first interface configuring
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.2076.105.5.1.1.11.2.1 i 4
```

Delete all IGMP snooping settings on interface

MIB: fssnp.mib

Tables used: fsSnoopPortTable — 1.3.6.1.4.1.2076.105.5.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.5.1.1.11.{ifindex}.1 i {destroy(6)}
```

Example of deleting settings on gi0/2 interface

```
CLI command is missing, executed in any first interface configuring

SNMP command:
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.2076.105.5.1.1.11.2.1 i 6
```

Limiting the number of groups on the interface

MIB: fssnp.mib

Tables used: fsSnoopPortTable — 1.3.6.1.4.1.2076.105.5.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.5.1.1.5.2.1 i {none(0), groups(1), channels(2)} \
1.3.6.1.4.1.2076.105.5.1.1.6.2.1 u {limit}
```

Example of limiting 13 groups on gi0/2 interface

```
CLI command:
interface gigabitethernet 0/2
ip igmp snooping limit groups 13
exit

SNMP command:
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.2076.105.5.1.1.5.2.1 i 1 \
1.3.6.1.4.1.2076.105.5.1.1.6.2.1 u 13
```

Configuring filtering by filter-id on the interface

MIB: fssnp.mib

Tables used: fsSnoopPortTable — 1.3.6.1.4.1.2076.105.5.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.5.1.1.7.{ifIndex}.1 u {filter-id}
```

Example of configuring filtering with 345 index on gi0/2 interface

```
CLI command:
interface gigabitethernet 0/2
ip igmp snooping filter-profileId 345
exit

SNMP command:
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.2076.105.5.1.1.7.2.1 u 345
```

Configuring leave mode on the interface

MIB: fssnp.mib

Tables used: fsSnoopPortTable — 1.3.6.1.4.1.2076.105.5.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.5.1.1.3.{ifIndex}.1 i {explicithosttrack(1), fastleave(2),
normalleave(3)}
```

Example of configuring fast-leave mode on gi0/2 interface

CLI command:
```
interface gigabitethernet 0/2
ip igmp snooping leavemode fastLeave
exit
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.2076.105.5.1.1.3.2.1 i 2
```

Viewing information about multicast routers in a specified VLAN group

MIB: fssnp.mib

Tables used: fsSnoopVlanRouterTable — 1.3.6.1.4.1.2076.105.3.3

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.3.3.1.5.0.{vlan-id}.1
```

Example of viewing information about multicast routers in vlan 3

CLI command:
```
interface gigabitethernet 0/2
ip igmp snooping leavemode fastLeave
exit
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.2076.105.3.3.1.5.0.3.1
```

Viewing information about multicast groups participating in multicast

MIB: fssnmp.mib

Tables used: fsSnoopVlanMcastGroupTable — 1.3.6.1.4.1.2076.105.3.5

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.3.5.1.7.0.{vlan-id}.1
```

Example of viewing information about multicast groups in vlan 3

CLI command:
```
show ip igmp snooping groups vlan 3
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.2076.105.3.5.1.7.0.3.1
```

Enable/disable query discarding on the interface

MIB: fssnmp.mib

Tables used: fsSnoopVlanFilterXEntry — 1.3.6.1.4.1.2076.105.3.8.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.3.8.1.10.0.{vlan}.1 x {portlist}
```

Example of enabling disable query discarding on gi0/2, gi0/6 and po 1 for vlan 2 interface

CLI command:
```
vlan 2
ip igmp snooping blocked-router gi 0/2,0/16 po 1
exit
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.2076.105.3.8.1.10.0.2.1 x 0x500100000000000080
```

11.3 *MLD Snooping — multicast control protocol in IPv6*

Enable/disable MLD Snooping

MIB: fssnp.mib

Tables used: fsSnoopInstanceConfigTable — 1.3.6.1.4.1.2076.105.2.2

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.2.2.1.3.0.2 i {enabled(1), disabled(2)}
```

Example of enabling MLD Snooping

CLI command:
```
ipv6 mld snooping
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.2076.105.2.2.1.3.0.2 i 1
```

Enable/disable MLD Snooping on the Switch for the given VLAN interface

MIB: fssnp.mib

Tables used: fsSnoopVlanFilterTable — 1.3.6.1.4.1.2076.105.3.4

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.3.4.1.12.0.{vlan_id}.2 i {notInService(2),
createAndWait(5), destroy(6)}
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.3.4.1.4.0.{vlan_id}.2 i {enabled(1), disabled(2)}
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.3.4.1.12.0.{vlan_id}.2 i {active(1)}
```

Example of enabling MLD Snooping for vlan 3 interface

CLI command:
```
vlan 3
ipv6 mld snooping
exit
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.2076.105.3.4.1.12.0.3.2 i 5
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.2076.105.3.4.1.4.0.3.2 i 1
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.2076.105.3.4.1.12.0.3.2 i 1
```

Example of disabling MLD Snooping for vlan 3 interface

CLI command:
```
vlan 3
no ipv6 mld snooping
exit
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.2076.105.3.4.1.12.0.3.2 i 2
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.2076.105.3.4.1.4.0.3.2 i 2
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.2076.105.3.4.1.12.0.3.2 i 1
```

Example of disabling and deleting all settings for IGMP Snooping for vlan 3 interface

CLI command:
```
vlan 3
no ipv6 mld snooping
#TODO
exit
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.2076.105.3.4.1.12.0.3.2 i 6
```

Setting timeout by which the system sends basic query requests

MIB: fssnp.mib

Tables used: fsSnoopInstanceConfigTable — 1.3.6.1.4.1.2076.105.2.2

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.2.2.1.9.0.2 i {2-5}
```

Example of setting 5 seconds interval

CLI command:
```
vlan 3
ipv6 mld snooping group-query-interval 5
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.2076.105.2.2.1.9.0.2 i 5
```

Setting port clearing timeout MLD snooping router, after which the port is dropped if no controlpackets are received by the MLD router

MIB: fssnp.mib

Tables used: fsSnoopInstanceConfigTable — 1.3.6.1.4.1.2076.105.2.2

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.2.2.1.5.0.2 i {60-600}
```

Example of setting 150 seconds port clearing timeout interval

CLI command:
```
ipv6 mld snooping mrouter-time-out 150
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.2076.105.2.2.1.5.0.2 i 150
```

Setting MLD snooping clearing port interval after which the port is removed if no MLD reports are received

MIB: fssnp.mib

Tables used: fsSnoopInstanceConfigTable — 1.3.6.1.4.1.2076.105.2.2

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.2.2.1.6.0.2 i {130-225}
```

Example of setting 200 seconds port clearing interval

CLI command:
```
ipv6 mld snooping port-purge-interval 200
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.2076.105.2.2.1.6.0.2 i 200
```

Enable/disable proxy-report on the device

MIB: fssnp.mib

Tables used: fsSnoopInstanceConfigTable — 1.3.6.1.4.1.2076.105.2.2

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.2.2.1.4.0.2 i {enabled(1), disabled(2)}
```

Example of setting 200 seconds interval

CLI command:
```
ipv6 mld snooping proxy-reporting
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.2076.105.2.2.1.4.0.2 i 1
```

Enable/disable sending query to all ports

MIB: fssnp.mib

Tables used: fsSnoopInstanceConfigTable — 1.3.6.1.4.1.2076.105.2.2

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.2.2.1.18.0.2 i {all-ports(1), non-rtr-ports(2)}
```

Example of enabling sending query to all ports

CLI command:
```
ipv6 mld snooping query-forward all-ports
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.2076.105.2.2.1.18.0.2 i 1
```

Setting MLDvSnooping-reports transmission prohibition time interval during which MLDv1 report messages will not be forwarded to router ports for the same group

MIB: fssnp.mib

Tables used: fsSnoopInstanceConfigTable — 1.3.6.1.4.1.2076.105.2.2

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.2.2.1.7.0.2 i {1-25}
```

Example of setting 10 seconds interval

CLI command:
```
ipv6 mld snooping report-suppression-interval 10
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.2076.105.2.2.1.7.0.2 i 10
```

Setting maximum number of multicast requests sent per port when an MLDv1 message is received

MIB: fssnp.mib

Tables used: fsSnoopInstanceConfigTable — 1.3.6.1.4.1.2076.105.2.2

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.2.2.1.8.0.2 i {1-5}
```

Example of setting maximum number of requests to 5 packets

CLI command:
```
ipv6 mld snooping retry-count 5
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.2076.105.2.2.1.8.0.2 i 5
```

Enable MLD query transmission on topology change

MIB: fssnp.mib

Tables used: fsSnoopInstanceConfigTable — 1.3.6.1.4.1.2076.105.2.2

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.2.2.1.13.0.2 i {enabled(1), disabled(2)}
```

Example of enabling query packets transmission on the device

CLI command:
```
ipv6 mld snooping send-query enable
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.2076.105.2.2.1.13.0.2 i 1
```

Binding an MLD Snooping Router Port to a VLAN

MIB: fssnp.mib

Tables used: fsSnoopVlanFilterTable — 1.3.6.1.4.1.2076.105.3.4

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.3.4.1.12.0.{vlan-id}.2 i {notInService(2)}
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.3.4.1.11.0.{vlan-id}.2 x {portlist}
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.3.4.1.12.0.{vlan-id}.2 i {active(1)}
```

Example of defining gi0/1, gi0/7 interfaces as ports to which the multicast router is connected for the vlan 3 interface

CLI command:
```
vlan 3
ipv6 mld snooping mrouter gigabitethernet 0/1,0/7
exit
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.2076.105.3.4.1.12.0.3.2 i 2
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.2076.105.3.4.1.11.0.3.2 x 0x8200
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.2076.105.3.4.1.12.0.3.2 i 1
```

Setting MLD Snooping version in VLAN

MIB: fssnp.mib

Tables used: fsSnoopVlanFilterTable — 1.3.6.1.4.1.2076.105.3.4

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.3.4.1.6.0.{vlan-id}.2 i {v1(1), v2(2), v3(3)}
```

Example of setting v1 version on vlan 3 interface

CLI command:
```
vlan 3
ip igmp snooping version v1
exit
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.2076.105.3.4.1.6.0.3.2 i 1
```

11.4 *Multicast traffic limiting functions*

Creating multicast profile

MIB: fssnp.mib

Tables used: fsTacMcastProfileTable — 1.3.6.1.4.1.29601.2.8.2.1, fsTacMcastPrfFilterTable — 1.3.6.1.4.1.29601.2.8.2.2

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.8.2.1.1.5.{profile-id}.1 i {createAndWait(5)}
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.8.2.1.1.3 i {permit(1), deny (2)}
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.8.2.2.1.6.{profile-id}.1.4.{start-ip1}.{start-ip2}.{start-
ip3}.{start-ip4}.4.{end-ip1}.{end-ip2}.{end-ip3}.{end-ip4}.4.0.0.0.0.4.0.0.0.0
i {active(1)}
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.8.2.1.1.5.{profile-id}.1 i {activate{1}}
```

Example of configuring a profile with 1234 index

CLI command:

```
ip mcast profile 1234
permit
range 233.3.2.1 233.3.2.2
profile active
exit
```

SNMP command:

```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.29601.2.8.2.1.1.5.1234.1 i 5
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.29601.2.8.2.1.1.3.1234.1 i 1
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.29601.2.8.2.2.1.6.1234.1.4.233.3.2.1.4.233.3.2.2.4.0.0.0.0.4.0.0.0.
0 i 4
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.29601.2.8.2.1.1.5.1234.1 i 1
```

Deleting multicast profile

MIB: fstac.mib

Tables used: fsTacMcastProfileTable — 1.3.6.1.4.1.29601.2.8.2.1, fsTacMcastPrfFilterTable — 1.3.6.1.4.1.29601.2.8.2.2

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.8.2.1.1.5.{profile-id}.1 i {destroy(6)}
```

Example of deleting a profile with 1234 index

CLI command:

```
no ip mcast profile 1234
```

SNMP command:

```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.29601.2.8.2.1.1.5.1234.1 i 6
```

Binding multicast profile to vlan

MIB: fssnp.mib

Tables used: fsSnoopVlanFilterXTable — 1.3.6.1.4.1.2076.105.3.8, fsSnoopVlanFilterTable — 1.3.6.1.4.1.2076.105.3.4

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.3.4.1.12.0.{vlan-id}.1 i 2
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.3.8.1.6.0.{vlan-id}.1 u {profile_index}
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.3.4.1.12.0.{vlan-id}.1 i 1
```

Example of binding a profile with 1234 index to vlan 2

CLI command:
```
vlan 7
ip igmp snooping multicast-vlan profile 1234
exit
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.2076.105.3.4.1.12.0.7.1 i 2
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.2076.105.3.8.1.6.0.7.1 u 1234
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.2076.105.3.4.1.12.0.7.1 i 1
```

11.5 *IGMP join authorization via RADIUS server*

Enabling IGMP authorization globally

MIB: ELTEX-MES-ISS-SNOOP-MIB.mib

Tables used: eltMesIssSnoopConfigs — 1.3.6.1.4.1.35265.1.139.8.1.4

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.8.1.4.1.0 i {true(1) | false(2)}
```

Example of enabling IGMP authorization globally

CLI command:
```
snooping authentication
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.8.1.4.1.0 i 1
```

Changing cache table timeout

MIB: ELTEX-MES-ISS-SNOOP-MIB.mib

Tables used: eltMesIssSnoopConfigs — 1.3.6.1.4.1.35265.1.139.8.1.4

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.8.1.4.2.0 i {timeout}
```

Example of setting 1000 seconds timeout for cache table

CLI command:
```
snooping authentication cache-time 1000
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.8.1.4.2.0 i 1000
```

Enabling IGMP authentication on the interface

MIB: ELTEX-MES-ISS-SNOOP-MIB.mib

Tables used: eltMesIssSnoopAuthPortEntry — 1.3.6.1.4.1.35265.1.139.8.1.3.2.1, fsSnoopPortEntry — 1.3.6.1.4.1.2076.105.5.1.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.105.5.1.1.11.{ifindex}.1 i {create and go(4) | destroy(6)} \
1.3.6.1.4.1.35265.1.139.8.1.3.2.1.3.{ifindex}.1 i {none(1) | radius(2)}
```

Example of enabling IGMP authentication on gi0/2 interface

CLI command:
```
interface gi0/2
ip igmp snooping authentication radius
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.2076.105.5.1.1.11.2.1 i 4 \
1.3.6.1.4.1.35265.1.139.8.1.3.2.1.3.2.1 i 2
```

Enabling the required parameter on the interface

MIB: ELTEX-MES-ISS-SNOOP-MIB.mib

Tables used: eltMesIssSnoopAuthPortEntry — 1.3.6.1.4.1.35265.1.139.8.1.3.2.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.8.1.3.2.1.4.{ifindex}.1 i {true(1)| false(2)}
```

Example of enabling the required parameter on gi0/2 interface

CLI command:
```
interface gi0/2
ip igmp snooping authentication radius required
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.8.1.3.2.1.4.2.1 i 1
```

Enabling the forward-first parameter on the interface

MIB: ELTEX-MES-ISS-SNOOP-MIB.mib

Tables used: eltMesIssSnoopAuthPortEntry — 1.3.6.1.4.1.35265.1.139.8.1.3.2.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.8.1.3.2.1.5.{ifindex}.1 i {true(1)| false(2)}
```

Example of enabling the forward-first parameter on gi0/2 interface

CLI command:
```
interface gi0/2
ip igmp snooping authentication forward-first
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.8.1.3.2.1.5.2.1 i 1
```

Binding exception profiles to the interface

MIB: ELTEX-MES-ISS-SNOOP-MIB.mib

Tables used: eltMesIssSnoopAuthPortEntry — 1.3.6.1.4.1.35265.1.139.8.1.3.2.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.8.1.3.2.1.6.{ifindex}.1 i {profile-id}
```

Example of binding mcast-profile 1 to gi0/2 interface

CLI command:
```
interface gi0/2
ip igmp snooping authentication exception mcast profile 1
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.8.1.3.2.1.6.2.1 u 1
```

Profiles are created in the "Functions for limiting multicast traffic" item.

Viewing cache table

MIB: ELTEX-MES-ISS-SNOOP-MIB.mib

Tables used: eltMesIssSnoopAuthCacheTable — 1.3.6.1.4.1.35265.1.139.8.1.3.3

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.8.1.3.3
```

Example of viewing IGMP authentication cahce table

CLI command:
```
show ip igmp snooping authentication cache
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.8.1.3.3
```

12 CONTROL FUNCTIONS

12.1 *AAA framework*

Set login authentication method for console, Telnet, SSH

MIB: fsiss.mib

Tables used: issSystem — 1.3.6.1.4.1.2076.81.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.81.1.31.0 i {local(1), remoteRadius(2), remoteTacacs(3),
radiusFallbackToLocal(4), tacacsFallbackToLocal(5)}
```

Example of setting authentication method using TACACS+ server

CLI command:
```
aaa authentication login tacacs
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.2076.81.1.31.0 i 3
```

Set authentication method for privilege escalation for console, Telnet, SSH

MIB: ELTEX-MES-ISS-SNOOP-MIB.mib

Tables used: eltMesIssAaaGlobalConfig — 1.3.6.1.4.1.35265.1.139.7.1.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.7.1.1.1.0 i {local(1), remoteRadius(2),
remoteTacacs(3), radiusFallbackToLocal(4), tacacsFallbackToLocal(5)}
```

Example of setting authentication method for privilege escalation using TACACS+ server or local password if TACACS+ is unavailable

CLI command:
```
aaa authentication enable tacacs local
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.7.1.1.1.0 i 5
```

Set login authentication method at line level for console, Telnet, SSH

MIB: ELTEX-MES-ISS-MIB.mib

Tables used: eltMesIssAaaLineLoginAuthenticationTable — 1.3.6.1.4.1.35265.1.139.7.1.2.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.7.1.2.1.1.2.{console(1), telnet(2), ssh(3)} i
{local(1), remoteRadius(2), remoteTacacs(3), radiusFallbackToLocal(4),
tacacsFallbackToLocal(5), global(255)}
```

Example of setting authentication method for telnet using TACACS+ server

CLI command:
```
line telnet
aaa authentication login tacacs
exit
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.7.1.2.1.1.2.2 i 3
```

Set authentication method for privilege escalation for console, Telnet, SSH

MIB: ELTEX-MES-ISS-MIB.mib

Tables used: eltMesIssAaaLineEnableAuthenticationTable — 1.3.6.1.4.1.35265.1.139.7.1.2.2

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.7.1.2.2.1.2.{console(1), telnet(2), ssh(3)} i
{local(1), remoteRadius(2), remoteTacacs(3), radiusFallbackToLocal(4),
tacacsFallbackToLocal(5), global(255)}
```

Example of setting authentication method for privilege escalation for telnet using TACACS+ server or local password if TACACS+ is unavailable

CLI command:
```
line telnet
aaa authentication enable tacacs local
exit
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.7.1.2.2.1.2.2 i 5
```

Allow commands authorization for console, Telnet, SSH

MIB: ELTEX-MES-ISS-MIB.mib

Tables used: eltMesIssAaaCommandAuthorizationTable — 1.3.6.1.4.1.35265.1.139.7.1.1.4

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.7.1.1.4.1.2.{privilege(1-15)} i {local(1),
remoteTacacs(2), tacacsFallbackToLocal(3)}
```

Example of configuring privilege level 6 user command authorization on TACACS server, and if it is unavailable, locally

CLI command:
```
aaa authentication command 6 tacacs local
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.7.1.1.4.1.2.6 i 3
```

Allow commands authorization at line level for console, Telnet, SSH

MIB: ELTEX-MES-ISS-MIB.mib

Tables used: eltMesIssAaaLineCommandAuthorizationTable — 1.3.6.1.4.1.35265.1.139.7.1.2.4

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.7.1.2.4.1.2.{console(1), telnet(2), ssh(3)} i
{local(1), remoteTacacs(2), tacacsFallbackToLocal(3), global(255)}
```

Example of configuring privilege level 6 user command authorization on TACACS server, and if it is unavailable, locally

CLI command:
```
line telnet
aaa authentication command tacacs local
exit
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.7.1.2.4.1.2.2 i 3
```

12.2 *ACL for device management*

Limiting device management by a given access filter

MIB: ELTEX-MES-ISS-IP-MIB

Tables used: eltMesIssIpAuthMgrEntry — 1.3.6.1.4.1.35265.1.139.24.1.2.1.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.24.1.2.1.1.8.{ipv4(1), ipv6(2)}.{ipv4(4),
ipv6(16)}.{IpAddr}.{PrefixLength} i  {active(1), notInService(2), notReady(3),
createAndGo(4), createAndWait(5), destroy(6)}
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.24.1.2.1.1.4.{ipv4(1), ipv6(2)}.{ipv4(4),
ipv6(16)}.{IpAddr}.{PrefixLength} x {PortList}
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.24.1.2.1.1.5.{ipv4(1), ipv6(2)}.{ipv4(4),
ipv6(16)}.{IpAddr}.{PrefixLength} x {VlanList}
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.24.1.2.1.1.7.{ipv4(1), ipv6(2)}.{ipv4(4),
ipv6(16)}.{IpAddr}.{PrefixLength} i {snmp(1), telnet{2}, http(4), https(8),
ssh(16)}
```

Example of configuring ACL for IPv6 address

CLI command:
```
authorized-manager ip-source fd00:: 16
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.24.1.2.1.1.8.2.16.253.0.0.0.0.0.0.0.0.0.0.0.0.0.0.16
i 4
```

Example of configuring ACL for IPv4 address with interfaces, VLAN and services

CLI command:
```
authorized-manager ip-source 192.168.0.0 255.255.255.0 interface gi 0/3 vlan 10
service telnet ssh
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.24.1.2.1.1.8.1.4.192.168.0.0.24 i 5
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.24.1.2.1.1.4.1.4.192.168.0.0.24 x 0x20
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.24.1.2.1.1.5.1.4.192.168.0.0.24 x 0x0040
```

```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.24.1.2.1.1.7.1.4.192.168.0.0.24 i 18
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.24.1.2.1.1.8.1.4.192.168.0.0.24 i 1
```

13 PORT MIRRORING

Port Mirroring configuration

MIB: fsiss.mib

Tables used: issMirror — 1.3.6.1.4.1.2076.81.3,
issMirrorCtrlExtnTable — 1.3.6.1.4.1.2076.81.3.6,
issMirrorCtrlExtnSrcTable — 1.3.6.1.4.1.2076.81.3.7,
issMirrorCtrlExtnDestinationTable — 1.3.6.1.4.1.2076.81.3.9

```
snmpset -v2c -c <community> <IP address> \
 1.3.6.1.4.1.2076.81.3.1.0 i {disable(1), enable(2)} \
 1.3.6.1.4.1.2076.81.3.6.1.6.{session-id} i {Active(1), Create and wait(5),
Destroy(6)} \
1.3.6.1.4.1.2076.81.3.6.1.2.{session-id} i 1 \
 1.3.6.1.4.1.2076.81.3.7.1.2.{session-id}.{ifindex-source} i {add(1),
delete(2)} \
 1.3.6.1.4.1.2076.81.3.7.1.3.{session-id}.{ifindex-source} i {rx{1}, tx{2},
both{3}} \
 1.3.6.1.4.1.2076.81.3.9.1.2.{session-id}.{ifindex-destation} i {add(1),
delete(2)} \
 1.3.6.1.4.1.2076.81.3.6.1.6.{session-id} i {Active(1), Create and wait(5),
Destroy(6)}
```

Example of mirroring traffic from GigabitEthernet 0/5-6 interfaces to an interface GigabitEthernet 0/10

CLI command:

```
monitor session 2 source interface GigabitEthernet 0/5 both
monitor session 2 source interface GigabitEthernet 0/6 both
monitor session 2 destination interface GigabitEthernet 0/10
```

SNMP command:

```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.81.3.1.0 i 2 \
1.3.6.1.4.1.2076.81.3.6.1.6.2 i 5 \
1.3.6.1.4.1.2076.81.3.6.1.2.2 i 1 \
1.3.6.1.4.1.2076.81.3.7.1.2.2.5 i 1 \
1.3.6.1.4.1.2076.81.3.7.1.2.2.6 i 1 \
1.3.6.1.4.1.2076.81.3.7.1.3.2.5 i 3 \
1.3.6.1.4.1.2076.81.3.7.1.3.2.6 i 3 \
1.3.6.1.4.1.2076.81.3.9.1.2.2.10 i 1 \
1.3.6.1.4.1.2076.81.3.6.1.6.2 i 1
```

The session-id parameter can be a number in the range 1-4.

VLAN mirroring configuration

MIB: fsiss.mib

Tables used: issMirror — 1.3.6.1.4.1.2076.81.3,
issMirrorCtrlExtnTable — 1.3.6.1.4.1.2076.81.3.6,
issMirrorCtrlExtnSrcTable — 1.3.6.1.4.1.2076.81.3.7,
issMirrorCtrlExtnDestinationTable — 1.3.6.1.4.1.2076.81.3.9

```
snmpset -v2c -c <community> <IP address> \
 1.3.6.1.4.1.2076.81.3.1.0 i {disable(1), enable(2)} \
 1.3.6.1.4.1.2076.81.3.6.1.6.{session-id} i {Active(1), Create and wait(5),
Destroy(6)}  \
 1.3.6.1.4.1.2076.81.3.6.1.2.{session-id} i 1 \
 1.3.6.1.4.1.2076.81.3.6.1.3.{session-id} i {source-vlan(1), destination-
vlan(2), disabled(3)} \
 1.3.6.1.4.1.2076.81.3.6.1.4.{session-id} i {vlan} \
 1.3.6.1.4.1.2076.81.3.7.1.2.{session-id}.{ifindex-source} i {add(1),
delete(2)} \
 1.3.6.1.4.1.2076.81.3.7.1.3.{session-id}.{ifindex-source} i {rx{1}, tx{2},
both(3)} \
 1.3.6.1.4.1.2076.81.3.9.1.2.{session-id}.{ifindex-destination} i {add(1),
delete(2)} \
 1.3.6.1.4.1.2076.81.3.6.1.6.{session-id} i {Active(1), Create and wait(5),
Destroy(6)}
```

Example of mirroring traffic from GigabitEthernet 0/5 interface to GigabitEthernet 0/10 interface to vlan 100

CLI command:

```
monitor session 2 source interface GigabitEthernet 0/5 both
monitor session 2 destination interface GigabitEthernet 0/10
monitor session 2 destination remote vlan 100
```

SNMP command:

```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.81.3.1.0 i 2 \
1.3.6.1.4.1.2076.81.3.6.1.6.2 i 5 \
1.3.6.1.4.1.2076.81.3.6.1.2.2 i 1 \
1.3.6.1.4.1.2076.81.3.6.1.3.2 i 2 \
1.3.6.1.4.1.2076.81.3.6.1.4.2 i 100 \
1.3.6.1.4.1.2076.81.3.7.1.2.2.5 i 1 \
1.3.6.1.4.1.2076.81.3.7.1.3.2.5 i 3 \
1.3.6.1.4.1.2076.81.3.9.1.2.2.10 i 1 \
1.3.6.1.4.1.2076.81.3.6.1.6.2 i 1
```

The session-id parameter can be a number in the range 1-4.

14 PHYSICAL LAYER DIAGNOSTIC FUNCTIONS

14.1 *Copper-wire cable diagnostics*

Copper-wire cable diagnostics execution

MIB: ELTEX-PHY-MIB.mib

Tables used: rlPhyTestSetTable — 1.3.6.1.4.1.35265.52.1.2.1.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.52.1.2.1.1.1.1.{ifIndex} i 1
```

Example of running diagnostics on GigabitEthernet port 0/12

CLI command:
```
test cable-diagnostics GigabitEthernet 0/12
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.35265.52.1.2.1.1.1.1.12 i 1
```

Copper cable diagnostics state monitoring

MIB: ELTEX-PHY-MIB.mib

Tables used: eltexPhyTestGetEntry — 1.3.6.1.4.1.35265.52.1.2.1.2.1

```
snmpwalk -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.52.1.2.1.2.1.2.{ifIndex}
```

Example of running diagnostics status view on GigabitEthernet port 0/12.

CLI command:
```
test cable-diagnostics GigabitEthernet 0/12
```

SNMP command:
```
snmpwalk -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.35265.52.1.2.1.2.1.2.12
```

The valid values are:

1 — Port is inactive
2 — Diagnostics completed successfully
3 — Diagnostics not completed
4 — Not supported
5 — Couldn't run
6 — Diagnostics interrupted
7 — Diagnostics error

View the date of the copper cable diagnostics

MIB: ELTEX-PHY-MIB.mib

Tables used: eltexPhyTestGetEntry — 1.3.6.1.4.1.35265.52.1.2.1.2.1

```
snmpwalk -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.52.1.2.1.2.1.5.{ifIndex}
```

Example of diagnostics date view on GigabitEthernet port 0/12

CLI command:
```
test cable-diagnostics GigabitEthernet 0/12
```

SNMP command:
```
snmpwalk -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.35265.52.1.2.1.2.1.5.12
```

Measuring the length of pairs

MIB: ELTEX-PHY-MIB.mib

Tables used: eltexPhyTestGetEntry — 1.3.6.1.4.1.35265.52.1.2.1.2.1

```
snmpwalk -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.52.1.2.1.2.1.3.{ifindex}.{parameter type}
```

Example of A pair length view on GigabitEthernet port 0/12

CLI command:
```
test cable-diagnostics GigabitEthernet 0/12
```

SNMP command:
```
snmpwalk -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.35265.52.1.2.1.2.1.3.12.17
```

The following types of parameters are possible:

17 — pair length
18 — B pair length
19 — C pair length
20 — D pair length

View short circuit information for pairs

MIB: ELTEX-PHY-MIB.mib

Tables used: eltexPhyTestGetEntry — 1.3.6.1.4.1.35265.52.1.2.1.2.1

```
snmpwalk -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.52.1.2.1.2.1.3.{ifindex}.{parameter type}
```

Example of viewing an A pair short circuit information for the GigabitEthernet 0/12 port

CLI command:
```
test cable-diagnostics GigabitEthernet 0/12
```

SNMP command:
```
snmpwalk -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.35265.52.1.2.1.2.1.3.12.1
```

Parameter types:

1 — pair A
2 — pair B
3 — pair C
4 — pair D

The valid values are:

0 — No pair short circuit
1 — Pair short circuit

Viewing information about the break in pairs

MIB: ELTEX-PHY-MIB.mib

Tables used: eltexPhyTestGetEntry — 1.3.6.1.4.1.35265.52.1.2.1.2.1

```
snmpwalk -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.52.1.2.1.2.1.3.{ifindex}.{parameter type}
```

Example of viewing an A pair break information for the GigabitEthernet 0/12 port

CLI command:
```
test cable-diagnostics GigabitEthernet 0/12
```

SNMP command:
```
snmpwalk -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.35265.52.1.2.1.2.1.3.12.5
```

Parameter types:

5 — A pair break
6 — B pair break
7 — D pair break
8 — C pair break

The valid values are:

0 — No pair break
1 — Pair break

14.2 *Optical transceiver diagnostics*

DDM readings

MIB: ELTEX-PHY-MIB.mib

Tables used: eltexPhyTransceiverDiagnosticTable — 1.3.6.1.4.1.35265.52.1.1.3.2

```
snmpwalk -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.52.1.1.3.2.1.8.{ifindex}.{parameter type}.1
```

Example of request for temperature reading of the transceiver from GigabitEthernet interface 0/25

CLI command:
```
show fiber-ports optical-transceiver GigabitEthernet 0/25
```

SNMP command:
```
snmpwalk -v2c -c  public 192.168.1.30 \
1.3.6.1.4.1.35265.52.1.1.3.2.1.8.25.1.1
```

Parameter type can take the following values:

1 — SFP transceiver temperature;
2 — power voltage in V;
3 — power current in mA;
4 — power level on trasmission in µW;
5 — power level on reception in µW.

Output the Type connector field

MIB: ELTEX-PHY-MIB.mib

Tables used: eltexPhyTransceiverDiagnosticTable — 1.3.6.1.4.1.35265.52.1.1.3.2

```
snmpwalk  -v2c  -c  <community>  <IP address> \
1.3.6.1.4.1.35265.52.1.1.3.1.1.1.{ifindex}
```

Example of viewing a transceiver type connector from a GigabitEthernet 0/25 interface

CLI command:
```
show fiber-ports optical-transceiver GigabitEthernet 0/25
```

SNMP command:
```
snmpwalk -v2c -c  public 192.168.1.30 \
1.3.6.1.4.1.35265.52.1.1.3.1.1.1.25
```

May take the following values:

0 — unknown;
1 — sc;
7 — lc;
11 — optical-pigtail
255 — vendorspec

Output of information about the type of transceiver

MIB: ELTEX-PHY-MIB.mib

Tables used: eltexPhyTransceiverDiagnosticTable — 1.3.6.1.4.1.35265.52.1.1.3.2

```
snmpwalk  -v2c  -c  <community>  <IP address> \
1.3.6.1.4.1.35265.52.1.1.3.1.1.2.{ifindex}
```

Example of viewing a transceiver type from a GigabitEthernet 0/25 interface

CLI command:
```
show fiber-ports optical-transceiver GigabitEthernet 0/25
```

SNMP command:
```
snmpwalk -v2c -c  public 192.168.1.30 \
1.3.6.1.4.1.35265.52.1.1.3.1.1.2.25
```

May take the following values:

0 — unknown;
1 — gbic;
2 — sff;
3 — sfp-sfpplus;
255 — vendorspec

View fiber diameter

MIB: ELTEX-PHY-MIB.mib

Tables used: eltexPhyTransceiverDiagnosticTable — 1.3.6.1.4.1.35265.52.1.1.3.2

```
snmpwalk -v2c -c  <community>  <IP address> \
1.3.6.1.4.1.35265.52.1.1.3.1.1.7.{ifindex}
```

Example of viewing a fiber diameter from a GigabitEthernet 0/25 interface

CLI command:
```
show fiber-ports optical-transceiver GigabitEthernet 0/25
```

SNMP command:
```
snmpwalk -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.35265.52.1.1.3.1.1.7.25
```

May take the following values:

1 — fiber9;
2 — fiber50;
3 — fiber625;
4 — cooper;
65535 — unknown;

View transceiver parameters

MIB: ELTEX-PHY-MIB.mib

Tables used: eltexPhyTransceiverDiagnosticTable — 1.3.6.1.4.1.35265.52.1.1.3.2

```
snmpwalk  -v2c  -c  <community>  <IP address> \
1.3.6.1.4.1.35265.52.1.1.3.1.1.{parameter type}.{ifindex}
```

Example of viewing a transceiver vendor from a GigabitEthernet 0/25 interface

CLI command:
```
show fiber-ports optical-transceiver GigabitEthernet 0/25
```

SNMP command:
```
snmpwalk -v2c -c  public 192.168.1.30 \
1.3.6.1.4.1.35265.52.1.1.3.1.1.5.25
```

Parameter type can take the following values:

3 — Ethernet standard;
4 — Transceiver wave length;
5 — Vendor;
6 — Serial number;
8 — Length in meters;
9 — DDM support (True(1), False(2));
10 — Inventory number;
11 — Revision.

15 POWER OVER ETHERNET (POE)

View PoE power consumption/nominal capacity

MIB: rfc3621.mib

Tables used: pethMainPseEntry - 1.3.6.1.2.1.105.1.3.1.1

```
snmpwalk -v2c -c <community> <IP address> \
1.3.6.1.2.1.105.1.3.1.1.{nominal(2), consumed(4)}.{unit}
```

Example of viewing power consumption

CLI command:
```
show power detail
```

SNMP command:
```
snmpwalk -v2c -c public 192.168.1.30 \
1.3.6.1.2.1.105.1.3.1.1.4.1
```

Disabling Power over Ethernet on the port

MIB: rfc3621.mib

Tables used: pethPsePortAdminEnable — 1.3.6.1.2.1.105.1.1.1.3

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.2.1.105.1.1.1.3.{unit}.{ifindex} i {auto(1), never(2)}
```

Example of disabling Power over Ethernet on the GigabitEthernet 0/2 port

CLI command:
```
interface GigabitEthernet 0/2
power inline never
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.2.1.105.1.1.1.3.1.2 i 2
```

16 SECURITY FEATURES

16.1 *PPPoE Intermediate-agent*

The functionality requires trusted ports configuring (14.1-14.2).

PPPoE-IA global settings

MIB: fspia.mib, ELTEX-MES-ISS-PPPOE-MIB.mib

Tables used: fsPIASnpSystem — 1.3.6.1.4.1.29601.2.9.1,
eltMesIssPppoeGlobals — 1.3.6.1.4.1.35265.1.139.2.1.1

Enable/disable memory release module:

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.9.1.1.0 i {no shutdown(1) | shutdown(2)}
```

Enable/disable pppoe passthrough function:

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.9.1.1.0 i {no shutdown(1) | shutdown(2)}
```

Enable/disable a function globally:

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.9.1.2.0 i {enabled(1) | disabled(2)}
```

Configuring sessions timeout:

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.9.1.4.0 i {timeout}
```

Example of enabling PPPoE-IA globally and setting 300 seconds sessions timeout

CLI command:

```
pppoe-ia snooping
```

SNMP command:

```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.29601.2.9.1.2.0 i 1 \
1.3.6.1.4.1.29601.2.9.1.4.0 i 300
```

Configuring PPPoE-IA in 2Vlan

MIB: fscfa.mib

Tables used: fsPIASnpVlan — 1.3.6.1.4.1.29601.2.9.2

Enable/disable PPPoE-IA in 2Vlan:

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.9.2.1.1.15.0.{vlan-id} i {create and go(4) | destroy(6)}
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.9.2.1.1.3.0.{vlan-id} i {enabled(1) | disabled(2))}
```

Viewing PPPoE-IA statistics in 2Vlan:

Received PADI:

```
snmpget -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.9.2.1.1.4.0.{vlan-id}
```

Received PADO:

```
snmpget -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.9.2.1.1.5.0.{vlan-id}
```

Received PADR:

```
snmpget -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.9.2.1.1.6.0.{vlan-id}
```

Received PADS:

```
snmpget -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.9.2.1.1.7.0.{vlan-id}
```

Received PADT:

```
snmpget -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.9.2.1.1.8.0.{vlan-id}
```

Transmitted frames:

```
snmpget -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.9.2.1.1.9.0.{vlan-id}
```

Transmitted generic error frames:

```
snmpget -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.9.2.1.1.10.0.{vlan-id}
```

Dropped PADO/PADS frames on untrusted interface:

```
snmpget -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.9.2.1.1.11.0.{vlan-id}
```

Dropped PADI/PADR frames on trusted interface:

```
snmpget -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.9.2.1.1.12.0.{vlan-id}
```

Dropped frames:

```
snmpget -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.9.2.1.1.13.0.{vlan-id}
```

Clear PPPoE-IA statistics in 2Vlan:

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.9.2.1.1.14.0.{vlan-id} i 1
```

Example of enabling PPPoE-IA in vlan 1

CLI command:
```
vlan 1
pppoe-ia snooping
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.29601.2.9.2.1.1.15.0.1 i 4 \
1.3.6.1.4.1.29601.2.9.2.1.1.3.0.1 i 1
```

Working with the PPPoE-IA session table

MIB: fspia.mib

Tables used: fsPIASnpSessionTable — 1.3.6.1.4.1.29601.2.9.1.5

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.9.1.5.1.{interface (3), session-id(4)}.{vlan-id}.{mac-
address}
```

Example of viewing PPPoE-IA session information on vlan 1 with MAC address 50:3e:aa:03:23:ef

CLI command:
```
show pppoe intermediate-agent session
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.29601.2.9.1.5.1.3.1.80.62.170.3.35.239 \
```

16.2 *Port security functions*

Trusted port-security configuration

MIB: fscfa.mib

Tables used: ifMainExtTable — 1.3.6.1.4.1.2076.27.1.12

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.27.1.12.1.11.{ifindex} i {untrasted(0), trusted(1)}
```

Example of GigabitEthernet 0/2 interface configuration to the list of trusted

CLI command:
```
port-security-state trusted
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.27.1.12.1.11.2 i 1
```

View port-security mode

MIB: fscfa.mib

Tables used: ifMainExtTable — 1.3.6.1.4.1.2076.27.1.12

```
snmpwalk -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.27.1.12.1.11
```

Example of viewing the port mode

CLI command:
```
show interfaces port-security-state
```

SNMP command:
```
snmpwalk -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.2076.27.1.12.1.11
```

View port-security state

MIB: fsipdb.mib

Tables used: fsIpDdSrcGuardConfigTable — 1.3.6.1.4.1.29601.2.2.5.1

```
snmpwalk -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.2.5.1.1.2
```

Example of viewing port-security state

CLI command:
```
show port-security
```

SNMP command:
```
snmpwalk -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.29601.2.2.5.1.1.2
```

Enable/disable protected port on the interface

MIB: AricentMIVlan-MIB

Tables used: fsMIDot1qFutureVlan — 1.3.6.1.4.1.2076.120.1.3

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.120.1.3.1.6.{ifindex} i {true(1), false(2)}
```

Example of enabling protected port on the GigabitEthernet 0/5 interface

CLI command:
```
switchport protected
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.120.1.3.1.6.5 i 1
```

Enable/disable port-isolation on the interface

MIB: fsiss.mib

Tables used: issPortIsolationTable — 1.3.6.1.4.1.2076.81.2.3

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.81.2.3.1.5.{ifindex}.0.{ifindex} i {Createandgo(4),
destroy(6)}
```

Example of enabling port-isolation on the GigabitEthernet 0/2 interface

CLI command:
```
interface GigabitEthernet 0/2
port-isolation add GigabitEthernet 0/5
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.81.2.3.1.5.2.0.5 i 4
```

To delete the setting, you need to set the value to 6.

View MAC table

MIB: Q-BRIDGE-MIB

Tables used: dot1qTpFdbTable — 1.3.6.1.2.1.17.7.1.2.2

```
snmpwalk -v2c -c <community> <IP address> \
1.3.6.1.2.1.17.7.1.2.2
```

Example

CLI command:
```
show mac address-table
```

SNMP command:
```
snmpwalk -v2c -c public 192.168.1.30 \
1.3.6.1.2.1.17.7.1.2.2
```

Create a static bind in arp table

MIB: RFC1213-MIB

Tables used: ipNetToMediaTable — 1.3.6.1.2.1.4.22

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.2.1.4.22.1.2.{index-l3}.{IP address} x {„MAC address"}  \
1.3.6.1.2.1.4.22.1.4.{index-l3}.{IP address}  i 4
```

Example of binding ip 192.168.1.21 and MAC aa:bb:cc:dd:ee:ff to vlan 1

CLI command:
```
arp 192.168.1.21 aa:bb:cc:dd:ee:ff vlan 1
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.2.1.4.22.1.2.73.192.168.1.21 x "aabbccddeeff" \
1.3.6.1.2.1.4.22.1.4.73.192.168.1.21 i 4
```

1. To remove the binding, assign the value 2 in the field 1.3.6.1.2.1.4.22.1.4.

2. The IP address of the device and the IP address of the created static record in the arp table must be on the same subnet.

View ARP table

MIB: RFC1213-MIB.mib, Q-BRIDGE-MIB.mib

Tables used: pNetToMediaPhysAddress — 1.3.6.1.2.1.4.22.1.2,
dot1qTpFdbEntry - 1.3.6.1.2.1.17.7.1.2.2.1

```
snmpwalk -v2c -c <community> <IP address> \
1.3.6.1.2.1.4.22.1.2.{(2) ip address, (3)MAC address}
snmpwalk -v2c -c <community> <IP address> \
1.3.6.1.2.1.17.7.1.2.2.1
```

Example of viewing ARP table

CLI command:
```
show arp
```

SNMP command:
```
snmpwalk -v2c -c public 192.168.1.30 \
1.3.6.1.2.1.4.22.1.2
snmpwalk -v2c -c public 192.168.1.30 \
1.3.6.1.2.1.17.7.1.2.2.1
```

1. The pNetToMediaPhysAddress table value displays the IP address and vlan MAC address.

2. The dot1qTpFdbEntry table value shows the status and the identification number of the port from which the device is available.

Enable the security function on the port-security interface

MIB: ELTEX-MES-ISS-VLAN-MIB

Tables used: eltMesIssVlanPortSecurityStatus — 1.3.6.1.4.1.35265.1.139.3.1.2.1.1.3

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.3.1.2.1.1.3.{ifindex} i {true(1), false(2)}
```

Example of configuring port-security on GigabitEthernet 0/1

CLI command:
```
switchport port-security enable
```

SNMP command:
```
snmpwalk -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.3.1.2.1.1.3.1 i 1
```

Configuring port-security mode

MIB: ELTEX-MES-ISS-VLAN-MIB

Tables used: eltMesIssVlanPortSecurityMode — 1.3.6.1.4.1.35265.1.139.3.1.2.1.1.4

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.3.1.2.1.1.4.{ifindex} i {max-addresses(1), lock(2),
secure-permanent(3), secure-delete-on-reset(4)}
```

Example of configuring mode max-addresses settings on GigabitEthernet 0/1

CLI command:
```
switchport port-security mode max-addresses
```

SNMP command:
```
snmpwalk -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.3.1.2.1.1.4.1 i 1
```

Set maximum number of addresses that a port can learn

MIB: ELTEX-MES-ISS-VLAN-MIB

Tables used: eltMesIssVlanPortSecurityMacLimit — 1.3.6.1.4.1.35265.1.139.3.1.2.1.1.2

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.3.1.2.1.1.2.{ifindex} u {max mac addresses}
```

Example of setting a limit of 10 mac-addresses on GigabitEthernet 0/25

CLI command:
```
switchport port-security mac-limit 10
```

SNMP command:
```
snmpwalk -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.3.1.2.1.1.4.1 i 1
```

16.3 *DHCP control*

Enable/disable DHCP/DHCPv6 snooping globally

MIB: fsdhcsnp.mib

Tables used: ifMainTable — 1.3.6.1.4.1.29601.2.3

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.3.1.{dhcpv4(1), dhcpv6(3)} i {enable(1), disabled(2)}
```

Example of enabling DHCPv6 snooping globally

CLI command:
```
ip dhcpv6 snooping
```

SNMP command:
```
snmpset -v2c -c  private 192.168.1.30 \
1.3.6.1.4.1.29601.2.3.1.3.0 i 1
```

Enable/disable DHCP/DHCPv6 snooping in l2vlan

MIB: fsdhcsnp.mib

Tables used: ifMainTable — 1.3.6.1.4.1.29601.2.3

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.3.2.1.1.15.{vlan-id} i {Active(1)| Create and wait(5)|
Destroy(6)} \
1.3.6.1.4.1.29601.2.3.2.1.1.15.{vlan-id} i {Active(1)| Create and wait(5)|
Destroy(6)} \
1.3.6.1.4.1.29601.2.3.2.1.1.{dhcpv4(2)| dhcpv6(16)}.{vlan-id} i {enable(1)|
disable(2)}
```

Example of enabling DHCPv6 snooping on vlan 5

CLI command:
```
vlan 5
ip dhcpv6 snooping
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.29601.2.3.2.1.1.15.5 i 5 \
1.3.6.1.4.1.29601.2.3.2.1.1.15.5 i 1 \
1.3.6.1.4.1.29601.2.3.2.1.1.16.5 i 1
```

Enable/disable IP-source Guard on the interface

MIB: fsipdb.mib

Tables used: fsIpDdSrcGuardConfigTable — 1.3.6.1.4.1.29601.2.2.5.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.2.5.1.1.2.{ifindex} i {disable(1), enable(3)}
```

Example of enabling IP-source Guard on the GigabitEthernet 0/5 interface

CLI command:
```
ip verify source port-security
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.29601.2.2.5.1.1.2.5 i 3
```

Enable/disable IP-source Guard on L2VLAN

MIB: ELTEX-MES-ISS-IPDB-MIB.mib

Tables used: eltMesIssIpDbSrcGuardVlanEntry — 1.3.6.1.4.1.35265.1.139.9.1.1.3.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.9.1.1.3.1.{IPv4(2), IPv6(3)}.{vlan-id} i {enable(1) |
disable(2)}
```

Example of enabling IP-source Guard in Vlan5

CLI command:
```
ip verify source port-security
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.9.1.1.3.1.2.5 i 1
```

Enable/disable ARP Inspection

MIB: fsipdb.mib

Tables used: fsIpArpInspect — 1.3.6.1.4.1.29601.2.2.6

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.2.6.1.0 i {enable(1), disable(2)}
```

Example of enabling ARP Inspection

CLI command:
```
ip arp inspection enable
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.29601.2.2.6.1.0 i 1
```

Configuring a trusted interface

MIB: fscfa.mib

Tables used: ifMainTable — 1.3.6.1.4.1.2076.27.1.4, ifMainExtTable — 1.3.6.1.4.1.2076.27.1.12

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.27.1.4.1.15.{ifindex} i {uplink(1)| downlink(2)} \
1.3.6.1.4.1.2076.27.1.12.1.11.{ifindex} i {untrusted(0)| trusted(1)}
```

Example of configuring GigabitEthernet 0/2 to the trusted list

CLI command:
```
interface gi 0/2
set port-role uplink
port-security-state trusted
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.27.1.4.1.15.2 i 1 \
1.3.6.1.4.1.2076.27.1.12.1.11.2 i 1
```

Viewing trusted interfaces

MIB: fscfa.mib

Tables used: ifMainTable — 1.3.6.1.4.1.2076.27.1.4, ifMainExtTable — 1.3.6.1.4.1.2076.27.1.12

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.27.1.4.1.15 \
1.3.6.1.4.1.2076.27.1.12.1.11
```

Example of viewing port role

CLI command:
```
show interfaces port-role
show interfaces port-security-state
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.27.1.4.1.15 \
1.3.6.1.4.1.2076.27.1.12.1.11
```

16.4 *Port based client authentication (802.1x)*

Enable/disable 802.1X switch authentication mode

MIB: fsPnac.mib

Tables used: fsPnacPaeSystem — 1.3.6.1.4.1.2076.64.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.64.1.1.0 i {start(1)| shutdown(2)}
```

Example of enabling 802.1x module

CLI command:
```
no shutdown dot1x
```

SNMP command:
```
snmpset -v2c -c  private 192.168.1.30 \
1.3.6.1.4.1.2076.64.1.1.0 i 1
```

Setting database for 802.1X authentication

MIB: fsPnac.mib

Tables used: fsPnacPaeSystem — 1.3.6.1.4.1.2076.64.1.3.0

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.64.1.1.0 i {start(1)| shutdown(2)}
```

Example of setting database for 802.1X authentication

CLI command:
```
aaa authentication dot1x default group radius
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.64.1.3.0 i 1
```

Enable 802.1x authentication on the switch

MIB: fsPnac.mib

Tables used: dot1xPaeSystemAuthControl — 1.0.8802.1.1.1.1.1.1

```
snmpset -v2c -c <community> <IP address> \
1.0.8802.1.1.1.1.1.1.0 i {enabled(1), disabled(2)}
```

Example of enabling 802.1x

CLI command:
```
dot1x system-auth-control
```

SNMP command:
```
snmpset -v2c -c private  192.168.1.30 \
1.0.8802.1.1.1.1.1.1.0 i 1
```

Enable periodic re-authentication of the client

MIB: StdPnac.mib

Tables used: dot1xAuthReAuthEnabled — 1.0.8802.1.1.1.1.2.1.1.13

```
snmpset -v2c -c <community> <IP address> \
1.0.8802.1.1.1.1.2.1.1.13.{ifIndex} i {true(1), false(2)}
```

Example of enabling periodic re-authentication of the client on the GigabitEthernet 0/2 interface

CLI command:
```
interface GigabitEthernet 0/2
dot1x reauthentication
```

SNMP command:
```
snmpset -v2c -c private  192.168.1.30 \
1.0.8802.1.1.1.1.2.1.1.13.2 i 1
```

Setting a period between re-authentication configuration

MIB: StdPnac.mib

Tables used: dot1xAuthConfigTable — 1.0.8802.1.1.1.1.2.1.1.12

```
snmpset -v2c -c <community> <IP address> \
1.0.8802.1.1.1.1.2.1.1.12.{ifIndex} u {size 300-4294967295}
```

Example of setting a period of 300 seconds between re-authentication on GigabitEthernet 0/2 interface

CLI command:
```
interface GigabitEthernet 0/2
dot1x timeout reauth-period 300
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.0.8802.1.1.1.1.2.1.1.12.2 u 300
```

Configing 802.1x authentication modes on the interface

MIB: StdPnac.mib

Tables used: dot1xAuthConfigTable — 1.0.8802.1.1.1.1.2.1.1.6

```
snmpset -v2c -c <community> <IP address> \
1.0.8802.1.1.1.1.2.1.1.6.{ifIndex}  i  {force-Unauthorized(1),  auto(2),  force-
Authorized(3)}
```

Example of configuring 802.1x authentication modes on GigabitEthernet 0/2 interface in auto mode

CLI command:
```
interface GigabitEthernet 0/2
dot1x port-control auto
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.0.8802.1.1.1.1.2.1.1.6.50 i 2
```

Managing 802.1x user mode on the interface

MIB: StdPnac.mib

Tables used: fsPnacPaePortTable — 1.3.6.1.4.1.2076.64.1.5

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.64.1.5.1.2.{ifindex} i {portBased(1) | macBased(2)}
```

Example of managing 802.1x user mode on the interface

CLI command:
```
int gi 0/2
dot1x host-mode multi-session
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.64.1.5.1.2.2 i 2
```

Managing 802.1x port-control mode on the interface

MIB: StdPnac.mib

Tables used: dot1xAuthConfigTable — 1.0.8802.1.1.1.1.2.1

```
snmpset -v2c -c <community> <IP address> \
1.0.8802.1.1.1.1.2.1.1.6.{ifindex}  i  {forceUnauthorized  (1)  |  auto  (2)
|forceAuthorized (3)}
```

Example of managing 802.1x port-control mode the gi0/2 interface

CLI command:
```
int gi 0/13
dot1x port-control auto
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.0.8802.1.1.1.1.2.1.1.6.13 i 2
```

Setting the reauth-max parameter

MIB: StdPnac.mib

Tables used: fsPnacPaePortTable — 1.3.6.1.4.1.2076.64.1.5

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.64.1.5.1.9.{ifindex} u {re-auth-max (1-10)}
```

Example of setting the reauth-max parameter

CLI command:
```
int gi 0/2
dot1x reauth-max 10
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.64.1.5.1.9.2 u 10
```

Initializing the connection on the interface

MIB: StdPnac.mib

Tables used: fsPnacPaePortTable — 1.0.8802.1.1.1.1.1.2

```
snmpset -v2c -c <community> <IP address> \
1.0.8802.1.1.1.1.1.2.1.4.{ifindex} i {true(1) | false(2)}
```

Example of initializing the connection on the interface

CLI command:
```
dot1x initialize interface gi 0/2
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.0.8802.1.1.1.1.1.2.1.4.2 i 1
```

Manual user re-authentication on the interface

MIB: StdPnac.mib

Tables used: dot1xPaePortTable — 1.0.8802.1.1.1.1.1.2

```
snmpset -v2c -c <community> <IP address> \
1.0.8802.1.1.1.1.1.2.1.5.{ifindex} i {true(1) | false(2)}
```

Example of manual user re-authentication on the interface

CLI command:
```
dot1x re-authenticate interface gi 0/2
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.0.8802.1.1.1.1.1.2.1.5.2 i 1
```

Setting 802.1x timers on the interface

MIB: StdPnac.mib

Tables used: dot1xAuthConfigTable — 1.0.8802.1.1.1.1.2.1

```
snmpset -v2c -c <community> <IP address> \
1.0.8802.1.1.1.1.2.1.1.{QuietPeriod(7)|
AuthTxPeriod(8)|SuppTimeout(9)|ServerTimeout(10)|MaxReq(11)|AuthPeriod(12)  }.{i
findex} u {period}
```

Example of setting quiet-period timer on the interface

CLI command:
```
int gi 0/2
dot1x timeout quiet-period 40
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.0.8802.1.1.1.1.2.1.1.7.2 u 40
```

Enable automatic re-authentication on the interface

MIB: StdPnac.mib

Tables used: dot1xAuthConfigTable — 1.0.8802.1.1.1.1.2.1

```
snmpset -v2c -c <community> <IP address> \
1.0.8802.1.1.1.1.2.1.1.13.2 i 1
```

Example of enabling automatic re-authentication on the interface

CLI command:
```
int gi 0/2
dot1x reauthentication
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.0.8802.1.1.1.1.2.1.1.13.2 i 1
```

Managing control-direction

MIB: StdPnac.mib

Tables used: dot1xAuthConfigTable — 1.0.8802.1.1.1.1.2.1

```
snmpset -v2c -c <community> <IP address> \
1.0.8802.1.1.1.1.2.1.1.3.{ifindex} i {both(0) | in(1)}
```

Example of managing control-direction

CLI command:
```
int gi 0/2
dot1x control-direction in
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.0.8802.1.1.1.1.2.1.1.3.2 i 1
```

Viewing 802.1x client data

MIB: StdPnac.mib

Tables used: dot1xAuthConfigTable — 1.0.8802.1.1.1.1.2.1

```
snmpset -v2c -c <community> <IP address> \
1.0.8802.1.1.1.1.2.4
```

Example of commands for viewing 802.1x client data

CLI command:
```
show dot1x mac-statistics
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.0.8802.1.1.1.1.2.4
```

16.5 *Broadcast storm control (storm-control)*

Configuring broadcast traffic restriction units

MIB: ELTEX-MES-ISS-ACL-MIB.mib

Tables used: eltMesIssAclRateControl — 1.3.6.1.4.1.35265.1.139.1.4

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.1.4.2.0 i {pps(1), kbps(2)}
```

Example of enabling broadcast traffic measurement in kbps mode

CLI command:
```
storm-control mode kbps
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.1.4.2.0 i 2
```

Setting traffic restriction in kbps

MIB: ELTEX-MES-ISS-ACL-MIB.mib

Tables used: eltMesIssAclRateCtrlEntry — 1.3.6.1.4.1.35265.1.139.1.4.1.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.1.4.1.1.{unknown       unicast(1),       broadcast(2),
multicast(3)}.{ifindex} i {0-4194272}
```

Example of setting a limit of multicast traffic to 16kbps on GigaibitEthernet 0/2 interface.

CLI command:
```
interface GigabitEthernet 0/2
storm-control multicast level kbps 16
```
SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.1.4.1.1.3.2 i 16
```

It is possible to limit the traffic in 16kbps steps.

Setting traffic restriction in pps

MIB: ELTEX-MES-ISS-ACL-MIB.mib

Tables used: eltMesIssAclRateCtrlEntry — 1.3.6.1.4.1.35265.1.139.1.4.1.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.1.4.1.1.{unknown       unicast(4),       broadcast(5),
multicast(6)}.{ifindex} i {0-262142}
```

Example of setting a limit of multicast traffic to 1pps on GigaibitEthernet 0/2 interface

CLI command:
```
interface gigabitethernet 0/2
storm-control multicast level pps 1
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.1.4.1.1.6.2 i 1
```

Configuring actions when traffic limits are exceeded

MIB: ELTEX-MES-ISS-ACL-MIB.mib

Tables used: eltMesIssAclRateCtrlEntry — 1.3.6.1.4.1.35265.1.139.1.4.1.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.1.4.1.1.{unknown        unicast(8),        broadcast(9),
multicast(10)}.{ifindex} i {none(0), trap(1), shutdown(3)}
```

Example of configuring the action when multicast traffic limits are exceeded on GigabitEthernet 0/2 interface

CLI command:
```
interface gigabitethernet 0/2
storm-control multicast action shutdown
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.36.1.4.1.35265.1.139.1.4.1.1.10.2 i 3
```

16.6 *ARP Inspection*

Enable/disable arp inspection on the device

MIB: ARICENT-IPDB-MIB

Tables used: fsIpArpInspect — 1.3.6.1.4.1.29601.2.2.6, fsIpArpInsVlanTable — 1.3.6.1.4.1.29601.2.2.6.9

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.2.6.1.0 i {enabled(1) | disabled(2)}
```

Example of enabling arp inspection globally

CLI command:
```
ip arp inspection enable
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.29601.2.2.6.1.0 i 1
```

Example of disabling arp inspection globally

CLI command:
```
ip arp inspection enable
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.29601.2.2.6.1.0 i 2
```

Enable/disable arp inspection on VLAN

MIB: ARICENT-IPDB-MIB

Tables used: fsIpArpInspect — 1.3.6.1.4.1.29601.2.2.6, fsIpArpInsVlanTable — 1.3.6.1.4.1.29601.2.2.6.9

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.2.6.9.1.9.{vlan_id} i {create and go(4)| destroy(6)} snmpset
-v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.2.6.9.1.2.{vlan_id} i {enabled(1) | disabled(2)}
```

Example of enabling arp inspection on vlan 100

CLI command:
```
ip arp inspection vlan 100
```

SNMP command:
```
snmpset -v2c -c private 10.10.10.1 \
1.3.6.1.4.1.29601.2.2.6.9.1.9.100 i 4
snmpset -v2c -c private 10.10.10.1 \
1.3.6.1.4.1.29601.2.2.6.9.1.2.100 i 1
```

Example of disabling arp inspection on vlan 100

CLI command:
```
no ip arp inspection vlan 100
```

SNMP command:
```
snmpset -v2c -c private 10.10.10.1 \
1.3.6.1.4.1.29601.2.2.6.9.1.9.100 i 6
```

Enable/disable arp inspection validate

MIB: ARICENT-IPDB-MIB

Tables used: fsIpArpInspect — 1.3.6.1.4.1.29601.2.2.6

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.2.6.2.0 x {disable(00) | dstmac(02) | dstmac-ipaddr(06) |
ipaddr(04) | srcmac(01) | srcmac-dstmac(03) | srcmac-dstmac-ipaddr(07) | srcmac-
ipaddr(05)}
```

Example of enabling arp inspection validate

CLI command:
```
ip arp inspection validate srcmac-dstmac-ipaddr
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.29601.2.2.6.2.0 x 07
```

Example of disabling arp inspection validate

CLI command:
```
interface gi 0/11
no ip arp inspection validate
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.29601.2.2.6.2.0 x 00
```

16.7 *Configuring MAC Address Notification*

Allow/deny MAC addresses adding and deleting events logging

MIB: CISCO-MAC-NOTIFICATION-MIB.mib

Tables used: cmnGlobalObjects — 1.3.6.1.4.1.9.9.215.1.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.9.9.215.1.1.1.0 i {true(1), false(2)}
```

Example of allowing MAC addresses adding and deleting events logging

CLI command:
```
mac-address-table notification change
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.9.9.215.1.1.1.0 i 1
```

Setting maximum time interval between SNMP notifications sending

MIB: CISCO-MAC-NOTIFICATION-MIB.mib

Tables used: cmnGlobalObjects — 1.3.6.1.4.1.9.9.215.1.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.9.9.215.1.1.2.0 u (0-604800)
```

Example of setting 30 seconds time interval

CLI command:
```
mac-address-table notification change interval 30
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.9.9.215.1.1.2.0 u 30
```

Setting maximum number MAC address table state changes events stored in the history

MIB: CISCO-MAC-NOTIFICATION-MIB.mib

Tables used: cmnGlobalObjects — 1.3.6.1.4.1.9.9.215.1.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.9.9.215.1.1.7.0 u (0-604800)
```

Example of setting maximum number of events to 300 records

CLI command:
```
mac-address-table notification change history 300
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.9.9.215.1.1.7.0 u 300
```

Enable/disable sending traps upon MAC addresses learning and removing to syslog

MIB: CISCO-MAC-NOTIFICATION-MIB.mib

Tables used: cmnGlobalObjects — 1.3.6.1.4.1.9.9.215.1.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.9.9.215.1.1.5.0 i {true(1), false(2)}
```

Example of enabling sending traps

CLI command:
```
mac-address-table notification change
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.9.9.215.1.1.5.0 i 1
```

Enable/disable sending traps upon MAC addresses learning on the interface

MIB: CISCO-MAC-NOTIFICATION-MIB.mib

Tables used: cmnIfConfigTable — 1.3.6.1.4.1.9.9.215.1.2.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.9.9.215.1.2.1.1.1.{ifIndex} i {true(1), false(2)}
```

Example of enabling sending traps on gi0/6 interface

CLI command:
```
interface gigabitethernet 0/6
snmp trap mac-address-table change learnt
exit
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.9.9.215.1.2.1.1.1.6 i 1
```

Enable/disable sending traps upon MAC addresses deleting on the interface

MIB: CISCO-MAC-NOTIFICATION-MIB.mib

Tables used: cmnIfConfigTable — 1.3.6.1.4.1.9.9.215.1.2.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.9.9.215.1.2.1.1.2.{ifIndex} i {true(1), false(2)}
```

Example of disabling sending traps on gi0/6 interface

CLI command:
```
interface gigabitethernet 0/6
snmp trap mac-address-table change removed
exit
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.9.9.215.1.2.1.1.2.6 i 1
```

Display all notifications on MAC addresses state changes saved to the history

MIB: CISCO-MAC-NOTIFICATION-MIB.mib

Tables used: cmnHistoryTable — 1.3.6.1.4.1.9.9.215.1.1.8

Example of viewing MAC addresses state change history

CLI command:
```
show mac-address-table notification change history
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.9.9.215.1.1.8
```

16.8 *DCS*

Enable/disable DCS globally for specific protocols

MIB: ELTEX-MES-ISS-DCS-MIB.mib

Tables used: eltMesIssDcsObjects — 1.3.6.1.4.1.35265.1.139.13.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.13.1.1.1.1.2.{protocol} i {true(1) | false(2)}
```

Example of enabling option 82 for dhcp snooping

CLI command:
```
dcs information option dhcp enable
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.13.1.1.1.1.2.1 i 1
```

***Protocol*:**
1 — dhcp snooping;
2 — dhcpv6 snooping;
3 — pppoe-ia snooping;
4 — dhcp-relay.

Enable/disable option for specific vlan

MIB: ELTEX-MES-ISS-DCS-MIB.mib

Tables used: eltMesIssDcsVlanInfoOptTable — 1.3.6.1.4.1.35265.1.139.13.1.1.6

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.13.1.1.6.1.4.{vlan-id}.{protocol} i {create and go(4) |
destroy(6)}
1.3.6.1.4.1.35265.1.139.13.1.1.6.1.3.{vlan-id}.{protocol} i {True(1) | False(2)}
```

Example of enabling option 82 for DHCP-relay on vlan 10

CLI command:
```
vlan 10
dcs dcs information option dhcp-relay enable
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.13.1.1.6.1.4.10.4 i 4
1.3.6.1.4.1.35265.1.139.13.1.1.6.1.3.10.4 i 1
```

***Protocol*:**
1 — dhcp snooping;
2 — dhcpv6 snooping;
3 — pppoe-ia snooping;
4 — dhcp-relay.

Enable/disable option for specific interfaces

MIB: ELTEX-MES-ISS-DCS-MIB.mib

Tables used: eltMesIssDcsVlanInfoOptTable — 1.3.6.1.4.1.35265.1.139.13.1.1.5

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.13.1.1.5.1.2.{ifindex}.{protocol} i {True(1) | False(2)}
```

Example of enabling option 82 for DHCP-relay on gi0/5

CLI command:
```
interface gi 0/5
dcs dcs information option dhcp-relay enable
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.13.1.1.5.1.2.5.4 i 1
```

***Protocol*:**
1 — dhcp snooping;
2 — dhcpv6 snooping;
3 — pppoe-ia snooping;
4 — dhcp-relay.

Selecting option format for agent-curcuit-id

MIB: ELTEX-MES-ISS-DCS-MIB.mib

Tables used: eltMesIssDcsObjects — 1.3.6.1.4.1.35265.1.139.13.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.13.1.1.1.1.3.{protocol} i {tr101(1) | user-defined(2)}
```

Example of changing option 82 format for dhcp snooping to user-defined

CLI command:
```
dcs agent-circuit-id suboption-type dhcpv4 user-defined
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.13.1.1.1.1.3.1 i 2
```

***Protocol*:**
1 — dhcp snooping;
2 — dhcpv6 snooping;
3 — pppoe-ia snooping;
4 — dhcp-relay.

Example of changing option 82 format for dhcp snooping to tr101

CLI command:
```
dcs agent-circuit-id suboption-type dhcpv4 tr-101
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.13.1.1.1.1.3.1 i 1
```

Configuring access-node-id for tr101 mode

MIB: ELTEX-MES-ISS-DCS-MIB.mib

Tables used: eltMesIssDcsObjects — 1.3.6.1.4.1.35265.1.139.13.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.13.1.1.2.1.2.{protocol} s {access-node-id}
```

Example of changing access-node-id for dhcp snooping to 'eltex'

CLI command:
```
dcs agent-circuit-id format-type identifier-string "eltex"
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.13.1.1.2.1.2.1 s "eltex"
```

***Protocol*:**
1 — dhcp snooping;
2 — dhcpv6 snooping;
3 — pppoe-ia snooping;
4 — dhcp-relay.

Configuring tr101 option format

MIB: ELTEX-MES-ISS-DCS-MIB.mib

Tables used: eltMesIssDcsObjects — 1.3.6.1.4.1.35265.1.139.13.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.13.1.1.2.1.3.{protocol} i {format}
```

Example of changing tr101 for dhcp snooping to pv

CLI command:
```
dcs agent-circuit-id format-type option pv
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.13.1.1.2.1.3.1 i 3
```

Protocol:
1 — dhcp snooping;
2 — dhcpv6 snooping;
3 — pppoe-ia snooping;
4 — dhcp-relay.

format:
1 — sp;
2 — sv;
3 — pv;
4 — spv.

Configuring tr101 option delimiter

MIB: ELTEX-MES-ISS-DCS-MIB.mib

Tables used: eltMesIssDcsObjects — 1.3.6.1.4.1.35265.1.139.13.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.13.1.1.2.1.4.{protocol} i {delimiter}
```

Example of changing tr101 delimiter for dhcp snooping to hash

CLI command:
```
dcs agent-circuit-id format-type delimiter hash
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.13.1.1.2.1.4.1 i 2
```

Protocol:
1 — dhcp snooping;
2 — dhcpv6 snooping;
3 — pppoe-ia snooping;
4 — dhcp-relay.

delimiter:
1 — std;
2 — hash;
3 — dot;
4 — comma;
5 — semicolon;
6 — slash;
7 — space.

Configuring user-defined string for agent-curcuit-id/remote-id

The format of the agent-curcuit-id option must be changed to user-defined.

MIB: ELTEX-MES-ISS-DCS-MIB.mib

Tables used: eltMesIssDcsObjects — 1.3.6.1.4.1.35265.1.139.13.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.13.1.1.{agent-curcuit-id(3) | remote-id
(4)}.1.2.{protocol} s {"template/string"}
```

Example of configuring client MAC address as agent-curcuit-id user-defined string for dhcp snooping

CLI command:
```
dcs agent-circuit-id user-defined "%c"
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.13.1.1.3.1.2.1 s "%c"
```

Example of configuring client MAC address as remote-id user-defined string for dhcp snooping

CLI command:
```
dcs remote-agent-id user-defined "%c"
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.13.1.1.4.1.2.1 s "%c"
```

Protocol:
1 — dhcp snooping;
2 — dhcpv6 snooping;
3 — pppoe-ia snooping;
4 — dhcp-relay.

template:
%aX: ip-address of the vlan X in format A.B.C.D
%c: client mac
%h: hostname
%p: short port name (fa 0/1)
%P: long port name (fa 1/0/1)
%t: port type
%m: mac-address of port in format H-H-H-H-H-H
%M: mac-address of system in format H-H-H-H-H-H
%u: unit number
%s: slot number
%i: port ifIndex
%v: vlan id
%: single %

Configuring user-defined encoding ascii/binary(hex) for agent-curcuit-id/remote-id

MIB: ELTEX-MES-ISS-DCS-MIB.mib

Tables used: eltMesIssDcsObjects — 1.3.6.1.4.1.35265.1.139.13.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.13.1.1.{agent-curcuit-id(3) | remote-id
(4)}.1.3.{protocol} i {ascii(1) | binary(2)}
```

Example of configuring agent-curcuit-id user-defined string transmission in binary format for dhcp snooping

CLI command:
```
dcs agent-circuit-id suboption-type dhcpv4 user-defined binary
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.13.1.1.3.1.3.1 i 2
```

***Protocol*:**
1 — dhcp snooping;
2 — dhcpv6 snooping;
3 — pppoe-ia snooping;
4 — dhcp-relay.

Example of configuring remote-id user-defined string transmission in binary format for dhcp snooping

CLI command:
```
dcs remote-agent-id suboption-type dhcpv4 user-defined binary
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.13.1.1.4.1.3.1 i 2
```

Configuring user-defined add-subtypes for agent-curcuit-id/remote-id

MIB: ELTEX-MES-ISS-DCS-MIB.mib

Tables used: eltMesIssDcsObjects — 1.3.6.1.4.1.35265.1.139.13.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.13.1.1.{agent-curcuit-id(3) | remote-id
(4)}.1.4.{protocol} i {ascii(1) | binary(2)}
```

Example of configuring agent-curcuit-id user-defined string transmission with option subtype for dhcp snooping

CLI command:
```
dcs agent-circuit-id suboption-type dhcpv4 user-defined add-subtypes
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.13.1.1.3.1.4.1 i 1
```

Example of configuring remote-id user-defined string transmission with option subtype for dhcp snooping

CLI command:
```
dcs remote-agent-id suboption-type dhcpv4 user-defined add-subtypes
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.13.1.1.4.1.4.1 i 1
```

16.9 *IPv6 ND inspection*

Enable/disable ND inspection globally

MIB: ELTEX-MES-ISS-IP6-MIB

Tables used: eltMesIssL2Ip6NDInsp — 1.3.6.1.4.1.35265.1.139.25.1.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.25.1.1.1.1.0 i {disable(1) | enable(2)}
```

Example of enabling ND Inspection globally

CLI command:
```
ipv6 nd inspection
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.25.1.1.1.1.0 i 2
```

Enable ND inspection on the interface

MIB: ELTEX-MES-ISS-IP6-MIB

Tables used: eltMesIssL2Ip6NDInsp — 1.3.6.1.4.1.35265.1.139.25.1.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.25.1.1.2.1.1.4.{ifindex} i {create and go(4) |
destroy(6)} \
1.3.6.1.4.1.35265.1.139.25.1.1.2.1.1.1.{ifindex} i {disable(1) | enable(2)}
```

Configuring trust mode on the interface

MIB: ELTEX-MES-ISS-IP6-MIB

Tables used: eltMesIssL2Ip6NDInsp — 1.3.6.1.4.1.35265.1.139.25.1.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.25.1.1.2.1.1.3.{ifindex} i {untrusted(1) | trusted(2)}
```

Attaching ND inspection policy to the interface

MIB: ELTEX-MES-ISS-IP6-MIB

Tables used: eltMesIssL2Ip6NDInsp — 1.3.6.1.4.1.35265.1.139.25.1.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.25.1.1.2.1.1.2.{ifindex} i {policy-id}
```

Example of enabling ND Inspection on gi0/5 interface, setting trust mode and attaching ND inspection policy with number 1

CLI command:
```
interface gi 0/5
ipv6 nd inspection
ipv6 nd inspection trust-state untrusted
ipv6 nd inspection attach-policy 1
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.25.1.1.2.1.1.4.5 i 4 \
1.3.6.1.4.1.35265.1.139.25.1.1.2.1.1.1.5 i 2 \
1.3.6.1.4.1.35265.1.139.25.1.1.2.1.1.3.5 i 2 \
1.3.6.1.4.1.35265.1.139.25.1.1.2.1.1.2.5 i 1
```

16.9.1 Configuring ND inspection policy

Creating ND inspection src-addr-acl

MIB: ELTEX-MES-ISS-IP6-MIB

Tables used: eltMesIssL2Ip6NDInsp — 1.3.6.1.4.1.35265.1.139.25.1.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.25.1.1.3.2.1.5.{acl_number}.{seq} i {create and go(4) |
destroy(6)} \
1.3.6.1.4.1.35265.1.139.25.1.1.3.2.1.3.{acl_number}.{seq} x {"src-ipv6-
address"} \
1.3.6.1.4.1.35265.1.139.25.1.1.3.2.1.4.{acl_number}.{seq} i {prefix-len}
```

Example of configuring ND Inspection ipv6-src-address acl with number 1 for the 2001::ff:fe0d:ea31/128 prefix

CLI command:
```
ipv6 nd inspection src-addr-acl 1 seq 5 2001::ff:fe0d:ea31/128
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.25.1.1.3.2.1.5.1.5 i 4 \
1.3.6.1.4.1.35265.1.139.25.1.1.3.2.1.3.1.5 x "20010000000000000000fffe0dea31"
\
1.3.6.1.4.1.35265.1.139.25.1.1.3.2.1.4.1.5 i 128
```

Creating ND inspection tgt-addr-acl

MIB: ELTEX-MES-ISS-IP6-MIB

Tables used: eltMesIssL2Ip6NDInsp — 1.3.6.1.4.1.35265.1.139.25.1.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.25.1.1.3.3.1.5.{acl_number}.{seq} i {create and go(4) |
destroy(6)} \
1.3.6.1.4.1.35265.1.139.25.1.1.3.3.1.3.{acl_number}.{seq} x {"tgt-ipv6-
address"} \
1.3.6.1.4.1.35265.1.139.25.1.1.3.3.1.4.{acl_number}.{seq} x {prefix-len}
```

Example of configuring ND Inspection ipv6-tgt-address acl with number 1 for the 2001::ff:fe0d:ea31/128 prefix

CLI command:

```
ipv6 nd inspection tgt-addr-acl 1 seq 5 2001::ff:fe0d:ea31/128
```

SNMP command:

```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.25.1.1.3.3.1.5.1.5 i 4 \
1.3.6.1.4.1.35265.1.139.25.1.1.3.3.1.3.1.5 x "20010000000000000000fffe0dea31"
\
1.3.6.1.4.1.35265.1.139.25.1.1.3.3.1.4.1.5 i 128
```

Creating ipv6 nd inspection tgt-mac-addr-acl

MIB: ELTEX-MES-ISS-IP6-MIB

Tables used: eltMesIssL2Ip6NDInsp — 1.3.6.1.4.1.35265.1.139.25.1.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.25.1.1.3.4.1.4.{acl_number}.{seq} i {create and go(4) |
destroy(6)}\
1.3.6.1.4.1.35265.1.139.25.1.1.3.4.1.3.{acl_number}.{seq} x {"tgt-mac"}
```

Example of configuring ND Inspection tgt-mac-address acl with number 1 for the 00:00:00:0d:ea:31 address

CLI command:

```
ipv6 nd inspection tgt-mac-acl 1 seq 5 00:00:00:0d:ea:31
```

SNMP command:

```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.25.1.1.3.4.1.4.1.5 i 4 \
1.3.6.1.4.1.35265.1.139.25.1.1.3.4.1.3.1.5 x "0000000dea31"
```

Creating policy

MIB: ELTEX-MES-ISS-IP6-MIB

Tables used: eltMesIssL2Ip6NDInsp — 1.3.6.1.4.1.35265.1.139.25.1.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.25.1.1.3.1.1.8.{policy-id} i {create and go(4) |
destroy(6)}
```

Attaching ipv6 nd inspection acl to the policy

MIB: ELTEX-MES-ISS-IP6-MIB

Tables used: eltMesIssL2Ip6NDInsp — 1.3.6.1.4.1.35265.1.139.25.1.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.25.1.1.3.1.1.{src-addr-acl(2) | tgt-addr-acl(6) | tgt-
mac-addr-acl(7)}.{policy-id} i {acl-num | none(0)}
```

Configuring rflag, sflag, oflag parameters

MIB: ELTEX-MES-ISS-IP6-MIB

Tables used: eltMesIssL2Ip6NDInsp — 1.3.6.1.4.1.35265.1.139.25.1.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.25.1.1.3.1.1.{rflag(3) | sflag(4) | oflag(5)}.{policy-
id} i {none(1)| disabled(2) | enabled(3)}
```

Example of creating policy 1 and attaching src-addr-acl 1 to it

CLI command:
```
ipv6 nd inspection policy 1 match src-addr-acl 1
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.25.1.1.3.1.1.8.1 i 4 \
1.3.6.1.4.1.35265.1.139.25.1.1.3.1.1.2.1 i 1 \
1.3.6.1.4.1.35265.1.139.25.1.1.3.1.1.7.1 i 1
```

16.10 *Configuring ACL*

Configuring UDB offset

MIB: fsissacl.mib, fsissmet.mib, ELTEX-MES-ISS-ACL-MIB.mib

Tables used: eltMesIssAclUdbOffsetConfigTable — 1.3.6.1.4.1.35265.1.139.1.3.1

```
1.3.6.1.4.1.35265.1.139.1.3.1.1.2.{udb_index(1-4)} i {offset-type}
1.3.6.1.4.1.35265.1.139.1.3.1.1.3.{udb_index(1-4)} i {offset-byte(0-255)}
```

Example of configuring UDB offset

CLI command:
```
user-defined offset 1 l4 2
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.1.3.1.1.2.1 i 4 \
1.3.6.1.4.1.35265.1.139.1.3.1.1.3.1 i 2
```

Offset-type:
l2 (1);
ethertype (2);
l3 (3);
l4 (4).

For MES24xx UDB offset can only be even.

Configuring MAC ACL

MIB: fsissacl.mib, fsissmet.mib, ELTEX-MES-ISS-ACL-MIB.mib

Tables used: issAclL2FilterTable — 1.3.6.1.4.1.29601.2.21.2.1
eltMesIssAclL2FilterTable — 1.3.6.1.4.1.35265.1.139.1.1.1
eltMesIssAclIfTable — 1.3.6.1.4.1.35265.1.139.1.5.1
issMetroL2FilterTable — 1.3.6.1.4.1.2076.81.8.4.1.1

The issAclL2FilterStatus (1.3.6.1.4.1.29601.2.21.2.1.1.11) must be set to notInService (2) to change any of the ACL parameters.

L2 ACL status management

```
1.3.6.1.4.1.29601.2.21.2.1.1.11.{mac-acl} i {active(1) | notInService (2) |
create nad wait(5) | destroy(6)}
```

Rule priority setting

By default, the priority is the same for all rules. ACLs with a lower number have higher priority.

```
1.3.6.1.4.1.29601.2.21.2.1.1.2.{mac-acl} i {priority}
```

Configuring filtering by ethertype

```
1.3.6.1.4.1.29601.2.21.2.1.1.3.{mac-acl} i {ethertype_decimal}
```

Configuring filtering by destination MAC address

```
1.3.6.1.4.1.29601.2.21.2.1.1.5.{mac-acl} x {dst-mac-address}
1.3.6.1.4.1.35265.1.139.1.1.1.1.1.{mac-acl} x {dst-mac-mask}
```

Configuring filtering by source MAC address

```
1.3.6.1.4.1.29601.2.21.2.1.1.6.{mac-acl} x {src-mac-address}
1.3.6.1.4.1.35265.1.139.1.1.1.1.2.{mac-acl} x {src-mac-mask}
```

Configuring filtering by vlan-id

```
1.3.6.1.4.1.29601.2.21.2.1.1.7.{mac-acl} i {vlan-id}
```

Configuring filtering by CoS tag

```
1.3.6.1.4.1.2076.81.8.4.1.1.1.4.{mac-acl} i {CoS}
```

Configuring action for a rule

```
1.3.6.1.4.1.29601.2.21.2.1.1.9.{mac-acl} i {permit(1) | deny(2)}
```

Configuring sub-action for a rule

```
1.3.6.1.4.1.29601.2.21.2.1.1.14.{mac-acl} i {none(0) | modify-vlan(1) | nested-
vlan(2) | modify-cvlan(3)}
1.3.6.1.4.1.29601.2.21.2.1.1.15.{mac-acl} i {modify/nested-vlan-id}
```

Configuring UDB offset mapping
The values and mask consist of 8 bytes, 2 bytes for each udb-offset

```
1.3.6.1.4.1.35265.1.139.1.1.1.1.3.{mac-acl} x {bytes}
1.3.6.1.4.1.35265.1.139.1.1.1.1.4.{mac-acl} x {bytes-mask}
```

Assignment to a physical interface

```
1.3.6.1.4.1.29601.2.21.2.1.1.8.{mac-acl} x {port-mask(8 bytes)}
1.3.6.1.4.1.29601.2.21.2.1.1.8.{mac-acl} x "0800000000000000" – port 5
```

Assignment to LAG

```
1.3.6.1.4.1.29601.2.21.2.1.1.20.{mac-acl} x {port-mask(12 bytes)}
1.3.6.1.4.1.29601.2.21.2.1.1.20.{mac-acl} x "000000000000000080000000" - port 1
```

Assignment to l2vlan

```
1.3.6.1.4.1.35265.1.139.1.5.1.1.6.1.{vlan-id}.1.{mac-acl(1) | ip-acl(2)}.{mac-
acl-index} i {create and go(4) | destroy(6)}

1.3.6.1.4.1.35265.1.139.1.3.1.1.3.{udb_index(1-4)} i {offset-byte(0-255)}
```

Example of configuring MAC ACL

CLI command:

```
mac access-list extended 1010
permit 00:00:00:00:10:00 ff:ff:ff:ff:ff:00 00:00:00:00:20:00 ff:ff:ff:ff:ff:00
encaptype 0x800 vlan 500 cvlan-priority 5 sub-action modify-vlan 600 user-defined
offset1 0xf000 0xff00
!
interface gi 0/5
mac access-group 1010 in
!
interface po 1
mac access-group 1010 in
!
vlan 400
mac access-group 1010 in
```

SNMP command:

```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.29601.2.21.2.1.1.11.1010 i 5 \
1.3.6.1.4.1.29601.2.21.2.1.1.3.1010 i 2048 \
1.3.6.1.4.1.29601.2.21.2.1.1.5.1010 x "000000001000" \
1.3.6.1.4.1.35265.1.139.1.1.1.1.1.1010 x "fffffffff00" \
1.3.6.1.4.1.29601.2.21.2.1.1.6.1010 x "000000002000" \
1.3.6.1.4.1.35265.1.139.1.1.1.1.2.1010 x "fffffffff00" \
1.3.6.1.4.1.29601.2.21.2.1.1.7.1010 i 500 \
1.3.6.1.4.1.2076.81.8.4.1.1.1.4.1010 i 5 \
1.3.6.1.4.1.29601.2.21.2.1.1.9.1010 i 1 \
1.3.6.1.4.1.29601.2.21.2.1.1.14.1010 i 1 \
1.3.6.1.4.1.29601.2.21.2.1.1.15.1010 i 600 \
1.3.6.1.4.1.29601.2.21.2.1.1.8.1010 x "0800000000000000" \
1.3.6.1.4.1.29601.2.21.2.1.1.20.1010 x "000000000000000080000000" \
1.3.6.1.4.1.35265.1.139.1.5.1.1.6.1.400.1.1.1010 i 4 \
1.3.6.1.4.1.35265.1.139.1.1.1.1.3.1010 x "f000000000000000" \
1.3.6.1.4.1.35265.1.139.1.1.1.1.4.1010 x "ff00000000000000" \
1.3.6.1.4.1.29601.2.21.2.1.1.11.1010 i 1
```

Configuring IP/IPv6 ACL

MIB: fsissacl.mib, fsissmet.mib, ELTEX-MES-ISS-ACL-MIB.mib

Tables used: issAclL3FilterTable — 1.3.6.1.4.1.29601.2.21.3.1
eltMesIssAclL3FilterTable — 1.3.6.1.4.1.35265.1.139.1.2.1
eltMesIssAclIfTable — 1.3.6.1.4.1.35265.1.139.1.5.1

The issAclL3FilterStatus (1.3.6.1.4.1.29601.2.21.3.1.1.25) must be set to notInService (2) to change any of the ACL parameters.

Managing L3 ACL status

```
1.3.6.1.4.1.29601.2.21.3.1.1.25.{ip-acl} i {active(1) | notInService (2) |
create nad wait(5) | destroy(6)}
```

Defining rule priority

By default, the priority is the same for all rules. ACLs with a lower number have higher priority.

```
1.3.6.1.4.1.29601.2.21.3.1.1.2.{ip-acl} i {priority}
```

Configuring filtering by protocol type

```
1.3.6.1.4.1.29601.2.21.3.1.1.3.{ip-acl} i {protocol-type}
```

L3 ACL type configuration (IP/IPv6)

```
1.3.6.1.4.1.29601.2.21.3.1.1.6.{ip-acl} i {ipv4(1) | ipv6(2)}
```

Configuring filtering by destination prefix

```
1.3.6.1.4.1.29601.2.21.3.1.1.7.{ip-acl} x {ipv4/ipv6-address}
1.3.6.1.4.1.29601.2.21.3.1.1.9.{ip-acl} i {prefix-lenght}
```

Configuring filtering by source prefix

```
1.3.6.1.4.1.29601.2.21.3.1.1.8.{ip-acl} x {ipv4/ipv6-address}
1.3.6.1.4.1.29601.2.21.3.1.1.10.{ip-acl} i {prefix-lenght}
```

Configuring filtering by destination L4 ports

```
1.3.6.1.4.1.29601.2.21.3.1.1.11.{ip-acl} i {min-port}
1.3.6.1.4.1.29601.2.21.3.1.1.12.{ip-acl} i {max-port}
```

Configuring filtering by source l4 ports

```
1.3.6.1.4.1.29601.2.21.3.1.1.13.{ip-acl} i {min-port}
1.3.6.1.4.1.29601.2.21.3.1.1.14.{ip-acl} i {max-port}
```

Configuring filtering by ToS

```
1.3.6.1.4.1.29601.2.21.3.1.1.19.{ip-acl} i {tos-bits}
```

Configuring filtering by DSCP

```
1.3.6.1.4.1.29601.2.21.3.1.1.20.{ip-acl} i {dscp}
```

Configuring filtering by traffic-class

```
1.3.6.1.4.1.35265.1.139.1.2.1.1.3.{ip-acl} i {traffic-class}
```

Configuring action for a rule

```
1.3.6.1.4.1.29601.2.21.3.1.1.22.{ip-acl} i {permit(1) | deny(2)}
```

Configuring sub-action for a rule

```
1.3.6.1.4.1.29601.2.21.3.1.1.26.{ip-acl} i {none(0) | modify-vlan(1) | nested-
vlan(2) }
1.3.6.1.4.1.29601.2.21.3.1.1.27.{ip-acl} i {modify/nested-vlan-id}
```

Configuring udb offset maping (not supported for ipv6)
the values and mask consist of 8 bytes, 2 bytes for each udb-offset

```
1.3.6.1.4.1.35265.1.139.1.2.1.1.1.{ip-acl} x {bytes}
1.3.6.1.4.1.35265.1.139.1.2.1.1.2.{ip-acl} x {bytes-mask}
```

Assignment to a physical interface

```
1.3.6.1.4.1.29601.2.21.3.1.1.15.{ip-acl} x {port-mask(8 bytes)}
```

Assignment to the LAG

```
1.3.6.1.4.1.29601.2.21.3.1.1.30.{ip-acl} x {port-mask(12 bytes)}
```

Assignment to the l2vlan

```
1.3.6.1.4.1.35265.1.139.1.5.1.1.6.1.{vlan-id}.1.2.{ip-acl} i {create and go(4)
| destroy(6)}
```

Example of configuring IP ACL

CLI command:

```
ip access-list extended 1010
deny udp 1.1.0.0 255.255.0.0 gt 500 2.2.2.0 255.255.255.0 range 400 800 dscp 56
user-defined offset1 0xf000 0xff00
!
interface gi 0/5
ip access-group 1010 in
!
interface po 1
ip access-group 1010 in
!
vlan 400
ip access-group 1010 in
```

SNMP command:

```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.29601.2.21.3.1.1.25.1010 i 5 \
1.3.6.1.4.1.29601.2.21.3.1.1.3.1010 i 17 \
1.3.6.1.4.1.29601.2.21.3.1.1.6.1010 i 1 \
1.3.6.1.4.1.29601.2.21.3.1.1.7.1010 x "01010000" \
1.3.6.1.4.1.29601.2.21.3.1.1.9.1010 i 16 \
1.3.6.1.4.1.29601.2.21.3.1.1.8.1010 x "0202020" \
1.3.6.1.4.1.29601.2.21.3.1.1.10.1010 i 24 \
1.3.6.1.4.1.29601.2.21.3.1.1.11.1010 i 400 \
1.3.6.1.4.1.29601.2.21.3.1.1.12.1010 i 800 \
1.3.6.1.4.1.29601.2.21.3.1.1.13.1010 i 501 \
1.3.6.1.4.1.29601.2.21.3.1.1.20.1010 i 56 \
1.3.6.1.4.1.29601.2.21.3.1.1.22.1010 i 2 \
1.3.6.1.4.1.35265.1.139.1.2.1.1.1.1010 x "f000000000000000" \
1.3.6.1.4.1.35265.1.139.1.2.1.1.2.1010 x "ff00000000000000" \
1.3.6.1.4.1.29601.2.21.3.1.1.15.1010 x "0800000000000000" \
1.3.6.1.4.1.29601.2.21.3.1.1.30.1010 x "000000000000000080000000" \
1.3.6.1.4.1.35265.1.139.1.5.1.1.6.1.400.1.2.1010 i 4 \
1.3.6.1.4.1.29601.2.21.3.1.1.25.1010 i 1
```

16.11 *Configuring DOS attack protection*

Set the time interval between SYSLOG messages about exceeding the TCP incoming traffic limit with the SYN flag

MIB: ELTEX-MES-ISS-FIREWALL-MIB

Tables used: eltMesIssFwlGlobals — 1.3.6.1.4.1.35265.1.139.27.1.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.27.1.1.1.0 i {interval}
```

Example of setting 15 seconds interval

CLI command:
```
firewall
notification interval 15
exit
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.27.1.1.1.0 i 15
```

Enable limiting the incoming TCP traffic rate with SYN flag

MIB: ELTEX-MES-ISS-FIREWALL-MIB

Tables used: eltMesIssFwlGlobals — 1.3.6.1.4.1.35265.1.139.27.1.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.27.1.2.1.0 i {true(1), false(2)}
```

Example of enabling limiting the incoming TCP traffic rate with SYN flag

CLI command:
```
firewall
ip tcp limit syn-flag enable
exit
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.27.1.2.1.0 i 1
```

Setting rate limit for incoming TCP traffic with SYN flag

MIB: ELTEX-MES-ISS-FIREWALL-MIB

Tables used: eltMesIssFwlTcpSynLimitInterfaceTable — 1.3.6.1.4.1.35265.1.139.27.1.2.2

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.27.1.2.2.1.1.{ifIndex} i {disable(0), pps(1..262143)}
```

Example of setting rate limit for incoming TCP traffic with SYN flag

CLI command:
```
interface gigabitethernet 0/13
ip tcp limit syn-flag 40
exit
```

SNMP command:

```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.27.1.2.2.1.1.13 i 40
```

17 DHCP RELAY AGENT FUNCTIONS

Enable/disable DHCP Relay globally

MIB: fsmidhcpRelay.mib

Tables used: fsMIDhcpContextTable — 1.3.6.1.4.1.29601.2.92.2.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.92.2.1.1.2.0 i {enable(1), disabled(2)}
```

Example of enabling DHCP Relay globally

CLI command:
```
service dhcp-relay
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.29601.2.92.2.1.1.2.0 i 1
```

Specify the IP address of available DHCP server for the DHCP Relay agent

MIB: fsmidhcpRelay.mib

Tables used: fsMIDhcpRelaySrvAddressTable — 1.3.6.1.4.1.29601.2.92.2.2

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.92.2.2.1.2.0.{server IP-address} i {active (1), notInService
(2), notReady (3), createAndGo (4), createAndWait (5), destroy (6)}
```

Example of configuring DHCP server IP address for DHCP Relay

CLI command:
```
ip dhcp server A.B.C.D
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.29601.2.92.2.2.1.2.0.192.168.1.1 i 4
```

Activate DHCP packet transmission to available DHCP server

MIB: fsmidhcpRelay.mib

Tables used: fsMIDhcpContextTable — 1.3.6.1.4.1.29601.2.92.2.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.92.2.1.1.3.0 i {enable(1), disabled(2)}
```

Example of activating DHCP packet transmission to available DHCP server

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.29601.2.92.2.1.1.3.0 i 1
```

View DHCP Relay state

MIB: fsmidhcpRelay.mib

Tables used: fsMIDhcpContextTable — 1.3.6.1.4.1.29601.2.92.2.1

```
snmpwalk -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.92.2.1.1.2
snmpwalk -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.92.2.1.1.3
```

Example of viewing DHCP Relay state

CLI command:

```
show ip dhcp relay information
```

SNMP command:

```
snmpwalk -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.29601.2.92.2.1.1.2
snmpwalk -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.29601.2.92.2.1.1.3
```

VIew DHCP server IP address sate for DHCP Relay

MIB: fsmidhcpRelay.mib

Tables used: fsMIDhcpRelaySrvAddressTable — 1.3.6.1.4.1.29601.2.92.2.2

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.92.2.2.1.2
```

Example of viewing DHCP server IP address sate for DHCP Relay

SNMP command:

```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.29601.2.92.2.2.1.2
```

18 QUALITY OF SERVICE (QOS)

18.1 *Configuring QoS*

Configuring rate limiting of outgoing traffic on Ethernet ports

MIB: eltMesIssAclRateCtrlIgrBandwidth.mib

Tables used: issExtRateCtrlEntry — 1.3.6.1.4.1.2076.81.8.1.1.1.5

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.81.8.1.1.1.5.{ifindex} i {limiter value
```

Example of rate limiting for outgoing traffic speed of 100 Mbit/s on the GigabitInterface0/23 interface

CLI command:
```
rate-limit output 100000
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.2076.81.8.1.1.1.5.23 i 100000
```

Configuring rate limiting of incoming traffic on Ethernet ports

MIB: eltMesIssAclRateCtrlIgrBandwidth.mib

Tables used: eltMesIssAclRateCtrlEntry — 1.3.6.1.4.1.35265.1.139.1.4.1.1.7

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.2076.81.8.1.1.1.5.{ifindex} i {limiter value}
```

Example of rate limiting for incoming traffic speed of 100 Mbit/s on the GigabitInterface0/23 interface

CLI command:
```
rate-limit output 100000
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.1.4.1.1.7.23 i 100000
```

Configuring CoS label source on the interface

MIB: ELTEX-MES-ISS-QOS-MIB.mib

Tables used: eltMesIssQoSRemarkPortTable — 1.3.6.1.4.1.35265.1.139.5.1.4.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.5.1.4.1.1.3.{ifindex}  i  {none(1),  user-priority(2),
inner-vlan(3)}
```

Example of configuring CoS label copying from C-vlan to an S-vlan using dot1q tunnel

CLI command:
```
interface gi0/5
qos def-vlanPri source inner-vlanPri
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.5.1.4.1.1.3.5 i 3
```

Example of configuring CoS label for all traffic on the interface by qos interface gi 0/5 def-user-priority 7 command

CLI command:
```
interface gi0/5
qos def-vlanPri source user-pri
```

SNMP command:
```
snmpset -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.35265.1.139.5.1.4.1.1.3.5 i 2
```

Viewing QoS statistics on the interface, number of packets retrieved from queues

MIB: fsqosxtd.mib

Tables used: fsQoSCoSQStatsDeQPkts — 1.3.6.1.4.1.29601.2.6.1.5.2.1.4

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.6.1.5.2.1.4.{ifIndex}
```

Example of viewing number of packets retrieved from queues on gi0/2 interface

CLI command:
```
show qos queue-stats interface gi 0/2
```

SNMP command:
```
snmpwalk -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.29601.2.6.1.5.2.1.4.2
```

Viewing QoS statistics on the interface, number of dropped packets

MIB: fsqosxtd.mib

Tables used: fsQoSCoSQStatsDiscardPkts — 1.3.6.1.4.1.29601.2.6.1.5.2.1.6

```
snmpwalk -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.6.1.5.2.1.6.{ifIndex}
```

Example of viewing number of dropped packets on gi0/2 interface

CLI command:
```
show qos queue-stats interface gi 0/2
```

SNMP command:
```
snmpwalk -v2c -c private 192.168.1.30 \
1.3.6.1.4.1.29601.2.6.1.5.2.1.6.2
```

Creating/deleting a list of traffic classification criteria

MIB: fsqosxtd.mib

Tables used: fsQoSClassMapTable — 1.3.6.1.4.1.29601.2.6.1.2.2

```
snmpwalk -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.6.1.2.2.1.10.{classMapId} i {active(1), notInService(2),
notReady(3), createAndGo(4), createAndWait(5), destroy(6)}

snmpset -v2c c <community> <IP address>
1.3.6.1.4.1.29601.2.6.1.2.2.1.{macACL(3), ipACL(4)}.{classMapId } i {a clId}
```

Example of creating a list of traffic classification criteria

CLI command:
```
class-map 1008
match access-group ip-access-list 1108
exit
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.29601.2.6.1.2.2.1.10.1008 i 5
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.29601.2.6.1.2.2.1.4.1008 u 1108
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.29601.2.6.1.2.2.1.10.1008 i 1
```

Example of deleting a list of traffic classification criteria

CLI command:
```
no class-map 1008
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.29601.2.6.1.2.2.1.10.1008 i 6
```

Adding traffic classification criteria by MAC ACL

MIB: fsqosxtd.mib

Tables used: fsQoSClassMapTable — 1.3.6.1.4.1.29601.2.6.1.2.2

```
snmpwalk -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.6.1.2.2.1.3.{classMapId} i {macAclId}
```

Adding traffic classification criteria by IP ACL

MIB: fsqosxtd.mib

Tables used: fsQoSClassMapTable — 1.3.6.1.4.1.29601.2.6.1.2.2

```
snmpwalk -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.6.1.2.2.1.4.{classMapId} i {ipAclId}
```

Example of creating a list of traffic classification criteria

CLI command:
```
class-map 1008
match access-group ip-access-list 1108
exit
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.29601.2.6.1.2.2.1.10.1008 i 5
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.29601.2.6.1.2.2.1.4.1008 u 1108
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.29601.2.6.1.2.2.1.10.1008 i 1
```

Example of deleting a list of traffic classification criteria

CLI command:
```
no class-map 1008
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.29601.2.6.1.2.2.1.10.1008 i 6
```

Set/delete internal priority for the specified class

MIB: fsqosxtd.mib

Tables used: fsQoSClassToPriorityTable — 1.3.6.1.4.1.29601.2.6.1.2.3, fsQoSClassMapTable — 1.3.6.1.4.1.29601.2.6.1.2.2

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.6.1.2.3.1.4.{trafficClass} i {active(1), notInService(2),
notReady(3), createAndGo(4), createAndWait(5), destroy(6)}
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.6.1.2.3.1.2.{trafficClass} u {regenPri}
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.6.1.2.3.1.2.{trafficClass} s {groupName}
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.6.1.2.2.1.10.{classMapId} i {active(1), notInService(2),
notReady(3), createAndGo(4), createAndWait(5), destroy(6)}
snmpset -v2c -c <community> <IP address> \
```

Example of setting internal priority 6 for class 1008, the priority class identifier is 3008

CLI command:
```
class-map 1008
set class 1008 regen-priority 6 group-name GR1008
exit
```

SNMP command:
```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.29601.2.6.1.2.3.1.4.1008 i 5
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.29601.2.6.1.2.3.1.2.1008 u 6
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.29601.2.6.1.2.3.1.3.1008 s GR1008
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.29601.2.6.1.2.3.1.4.1008 i 1
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.29601.2.6.1.2.2.1.10.1008 i 2
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.29601.2.6.1.2.2.1.6.1008 u 1008
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.29601.2.6.1.2.2.1.10.1008 i 1
```

First, create a record in the table fsQoSClassToPriorityTable with id 3008, then map this record to class-map 1008.

Create/delete a traffic classification strategy

MIB: fsqosxtd.mib

Tables used: fsQoSPolicyMapTable — 1.3.6.1.4.1.29601.2.6.1.3.2

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.6.1.3.2.1.37.{policyMapId} i {active(1), notInService(2),
notReady(3), createAndGo(4), createAndWait(5), destroy(6)}
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.6.1.3.2.1.4.{policyMapId} u {trafficClass}
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.6.1.3.2.1.5.{policyMapId} i {vlanPri(1), ipDscp(3)}
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.6.1.3.2.1.6.{policyMapId} u {0-63}
```

Example of configuring traffic classification strategy

CLI command:

```
policy-map 3008
set policy class 1008 default-priority-type vlanPri 4
```

SNMP command:

```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.29601.2.6.1.3.2.1.37.3008 i 5
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.29601.2.6.1.3.2.1.4.3008 u 1008
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.29601.2.6.1.3.2.1.5.3008 i 1
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.29601.2.6.1.3.2.1.6.3008 u 4
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.29601.2.6.1.3.2.1.37.3008 i 1
```

Set rate limiting for egress traffic

MIB: fsqosxtd.mib, ELTEX-MES-ISS-QOS-MIB.mib

Tables used: fsQoSMeterTable — 1.3.6.1.4.1.29601.2.6.1.3.1,
eltMesIssQoSMeterTable — 1.3.6.1.4.1.35265.1.139.5.1.2.1

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.6.1.3.1.1.11.{meterId} i {active(1), notInService(2),
notReady(3), createAndGo(4), createAndWait(5), destroy(6)}
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.6.1.3.1.1.3.{meterId} i {avgRate(2), srTCM(3), trTCM(4)}
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.6.1.3.1.1.5.{meterId} u {colorAware(1), colorBlind(2)}
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.6.1.3.1.1.6.{meterId} u {CIR: 0-65535}
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.6.1.3.1.1.7.{meterId} u {CBS: 0-65535}
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.6.1.3.1.1.8.{meterId} u {EIR: 0-65535}
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.6.1.3.1.1.9.{meterId} u {EBS: 0-65535}
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.35265.1.139.5.1.2.1.1.1.{meterId} i {bytes(1), packets(2)}
```

Example of setting 2048 bytes limit according to the avgRate algorithm

CLI command:

```
meter 508
meter-type avgRate cir 2048 mode bytes
```

SNMP command:

```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.29601.2.6.1.3.1.1.11.508 i 5
snmpset -v2c -c public 192.168.1.30 \
```

```
1.3.6.1.4.1.29601.2.6.1.3.1.1.3.508 i 2 \
1.3.6.1.4.1.29601.2.6.1.3.1.1.6.508 u 2048 \
1.3.6.1.4.1.35265.1.139.5.1.2.1.1.1.508 i 1
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.29601.2.6.1.3.1.1.11.508 i 1
```

Setting flow rate limiting

MIB: fsqosxtd.mib

Tables used: fsQoSPolicyMapTable — 1.3.6.1.4.1.29601.2.6.1.3.2

```
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.6.1.3.2.1.37.{policyMapId} i {active(1), notInService(2),
notReady(3), createAndGo(4), createAndWait(5), destroy(6)}
snmpset -v2c -c <community> <IP address> \
1.3.6.1.4.1.29601.2.6.1.3.2.1.7.{policyMapId} u {meterId}
```

Example of flow rate limiting

CLI command:

```
policy-map 3008
set meter 508
exit
```

SNMP command:

```
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.29601.2.6.1.3.2.1.37.3008 i 2
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.29601.2.6.1.3.2.1.7.3008 u 508
snmpset -v2c -c public 192.168.1.30 \
1.3.6.1.4.1.29601.2.6.1.3.2.1.37.3008 i 1
```

19 ROUTING

19.1 *Static Routing*

View Routing table

MIB: IP-FORWARD-MIB

Tables used: ipCidrRouteTable — 1.3.6.1.2.1.4.24.4

```
snmpwalk -v2c -c <community> <IP address> \
1.3.6.1.2.1.4.24.4
```

Example

CLI command:

```
show ip route
```

SNMP command:

```
snmpwalk -v2c -c public 192.168.1.30 \
1.3.6.1.2.1.4.24.4
```

APPENDIX A. BITMASK CALCULATION METHOD

Bitmasks consist of 128 bytes (hexadecimal bits only 256).
Each digit represents four ports. The required field shall be determined by the port number.

Example 1

Record a bitmask for GigabitEthernet interfaces 0/20-21:

- for 1G interfaces ifIndex starts with 1;
- for GigabitEthernet port 0/20 ifIndex is 20, for GigabitEthernet 0/21 is 21.

Determination of the digit number:

20/4=5 21/4=5,2 (Each bit is responsible for 4 ifIndex. When dividing ifindex by 4 to determine the digit number for a record, the resulting value is rounded up).

If we need GigabitEthernet ports 0/20-21 (ifindex 20, 21), they should be recorded in the 5th and 6th fields.

In binary sequence 5 field will be recorded as follows 0001 (Last 1 — 20 index). After transfer to HEX, we get 1.

In binary sequence 6, the field will be recorded as follows 1000 (First 1 — 21 indices). After transfer to HEX, we get 8.

Total in the bit mask will be 4 zeros, 1, 8: 000018.

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