



## Auto Smartports and Static Smartports Macros CLI Commands

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# macro

To apply a macro to an interface or to apply and debug a macro on an interface, use the **macro** interface configuration command.

```
macro {apply | trace} macro-name [parameter {value}] [parameter {value}]
    [parameter {value}]
```

Syntax Description	
<b>apply</b>	Applies a macro to an interface.
<b>trace</b>	Applies a macro to an interface and then debugs it.
<i>macro-name</i>	Specifies the name of the macro.
<b>parameter value</b>	(Optional) Specifies unique parameter values that are specific to the interface. You can enter up to three keyword-value pairs. Parameter keyword matching is case sensitive. All matching occurrences of the keyword are replaced with the corresponding value.

**Command Default** This command has no default setting.

**Command Modes** Interface configuration

Command History	Release	Modification
	12.1(19)EA1	This command was introduced on Catalyst 3750 and 3560 switches.
	12.2(18)SE	The <b>parameter value</b> keywords were added on Catalyst 3750 and 3560 switches.
	12.2(25)FX	This command was introduced on Catalyst 2960 switches.
	12.2(44)SE	This command was introduced on Catalyst 2918 switches.
	12.2(46)EX	This command was introduced on Catalyst 2975 switches.
	12.2(35)SE2	This command was introduced on the Catalyst 3750-E and 3560-E switches.
	12.2(53)SE2	This command was introduced on the Catalyst 3750-X and 3560-X switches.

**Usage Guidelines** You can use the **macro apply** *macro-name* interface configuration command to apply and show the macros running on an interface.

You can use the **macro trace** *macro-name* interface configuration command to apply and then debug the macro to find any syntax or configuration errors.

If a command fails because of a syntax error or a configuration error when you apply a macro, the macro continues to apply the remaining commands to the interface.

When creating a macro that requires the assignment of unique values, use the **parameter value** keywords to designate values specific to the interface.

Keyword matching is case sensitive. All matching occurrences of the keyword are replaced with the corresponding value. Any full match of a keyword, even if it is part of a larger string, is considered a match and is replaced by the corresponding value.

Some macros might contain keywords that require a parameter value. You can use the **macro apply *macro-name* ?** command to display a list of any required values in the macro. If you apply a macro without entering the keyword values, the commands are invalid and are not applied.

There are Cisco-default Smartports macros embedded in the switch software. You can display these macros and the commands that they contain by using the **show parser macro** user EXEC command.

Follow these guidelines when you apply a Cisco-default Smartports macro on an interface:

- Display all macros on the switch by using the **show parser macro** user EXEC command. Display the contents of a specific macro by using the **show parser macro name *macro-name*** user EXEC command.
- Keywords that begin with \$ mean that a unique parameter value is required. Append the Cisco-default macro with the required values by using the **parameter *value*** keywords.

The Cisco-default macros use the \$ character to identify required keywords. You can use the \$ character to define keywords when you create a macro.

When you apply a macro to an interface, the macro name is automatically added to the interface. You can display the applied commands and macro names by using the **show running-config interface *interface-id*** user EXEC command.

A macro applied to an interface range behaves the same way as a macro applied to a single interface. When you use an interface range, the macro is applied sequentially to each interface within the range. If a macro command fails on one interface, it is still applied to the remaining interfaces.

You can delete a macro-applied configuration on an interface by entering the **default interface *interface-id*** interface configuration command.

## Examples

After you use the **macro name** global configuration command, you can apply it to an interface. This example shows how to apply a user-created macro called *duplex* to an interface:

```
Switch(config-if)# macro apply duplex
```

To debug a macro, use the **macro trace** interface configuration command to find any syntax or configuration errors in the macro as it is applied to an interface.

```
Switch(config-if)# macro trace duplex
Applying command...`duplex auto'
%Error Unknown error.
Applying command...`speed nonegotiate'
```

This example shows how to display the Cisco-default *cisco-desktop* macro and how to apply the macro and set the access VLAN ID to 25 on an interface:

```
Switch# show parser macro cisco-desktop
-----
Macro name : cisco-desktop
Macro type : default

# Basic interface - Enable data VLAN only
# Recommended value for access vlan (AVID) should not be 1
switchport access vlan $AVID
switchport mode access

# Enable port security limiting port to a single
# MAC address -- that of desktop
```

```

switchport port-security
switchport port-security maximum 1

# Ensure port-security age is greater than one minute
# and use inactivity timer
switchport port-security violation restrict
switchport port-security aging time 2
switchport port-security aging type inactivity

# Configure port as an edge network port
spanning-tree portfast
spanning-tree bpduguard enable
-----
Switch#
Switch# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)# interface gigabitethernet1/0/4
Switch(config-if)# macro apply cisco-desktop $AVID 25

```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>macro description</b>	Adds a description about the macros that are applied to an interface. This is a mandatory command for Auto Smartports to work.
<b>macro global</b>	Applies a macro on a switch or applies and traces a macro on a switch.
<b>macro global description</b>	Adds a description about the macros that are applied to the switch.
<b>show parser macro</b>	Displays the macro definition for all macros or for the specified macro.

## macro auto (CLI)

To configure and apply a global macro using the CLI, use the **macro auto** privileged EXEC command. Use the **no** form of this command to return to the default setting.

**macro auto** {**apply** | **config**} *macro-name*

Syntax Description		
	<b>apply</b>	Applies the macro.
	<b>config</b>	Enters the macro parameters.
	<i>macro-name</i>	Specifies the macro name.

**Command Default** No macros are applied to the switch.

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.2(55)SE	This command was introduced on the Catalyst 3750-X, 3750-E, 3750, 3560-X, 3560-E, 3560, 2975, 2960, and 2918 switches.

**Usage Guidelines**

To remove the macro from the switch, enter the **no** forms of the macro commands.

If you enter the **macro auto config macro-name** command, you are prompted to enter values for all the macro parameters.

Use the exact text string when entering the *macro-name*. The entries are case sensitive.

The user-defined values appear only in the **show macro auto** or **show running-config** command output.

**Examples** To display global macros:

```
Switch# macro auto apply ?
CISCO_SWITCH_AAA_ACCOUNTING      Configure aaa accounting parameters
CISCO_SWITCH_AAA_AUTHENTICATION  Configure aaa authentication parameters
CISCO_SWITCH_AAA_AUTHORIZATION   Configure aaa authorization parameters
CISCO_SWITCH_AUTO_IP_CONFIG      Configure the ip parameters
CISCO_SWITCH_AUTO_PCI_CONFIG     Configure PCI compliant parameters
CISCO_SWITCH_DOMAIN_NAME_CONFIG  Configure domain name
CISCO_SWITCH_ETHERCHANNEL_CONFIG Configure the etherchannel parameters
CISCO_SWITCH_HOSTNAME_CONFIG     Configure hostname
CISCO_SWITCH_HTTP_SERVER_CONFIG  Configure http server
CISCO_SWITCH_LOGGING_SERVER_CONFIG Configure logging server
CISCO_SWITCH_MGMT_VLAN_CONFIG    Configure management vlan parameters
CISCO_SWITCH_NAME_SERVER_CONFIG  Configure name server parameters
CISCO_SWITCH_NTP_SERVER_CONFIG   Configure NTP server
CISCO_SWITCH_RADIUS_SERVER_CONFIG Configure radius server
CISCO_SWITCH_SETUP_SNMP_TRAPS    Configure SNMP trap parameters
CISCO_SWITCH_SETUP_USR_CONFIG    Configure the user parameters
CISCO_SWITCH_SNMP_SOURCE_CONFIG  Configure snmp source interface
```

```

CISCO_SWITCH_TACACS_SERVER_CONFIG    Configure tacacs server
CISCO_SWITCH_USER_PASS_CONFIG        Configure username and password

```

```

Switch# macro auto config ?
CISCO_SWITCH_AAA_ACCOUNTING          Configure aaa accounting parameters
CISCO_SWITCH_AAA_AUTHENTICATION      Configure aaa authentication parameters
CISCO_SWITCH_AAA_AUTHORIZATION       Configure aaa authorization parameters
CISCO_SWITCH_AUTO_IP_CONFIG          Configure the ip parameters
CISCO_SWITCH_AUTO_PCI_CONFIG         Configure PCI compliant parameters
CISCO_SWITCH_DOMAIN_NAME_CONFIG      Configure domain name
CISCO_SWITCH_ETHERCHANNEL_CONFIG     Configure the etherchannel parameters
CISCO_SWITCH_HOSTNAME_CONFIG         Configure hostname
CISCO_SWITCH_HTTP_SERVER_CONFIG      Configure http server
CISCO_SWITCH_LOGGING_SERVER_CONFIG   Configure logging server
CISCO_SWITCH_MGMT_VLAN_CONFIG        Configure management vlan parameters
CISCO_SWITCH_NAME_SERVER_CONFIG      Configure name server parameters
CISCO_SWITCH_NTP_SERVER_CONFIG       Configure NTP server
CISCO_SWITCH_RADIUS_SERVER_CONFIG    Configure radius server
CISCO_SWITCH_SETUP_SNMP_TRAPS        Configure SNMP trap parameters
CISCO_SWITCH_SETUP_USR_CONFIG        Configure the user parameters
CISCO_SWITCH_SNMP_SOURCE_CONFIG      Configure snmp source interface
CISCO_SWITCH_TACACS_SERVER_CONFIG    Configure tacacs server
CISCO_SWITCH_USER_PASS_CONFIG        Configure username and password

```

To display the parameters for a specific macro:

```

Switch# macro auto config CISCO_SWITCH_AUTO_IP_CONFIG ?
CISCO_SWITCH_DOMAIN_NAME_CONFIG      domain name parameters
CISCO_SWITCH_LOGGING_SERVER_CONFIG   logging host parameters
CISCO_SWITCH_NAME_SERVER_CONFIG      name server parameters
CISCO_SWITCH_NTP_SERVER_CONFIG       ntp server parameters
LINE                                  Provide parameters of form [Parameters
name=value]

<cr>

```

```

Switch# macro auto config CISCO_SWITCH_AUTO_PCI_CONFIG ?
CISCO_SWITCH_AAA_ACCOUNTING          aaa accounting parameters
CISCO_SWITCH_AAA_AUTHENTICATION      aaa authentication parameters
CISCO_SWITCH_AAA_AUTHORIZATION       aaa authorization parameters
CISCO_SWITCH_HTTP_SERVER_CONFIG      http server parameters
CISCO_SWITCH_RADIUS_SERVER_CONFIG    radius server parameters
CISCO_SWITCH_TACACS_SERVER_CONFIG    tacacs server parameters
LINE                                  Provide parameters of form [Parameters
name=value]

<cr>

```

```

Switch# macro auto config CISCO_SWITCH_SETUP_SNMP_TRAPS ?
CISCO_SWITCH_SNMP_SOURCE_CONFIG      snmp source parameters
LINE                                  Provide parameters of form [Parameters
name=value]

<cr>

```

```

Switch# macro auto config CISCO_SWITCH_SETUP_USR_CONFIG ?
CISCO_AUTO_TIMEZONE_CONFIG           timezone parameters
CISCO_SWITCH_HOSTNAME_CONFIG         hostname parameter
LINE                                  Provide parameters of form [Parameters
name=value]

<cr>

```

To set macro parameters and apply the macro using the CLI:

```

Switch# macro auto config CISCO_SWITCH_ETHERCHANNEL_CONFIG
Enter the port channel id[1-48] for 3K & 2350, [1-6] for 2K: 2
Enter the port channel type, Layer:[2-3(L3 not supported on 2K)]: 2

```

```

Enter etherchannel mode for the interface[auto/desirable/on/active/passive]: active
Enter the channel protocol[lacp/none]: lacp
Enter the number of interfaces to join the etherchannel [8-PAGP/MODE:ON,16-LACP]: 7
Enter interface name[GigabitEthernet3/0/3]: gigabitethernet1/0/1
Enter interface name[GigabitEthernet3/0/3]: gigabitethernet1/0/2
Enter interface name[GigabitEthernet3/0/3]: gigabitethernet1/0/3
Enter interface name[GigabitEthernet3/0/3]: gigabitethernet1/0/4
Enter interface name[GigabitEthernet3/0/3]: gigabitethernet1/0/5
Enter interface name[GigabitEthernet3/0/3]: gigabitethernet1/0/6
Enter interface name[GigabitEthernet3/0/3]: gigabitethernet1/0/7
Do you want to apply the parameters? [yes/no]: yes
Enter configuration commands, one per line. End with CNTL/Z.
Enter configuration commands, one per line. End with CNTL/Z.
Enter configuration commands, one per line. End with CNTL/Z.
Enter configuration commands, one per line. End with CNTL/Z.
Enter configuration commands, one per line. End with CNTL/Z.
Enter configuration commands, one per line. End with CNTL/Z.
Enter configuration commands, one per line. End with CNTL/Z.
Switch# macro auto apply CISCO_SWITCH_ETHERCHANNEL_CONFIG
Enter configuration commands, one per line. End with CNTL/Z.
Switch#

```

**Related Commands**

Command	Description
<b>macro auto execute</b>	Configures mapping from an event trigger to a built-in macro.
<b>macro auto global processing</b>	Enables Auto Smartports on a switch.
<b>show macro auto</b>	Displays information about macros.
<b>show shell</b>	Displays information about event triggers and macros.

## macro auto apply (Cisco IOS shell scripting capability)

To configure and apply a global macro using the Cisco IOS shell scripting capability, use the **macro auto apply** privileged EXEC command. Use the **no** form of this command to return to the default setting.

**macro auto apply** *macro-name*

Syntax Description	apply	Applies the macro.
	<i>macro-name</i>	Specifies the macro name.

**Command Default** No macros are applied to the switch.

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.2(55)SE	This command was introduced on the Catalyst 3750-X, 3750-E, 3750, 3560-X, 3560-E, 3560, 2975, 2960, and 2918 switches.

**Usage Guidelines**

To remove the macro from the switch, enter the **no** forms of the macro commands.

Use the exact text string when entering the *macro-name*. The entries are case sensitive.

The user-defined values appear only in the **show macro auto** or **show running-config** command output.

You can also use the Cisco IOS shell scripting capability to set the parameters. For examples, see the “Configuring and Applying Global Macros” section in the “Configuring Auto Smartports and Static Smartports Macros” chapter.

**Examples** To display global macros:

```
Switch# macro auto apply ?
  CISCO_SWITCH_AAA_ACCOUNTING      Configure aaa accounting parameters
  CISCO_SWITCH_AAA_AUTHENTICATION  Configure aaa authentication parameters
  CISCO_SWITCH_AAA_AUTHORIZATION   Configure aaa authorization parameters
  CISCO_SWITCH_AUTO_IP_CONFIG      Configure the ip parameters
  CISCO_SWITCH_AUTO_PCI_CONFIG     Configure PCI compliant parameters
  CISCO_SWITCH_DOMAIN_NAME_CONFIG  Configure domain name
  CISCO_SWITCH_ETHERCHANNEL_CONFIG Configure the etherchannel parameters
  CISCO_SWITCH_HOSTNAME_CONFIG     Configure hostname
  CISCO_SWITCH_HTTP_SERVER_CONFIG  Configure http server
  CISCO_SWITCH_LOGGING_SERVER_CONFIG Configure logging server
  CISCO_SWITCH_MGMT_VLAN_CONFIG    Configure management vlan parameters
  CISCO_SWITCH_NAME_SERVER_CONFIG  Configure name server parameters
  CISCO_SWITCH_NTP_SERVER_CONFIG   Configure NTP server
  CISCO_SWITCH_RADIUS_SERVER_CONFIG Configure radius server
  CISCO_SWITCH_SETUP_SNMP_TRAPS    Configure SNMP trap parameters
  CISCO_SWITCH_SETUP_USR_CONFIG    Configure the user parameters
  CISCO_SWITCH_SNMP_SOURCE_CONFIG  Configure snmp source interface
```



```
CISCO_SWITCH_TACACS_SERVER_CONFIG  Configure tacacs server
CISCO_SWITCH_USER_PASS_CONFIG      Configure username and password
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>macro auto execute</b>	Configures mapping from an event trigger to a built-in macro.
	<b>macro auto global processing</b>	Enables Auto Smartports on a switch.
	<b>show macro auto</b>	Displays information about macros.
	<b>show shell</b>	Displays information about event triggers and macros.

## macro auto config (Cisco IOS shell scripting capability)

To configure and apply a global macro, use the **macro auto config** privileged EXEC command. Use the **no** form of this command to return to the default setting.

**macro auto config** *macro-name* [*parameter=value* [*parameter=value*] ...]

### Syntax Description

<b>config</b>	Enters the macro parameters.
<i>macro-name</i>	Specifies the macro name.
<i>parameter=value</i> [ <i>parameter=value</i> ] ...	<i>parameter=value</i> —Replaces values for global macro parameter values. Enter values in the form of name value pair separated by a space: <name1>=<value1> [<name2>=<value2>...].

### Command Default

No macros are applied to the switch.

### Command Modes

Privileged EXEC

### Command History

Release	Modification
12.2(55)SE	This command was introduced on the Catalyst 3750-X, 3750-E, 3750, 3560-X, 3560-E, 3560, 2975, 2960, and 2918 switches.

### Usage Guidelines

To remove the macro from the switch, enter the **no** forms of the macro commands.

If you enter the **macro auto config** *macro-name* command, you are prompted to enter values for all the macro parameters.

Use the exact text string when entering the *macro-name* and *parameters*. The entries are case sensitive.

The user-defined values appear only in the **show macro auto** or **show running-config** command output.

For more information, see the “Configuring and Applying Global Macros” section in the “Configuring Auto Smartports and Static Smartports Macros” chapter.

### Related Commands

Command	Description
<b>macro auto execute</b>	Configures mapping from an event trigger to a built-in macro.
<b>macro auto global processing</b>	Enables Auto Smartports on a switch.
<b>show macro auto</b>	Displays information about macros.
<b>show shell</b>	Displays information about event triggers and macros.

## macro auto control

To specify when the switch applies an Auto Smartports macro based on the detection method, device type, or trigger (referred to as event trigger control), use the **macro auto control** interface configuration command. Use the **no** form of this command to disable trigger-to-macro mapping. The switch then does not apply macros based on event triggers.

```
macro auto control { detection [cdp] [lldp] [mac-address] | device [access-point] [ip-camera]
[lightweight-ap] [media-player] [phone] [router] [switch] | trigger [last-resort]}
```

```
no macro auto control { detection [cdp] [lldp] [mac-address] | device [access-point] [ip-camera]
[lightweight-ap] [media-player] [phone] [router] [switch] | trigger [last-resort]}
```

Syntax Description	
<b>detection</b> [cdp] [lldp] [mac-address]	<b>detection</b> —Sets one or more of these as an event trigger: <ul style="list-style-type: none"> <li>(Optional) <b>cdp</b>—CDP messages</li> <li>(Optional) <b>lldp</b>—LLDP messages</li> <li>(Optional) <b>mac-address</b>—User-defined MAC address groups</li> </ul>
<b>device</b> [access-point] [ip-camera] [lightweight-ap] [media-player] [phone] [router] [switch]	<b>device</b> —Sets one or more of these devices as an event trigger: <ul style="list-style-type: none"> <li>(Optional) <b>access-point</b>—Autonomous access point</li> <li>(Optional) <b>ip-camera</b>—Cisco IP video surveillance camera</li> <li>(Optional) <b>lightweight-ap</b>—Lightweight access point</li> <li>(Optional) <b>media-player</b>—Digital media player</li> <li>(Optional) <b>phone</b>—Cisco IP phone</li> <li>(Optional) <b>router</b>—Cisco router</li> <li>(Optional) <b>switch</b>—Cisco switch</li> </ul>
<b>trigger</b> [last-resort]	<b>trigger</b> —Sets a specific event trigger. <ul style="list-style-type: none"> <li>(Optional) <b>last-resort</b>—Last-resort trigger.</li> </ul>

**Command Default** The switch uses the device type as the event trigger. If the switch cannot determine the device type, it uses MAC address groups, MAB messages, 802.1x authentication messages, and LLDP messages in random order.

**Command Modes** Interface configuration

Command History	Release	Modification
	12.2(55)SE	This command was introduced on the Catalyst 3750-X, 3750-E, 3750, 3560-X, 3560-E, 3560, 2975, 2960, and 2918 switches.

**Usage Guidelines**

If you do not set event triggers, the switch uses the device type as the event trigger. If the switch cannot determine the device type, it uses MAC address groups, MAB messages, 802.1x authentication messages, and LLDP messages in random order.

To verify that a macro is applied to an interface, use the **show macro auto interface** user EXEC command.

**Examples**

To set LLDP messages and MAC address groups as event triggers:

```
Switch# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)# interface gigabitethernet 5/0/2
Switch(config-if)# macro auto control detection lldp mac-address
Switch(config-if)# exit
Switch(config)# end
```

To set access points, video surveillance cameras, and digital media players as event triggers:

```
Switch# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)# interface gigabitethernet 5/0/1
Switch(config-if)# macro auto control device access-point ip-camera media-player
Switch(config-if)# exit
Switch(config)# end
```

The switch applies a built-in macro only when it detects an access point, video surveillance camera, or digital media player.

**Related Commands**

Command	Description
<b>macro auto execute</b>	Configures mapping from an event trigger to a built-in macro.
<b>macro auto global processing</b>	Enables Auto Smartports on a switch.
<b>macro auto mac-address-group</b>	Configures MAC address groups.
<b>macro auto sticky</b>	Configures macro persistence.
<b>shell trigger</b>	Creates event triggers.
<b>show macro auto</b>	Displays information about macros.
<b>show shell</b>	Displays information about event triggers and macros.

## macro auto device

To replace macro default parameter values with values that are specific to your switch, use the **macro auto device** global configuration command. Use the **no** form of this command to remove the parameter values.

```
macro auto device {access-point | ip-camera | lightweight-ap | media-player | phone | router |
switch} [parameter=value]
```

```
no macro auto device {access-point | ip-camera | lightweight-ap | media-player | phone | router
| switch} [parameter=value]
```

Syntax Description		
	<b>access-point</b>	Replaces the access-point default parameter value: NATIVE_VLAN=1
	<b>ip-camera</b>	Replaces the IP video surveillance camera default parameter value: ACCESS_VLAN=1
	<b>lightweight-ap</b>	Replaces the lightweight access point default parameter value: ACCESS_VLAN=1
	<b>media-player</b>	Replaces the digital media player default parameter value: ACCESS_VLAN=1
	<b>phone</b>	Replaces the IP phone default parameter values: ACCESS_VLAN=1 VOICE_VLAN=2
	<b>router</b>	Replaces the router default parameter value: NATIVE_VLAN=1
	<b>switch</b>	Replaces the switch default parameter value: NATIVE_VLAN=1
	<i>parameter=value</i>	(Optional) Replaces the macro default parameter values. Enter new values in the form of name value pair separated by spaces: [<name1>=<value1> <name2>=<value2>...]

**Command Default** Macro default parameter values are defined previously.

**Command Modes** Global configuration

Command History	Release	Modification
	12.2(52)SE	This command was introduced on the Catalyst 3750-E, 3750, 3560-E, 3560, 2975, 2960, and 2918 switches.
	12.2(53)SE2	This command was introduced on the Catalyst 3750-X and 3560-X switches.

**Usage Guidelines** Use the **macro auto device** global configuration command to replace macro default parameter values with values that are specific to your switch. Use the **no** form of this command to remove the parameter values.

Use the **show macro device** privileged EXEC command to display the contents of the macros. Use the *parameter=value* keywords to replace default parameter values within a specific macro.

You can also use the **macro auto execute** global configuration command to specify default parameter values. This command also requires that you specify an event trigger and a built-in or user-defined macro. If you enable both the **macro auto device** and the **macro auto execute** commands, the parameters specified in the command last executed is applied to the switch. Only one command is active on the switch.

To verify that a macro is applied to an interface, use the **show macro auto interface** user EXEC command.

### Examples

This example shows how to display the IP phone macro parameter values, enable the IP phone macro, and change the default voice VLAN to 20:

```
Switch# show macro auto device phone
Device:phone
Default Macro:CISCO_PHONE_AUTO_SMARTPORT
Current Macro:CISCO_PHONE_AUTO_SMARTPORT
Configurable Parameters:ACCESS_VLAN VOICE_VLAN
Defaults Parameters:ACCESS_VLAN=1 VOICE_VLAN=2
Current Parameters:ACCESS_VLAN=1 VOICE_VLAN=2

Switch# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)# macro auto device phone VOICE_VLAN=20
Switch(config)# end
Switch# show macro auto device phone
Device:phone
Default Macro:CISCO_PHONE_AUTO_SMARTPORT
Current Macro:CISCO_PHONE_AUTO_SMARTPORT
Configurable Parameters:ACCESS_VLAN VOICE_VLAN
Defaults Parameters:ACCESS_VLAN=1 VOICE_VLAN=2
Current Parameters:VOICE_VLAN=20
```

### Related Commands

Command	Description
<b>macro auto execute</b>	Configures mapping from an event trigger to a built-in macro.
<b>macro auto global processing</b>	Enables Auto Smartports on a switch.
<b>macro auto mac-address-group</b>	Configures MAC address groups.
<b>macro auto sticky</b>	Configures macro persistence.
<b>shell trigger</b>	Creates event triggers.
<b>show macro auto</b>	Displays information about macros.
<b>show shell</b>	Displays information about event triggers and macros.

## macro auto execute

To replace built-in macro default values and to configure mapping from an event trigger to a built-in or user-defined macro, use the **macro auto execute** global configuration command.

```
macro auto execute event trigger {[builtin built-in macro name] | [remote url]} [parameter=value]
[function contents]
```

```
no macro auto execute event trigger {[builtin built-in macro name] | [remote url]}
[parameter=value] [function contents]
```

Syntax Description	
<i>event trigger</i>	<p>Defines mapping from an event trigger to a built-in macro.</p> <p>Specifies an <i>event trigger</i>:</p> <ul style="list-style-type: none"> <li>• CISCO_CUSTOM_EVENT</li> <li>• CISCO_DMP_EVENT</li> <li>• CISCO_IPVSC_EVENT</li> <li>• CISCO_LAST_RESORT_EVENT</li> <li>• CISCO_PHONE_EVENT</li> <li>• CISCO_ROUTER_EVENT</li> <li>• CISCO_SWITCH_EVENT</li> <li>• CISCO_WIRELESS_AP_EVENT</li> <li>• CISCO_WIRELESS_LIGHTWEIGHT_AP_EVENT</li> <li>• WORD—Apply a user-defined event trigger such as a MAC address group.</li> </ul>
<b>builtin</b> <i>built-in macro name</i>	<p>(Optional) Specifies a <b>builtin</b> <i>built-in macro name</i>:</p> <ul style="list-style-type: none"> <li>• CISCO_AP_AUTO_SMARTPORT Specify the parameter value: NATIVE_VLAN=1.</li> <li>• CISCO_DMP_AUTO_SMARTPORT Specify the parameter value: ACCESS_VLAN=1.</li> <li>• CISCO_IPVSC_AUTO_SMARTPORT Specify the parameter value: ACCESS_VLAN=1.</li> <li>• CISCO_LWAP_AUTO_SMARTPORT Specify the parameter value: ACCESS_VLAN=1.</li> <li>• CISCO_PHONE_AUTO_SMARTPORT Specify the parameter values: ACCESS_VLAN=1 and VOICE_VLAN=2.</li> <li>• CISCO_ROUTER_AUTO_SMARTPORT Specify the parameter value: NATIVE_VLAN=1.</li> <li>• CISCO_SWITCH_AUTO_SMARTPORT Specify the parameter value: NATIVE_VLAN=1.</li> </ul>
<i>parameter=value</i>	<p>(Optional) <i>parameter=value</i>—Replaces default values for parameter values shown for the <i>builtin-macro name</i>, for example, ACCESS_VLAN=1. Enter new values in the form of name value pair separated by a space: [<i>&lt;name1&gt;=&lt;value1&gt; &lt;name2&gt;=&lt;value2&gt;...</i>].</p>

<i>{function contents}</i>	(Optional) <i>{function contents}</i> Specifies a user-defined macro to associate with the trigger. Enter the macro contents within braces. Begin the Cisco IOS shell commands with the left brace and end the command grouping with the right brace.
<b>remote url</b>	(Optional) Specifies a remote server location: <ul style="list-style-type: none"> <li>The syntax for the local flash file system on the standalone switch or the stack master: <b>flash:</b></li> <li>The syntax for the local flash file system on a stack member: <b>flash member number:</b></li> <li>The syntax for the FTP: <b>ftp:[[/username[:password]]@location]/directory]/filename</b></li> <li>The syntax for an HTTP server: <b>http://[[username:password]@]{hostname   host-ip}[/directory]/filename</b></li> <li>The syntax for a secure HTTP server: <b>https://[[username:password]@]{hostname   host-ip}[/directory]/filename</b></li> <li>The syntax for the NVRAM: <b>nvram://[[username:password]@]/[directory]/filename</b></li> <li>The syntax for the Remote Copy Protocol (RCP): <b>rnp:[[/username@location]/directory]/filename</b></li> <li>The syntax for the Secure Copy Protocol (SCP): <b>scp:[[/username@location]/directory]/filename</b></li> <li>The syntax for the TFTP: <b>tftp:[[/location]/directory]/filename</b></li> </ul>

**Command Default** This command has no default setting.

**Command Modes** Global configuration

Release	Modification
12.2(50)SE	This command was introduced on the Catalyst 3750-E, 3750, 3560-E, 3560, 2960, and 2918 switches. It replaced the <b>macro name</b> global configuration command.
12.2(52)SE	The <b>remote</b> keyword and <i>url</i> argument were added on the Catalyst 3750-E, 3750, 3560-E, 3560, 2960, and 2918 switches.  The command was introduced on Catalyst 2975 switches.
12.2(53)SE2	This command was introduced on the Catalyst 3750-X and 3560-X switches.

**Usage Guidelines** Use the **macro auto execute** global configuration command to replace the built-in macro default values with values that are specific to your switch.

The switch automatically maps from event triggers to built-in macros. The built-in macros are system-defined macros in the software image. You can also create user-defined macros by using the Cisco IOS shell scripting capability.



You can create new event triggers by using the **shell trigger** global configuration commands. Use the **show shell triggers** privileged EXEC command to display the contents of the user-defined triggers and macros.

You can use the **macro auto mac-address-group** global configuration command to create event triggers for devices that do not support Cisco Discovery Protocol (CDP) or Link Layer Discovery Protocol (LLDP).

You can use the remote macro feature to store macros in a central location for designated network switches to use. You can then maintain and update the macro files for use by multiple switches. Use **remote url** to configure the remote server location and macro path information. There are no specific file extension requirements for saved macro files.

Auto Smartports macros and antimacros (the antimacro is the portion of the applied macro that removes it at link down) have these guidelines and limitations:

- You can delete or change the built-in macros. However, you can override a built-in macro by creating a user-defined macro with the same name. To restore the original built-in macro, delete the user-defined macro.
- If you enable both the **macro auto device** and the **macro auto execute** global configuration commands, the parameters specified in the command last executed are applied to the switch. Only one command is active on the switch.
- To avoid system conflicts when macros are applied, remove all port configurations except for 802.1x authentication.
- Do not configure port security when enabling Auto Smartports on the switch.
- If the macro conflicts with the original configuration, either the macro does not apply some of the original configuration commands, or the antimacro does not remove them. (The antimacro is the portion of the applied macro that removes the macro at a link-down event.)

For example, if 802.1x authentication is enabled, you cannot remove the switchport-mode access configuration. Remove the 802.1x authentication before removing the switchport mode configuration.

- A port cannot be a member of an EtherChannel when you apply Auto Smartports macros.
- The built-in-macro default data VLAN is VLAN 1. The default voice VLAN is VLAN 2. If your switch uses different access, native, or voice VLANs, use the **macro auto device** or the **macro auto execute** global configuration commands to configure the values.
- For 802.1x authentication or MAC authentication bypass (MAB), to detect non-Cisco devices, configure the RADIUS server to support the Cisco attribute-value pair **auto-smart-port=event trigger**.
- The switch supports Auto Smartport macros only on directly connected devices. Multiple device connections, such as hubs, are not supported.
- If authentication is enabled on a port, the switch ignores a MAC address trigger if authentication fails.
- The order of CLI commands within the macro and the corresponding antimacro can be different.

---

## Examples

This example shows how to use two built-in macros for connecting Cisco switches and Cisco IP phones to the switch. This example modifies the default voice VLAN, access VLAN, and native VLAN for the trunk interface:

```
Switch# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
```

```

Switch(config)#!!! the next command modifies the access and voice vlans
Switch(config)#!!! for the built in Cisco IP phone auto smartport macro
Switch(config)# macro auto execute CISCO_PHONE_EVENT builtin CISCO_PHONE_AUTO_SMARTPORT
ACCESS_VLAN=10 VOICE_VLAN=20
Switch(config)#
Switch(config)#!!! the next command modifies the Native vlan used for inter switch trunks
Switch(config)# macro auto execute CISCO_SWITCH_EVENT builtin CISCO_SWITCH_AUTO_SMARTPORT
NATIVE_VLAN=10
Switch(config)#
Switch(config)#!!! the next command enables auto smart ports globally
Switch(config)# macro auto global processing
Switch(config)#
Switch(config)# exit

```

```

Switch# !!! here is the running configuration of the interface connected
Switch# !!! to another Cisco Switch after the Macro is applied
Switch#
Switch# show running-config interface gigabitethernet1/0/1
Building configuration...

```

```

Current configuration : 284 bytes
!
interface GigabitEthernet1/0/1
 switchport trunk encapsulation dot1q
 switchport trunk native vlan 10
 switchport mode trunk
 srr-queue bandwidth share 10 10 60 20
 queue-set 2
 priority-queue out
 mls qos trust cos
 auto qos voip trust
 macro description CISCO_SWITCH_EVENT
end

```

This example shows how to map a user-defined event trigger called media player to a user-defined macro.

1. Connect the media player to an 802.1x- or MAB-enabled switch port.
2. On the RADIUS server, set the attribute-value pair to **auto-smart-port=DMP\_EVENT**.
3. On the switch, create the event trigger DMP\_EVENT, and enter the user-defined macro commands.
4. The switch recognizes the attribute-value pair=DMP\_EVENT response from the RADIUS server and applies the macro associated with this event trigger.

```

Switch(config)# shell trigger DMP_EVENT mediaplayer
Switch(config)# macro auto execute DMP_EVENT {
if [[ $LINKUP == YES ]]; then
conf t
 interface $INTERFACE
  macro description $TRIGGER
  switchport access vlan 1
  switchport mode access
  switchport port-security
  switchport port-security maximum 1
  switchport port-security violation restrict
  switchport port-security aging time 2
  switchport port-security aging type inactivity
  spanning-tree portfast
  spanning-tree bpduguard enable
  exit
fi
if [[ $LINKUP == NO ]]; then
conf t

```

```

interface $INTERFACE
  no macro description $TRIGGER
  no switchport access vlan 1
  if [[ $AUTH_ENABLED == NO ]]; then
    no switchport mode access
  fi
  no switchport port-security
  no switchport port-security maximum 1
  no switchport port-security violation restrict
  no switchport port-security aging time 2
  no switchport port-security aging type inactivity
  no spanning-tree portfast
  no spanning-tree bpduguard enable
  exit
fi

```

**Table 3-1** Supported Cisco IOS Shell Keywords

Command	Description
{	Begin the command grouping.
}	End the command grouping.
[[	Use as a conditional construct.
]]	Use as a conditional construct.
else	Use as a conditional construct.
==	Use as a conditional construct.
fi	Use as a conditional construct.
if	Use as a conditional construct.
then	Use as a conditional construct.
-z	Use as a conditional construct.
\$	Variables that begin with the \$ character are replaced with a parameter value.
#	Use the # character to enter comment text.

Table 3-2 *Unsupported Cisco IOS Shell Reserved Keywords*

Command	Description
	Pipeline.
case	Conditional construct.
esac	Conditional construct.
for	Looping construct.
function	Shell function.
in	Conditional construct.
select	Conditional construct.
time	Pipeline.
until	Looping construct.
while	Looping construct.

**Related Commands**

Command	Description
<b>macro auto device</b>	Configures macro default parameter values.
<b>macro auto global processing</b>	Enables Auto Smartports on a switch.
<b>macro auto mac-address-group</b>	Configures MAC address groups.
<b>macro auto sticky</b>	Configures macro persistence.
<b>shell trigger</b>	Creates event triggers.
<b>show macro auto</b>	Displays information about macros.
<b>show shell</b>	Displays information about event triggers and macros.

# macro auto global control

To specify when the switch applies an Auto Smartports macro based on the device type or trigger (referred to as event trigger control), use the **macro auto global control** global configuration command. Use the **no** form of this command to disable trigger-to-macro mapping.

```
macro auto global control { device [access-point] [ip-camera] [lightweight-ap] [mac-address]
[media-player] [phone] [router] [switch] | trigger [last-resort] }
```

```
no macro auto global control { device [access-point] [ip-camera] [lightweight-ap]
[mac-address] [media-player] [phone] [router] [switch] | trigger [last-resort] }
```

## Syntax Description

<b>device</b> [access-point] [ip-camera] [lightweight-ap] [mac-address] [media-player] [phone] [router] [switch]	<p><b>device</b>—Sets one or more of these devices as an event trigger:</p> <ul style="list-style-type: none"> <li>(Optional) <b>access-point</b>—Autonomous access point</li> <li>(Optional) <b>ip-camera</b>—Cisco IP video surveillance camera</li> <li>(Optional) <b>lightweight-ap</b>—Lightweight access point</li> <li>(Optional) <b>mac-address</b>—User-defined MAC address groups</li> <li>(Optional) <b>media-player</b>—Digital media player</li> <li>(Optional) <b>phone</b>—Cisco IP phone</li> <li>(Optional) <b>router</b>—Cisco router</li> <li>(Optional) <b>switch</b>—Cisco switch</li> </ul>
<b>trigger</b> [last-resort]	<p><b>trigger</b>—Sets a specific event trigger.</p> <ul style="list-style-type: none"> <li>(Optional) <b>last-resort</b>—Last-resort trigger</li> </ul>

## Command Default

The switch uses the device type as the event trigger. If the switch cannot determine the device type, it uses MAC address groups, MAB messages, 802.1x authentication messages, and LLDP messages in random order.

## Command Modes

Global configuration

## Command History

Release	Modification
12.2(55)SE	This command was introduced on the Catalyst 3750-X, 3750-E, 3750, 3560-X, 3560-E, 3560, 2975, 2960, and 2918 switches.

## Usage Guidelines

If you do not set event triggers, the switch uses the device type as the event trigger. If the switch cannot determine the device type, it uses MAC address groups, MAB messages, 802.1x authentication messages, and LLDP messages in random order.

To verify that a macro is applied to a switch, use the **show macro auto global** user EXEC command.

**Examples**

To set CDP messages, LLDP messages and MAC address groups as event triggers:

```
Switch# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)# macro auto global control detection cdp lldp mac-address
Switch(config)# end
```

To set autonomous access points, lightweight access points, and IP phones:

```
Switch# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)# macro auto global control device access-point lightweight-ap phone
Switch(config)# end
```

**Related Commands**

Command	Description
<b>macro auto execute</b>	Configures mapping from an event trigger to a built-in macro.
<b>macro auto global processing</b>	Enables Auto Smartports on a switch.
<b>macro auto mac-address-group</b>	Configures MAC address groups.
<b>macro auto sticky</b>	Configures macro persistence.
<b>shell trigger</b>	Creates event triggers.
<b>show macro auto</b>	Displays information about macros.
<b>show shell</b>	Displays information about event triggers and macros.

# macro auto global processing

To enable Auto Smartports macros on the switch, use the **macro auto global processing** global configuration command. Use the **no** form of this command to disable the macros.

**macro auto global processing**

**no macro auto global processing**

**Syntax Description** This command has no arguments or keywords.

**Command Default** Auto Smartports is disabled.

**Command Modes** Global configuration

Command History	Release	Modification
	12.2(50)SE	This command was introduced on the Catalyst 3750-E, 3750, 3560-E, 3560, 2960, and 2918 switches.
	12.2(52)SE	The command changed from <b>macro auto global processing [cdp-fallback]</b> to <b>macro auto global processing [fallback cdp]</b> on Catalyst 3750-E, 3750, 3560-E, 3560, 2960, and 2918 switches. The command was introduced on Catalyst 2975 switches.
	12.2(53)SE2	This command was introduced on Catalyst 3750-X and 3560-X switches.
	12.2(58)SE	The <b>fallback cdp</b> keywords are no longer supported.

**Usage Guidelines** Use the **macro auto global processing** global configuration command to globally enable macros on the *switch*. To disable macros on a specific *port*, use the **no macro auto processing** command in interface mode.

When using 802.1x or MAB authentication, you need to configure the RADIUS server to support the Cisco attribute-value pair **auto-smart-port=event trigger**. If authentication fails, the macro is not applied. If the 802.1x or MAB authentication fails on the interface, the switch does not use the fallback CDP event trigger.

When CDP-identified devices advertise multiple capabilities, the switch chooses a capability first by switch and then by router.

To verify that a macro is applied to an interface, use the **show macro auto interface** privileged EXEC command.

**Examples** This example shows how enable Auto Smartports on the switch and to disable the feature on a specific interface:

```
Switch(config)# macro auto global processing
Switch(config)# interface interface_id
```

```
Switch(config-if)# no macro auto processing
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>macro auto device</b>	Configures macro default parameter values.
	<b>macro auto execute</b>	Configures mapping from an event trigger to a built-in macro.
	<b>macro auto mac-address-group</b>	Configures MAC address groups.
	<b>macro auto sticky</b>	Configures macro persistence.
	<b>shell trigger</b>	Creates event triggers.
	<b>show macro auto</b>	Displays information about macros.
	<b>show shell</b>	Displays information about event triggers and macros.



## macro auto mac-address-group

To create an event trigger for devices that do not support Cisco Discovery Protocol (CDP) or Link Layer Discover Protocol (LLDP), use the **macro auto mac-address-group** global configuration command. Use the **no** form of this command to delete the group.

```
macro auto mac-address-group name [mac-address list list] | [oui [list list | range start-value size number]]
```

```
no macro auto mac-address-group name [mac-address list list] | [oui [list list | range start-value size number]]
```

Syntax Description		
<b>name</b>		Specifies the group name.
<b>oui</b>		(Optional) Specifies an operationally unique identifier (OUI) <b>list</b> or <b>range</b> . <ul style="list-style-type: none"> <li>• <b>list</b>—Enter an OUI list in hexadecimal format separated by spaces.</li> <li>• <b>range</b>—Enter the starting OUI hexadecimal value (<i>start-value</i>).</li> <li>• <b>size</b>—Enter the length of the range (<i>number</i>) from 1 to 5 to create a list of sequential addresses.</li> </ul>
<b>mac-address list</b> <i>list</i>		(Optional) Configures a list of MAC addresses separated by a space.

**Command Default** No groups are defined.

**Command Modes** Group configuration

Command History	Release	Modification
	12.2(52)SE	This command was introduced on the Catalyst 3750-E, 3750, 3560-E, 3560, 2975, 2960, and 2918 switches.
	12.2(53)SE2	This command was introduced on the Catalyst 3750-X and 3560-X switches.

**Usage Guidelines** Use the **macro auto mac-address-group** global configuration command to create an event trigger for devices that do not support CDP or LLDP. Use the MAC address group as a trigger to map to a built-in or user-defined macro by using the **macro auto execute** global configuration command. At link-up the switch detects the device type and applies the specified macro.

The switch supports up to ten MAC address groups. Each group can have up to 32 OUI and 32 MAC configured addresses.

**Examples** This example shows how to create a MAC-address-group event trigger called *address\_trigger* and how to verify your entries:

```
Switch# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)# macro auto mac-address-group mac address_trigger
```

## macro auto mac-address-group

```
Switch(config-addr-grp-mac)# mac-address list 2222.3333.3334 22.33.44 a.b.c
Switch(config-addr-grp-mac)# oui list 455555 233244
Switch(config-addr-grp-mac)# oui range 333333 size 2
Switch(config-addr-grp-mac)# exit
Switch(config)# end
Switch# show running configuration
!
!macro auto mac-address-group address_trigger
  oui list 333334
  oui list 333333
  oui list 233244
  oui list 455555
  mac-address list 000A.000B.000C
  mac-address list 0022.0033.0044
  mac-address list 2222.3333.3334
!

<output truncated>
```

### Related Commands

Command	Description
<b>macro auto device</b>	Configures macro default parameter values.
<b>macro auto execute</b>	Configures mapping from an event trigger to a built-in macro.
<b>macro auto global processing</b>	Enables Auto Smartports on a switch.
<b>macro auto sticky</b>	Configures macro persistence.
<b>shell trigger</b>	Creates event triggers.
<b>show macro auto</b>	Displays information about macros.
<b>show shell</b>	Displays information about event triggers and macros.

# device classifier

To enable the device classifier, use the **device classifier** global configuration command. Use the **no** form of this command to disable the device classifier.

**device classifier**

**no device classifier**

**Syntax Description** This command has no arguments or keywords.

**Command Default** Device classifier is disabled.

**Command Modes** Global configuration

Command History	Release	Modification
	15.2(2)E	This command replaced the <b>macro auto monitor</b> command on the Catalyst 3750-X, 3560-X, 3560-C, 2960, 2960-C, 2960-S, 2960-SF, 2960-P, CGS 2520, IE 2000, IE 2000U, IE 3000, and IE 3010 switches.

**Usage Guidelines** Use the **no device classifier** global configuration command to disable the device classifier. You cannot disable the device classifier while it is being used by features such as ASP.

**Examples** This example shows how to enable the ASP device classifier on a switch:

```
Switch# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)# device classifier
Switch(config)# end
```

Related Commands	Command	Description
	<b>show device classifier clients</b>	Displays the clients using the device classifier facility on the switch.
	<b>show device classifier attached {detail   interface   mac-address}</b>	Displays the devices connected to a switch, along with their properties and classifications.
	<b>show device classifier profile type</b>	Displays all the device types known to the device classification agent.
	<b>show shell</b>	Displays information about event triggers and macros.

## macro auto processing

To enable Auto Smartports macros on an interface, use the **macro auto processing** interface configuration command. Use the **no** form of this command to disable the macros.

**macro auto processing**

**no macro auto processing**

**Syntax Description** This command has no arguments or keywords.

**Command Default** Auto Smartports is disabled.

**Command Modes** Interface configuration

Command History	Release	Modification
	12.2(50)SE	This command was introduced on the Catalyst 3750-E, 3750, 3560-E, 3560, 2960, and 2918 switches.
	12.2(52)SE	The command changed from <b>macro auto global processing [cdp-fallback]</b> to <b>macro auto processing [fallback cdp]</b> on Catalyst 3750-E, 3750, 3560-E, 3560, 2960, and 2918 switches. The command was introduced on Catalyst 2975 switches.
	12.2(53)SE2	This command was introduced on Catalyst 3750-X and 3560-X switches.
	12.2(58)SE	The <b>fallback cdp</b> keywords are no longer supported.

**Usage Guidelines** Use the **macro auto processing** interface configuration command to enable macros on a specific interface. To disable macros on a specific interface, use the **no macro auto processing** interface configuration command.

A port cannot be a member of an EtherChannel when you apply Auto Smartports macros. If you use EtherChannels, disable Auto Smartports on the EtherChannel interface by using the **no macro auto processing** interface configuration command. The EtherChannel interface applies the configuration to the member interfaces.

To verify that a macro is applied to an interface, use the **show macro auto interface** privileged EXEC command.

**Examples** This example shows how to enable Auto Smartports on the switch and to disable the feature on a specific interface:

```
Switch(config)# interface gigabitethernet 0/1
Switch(config-if)# no macro auto processing
Switch(config-if)# exit
Switch(config)# macro auto global processing
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>macro auto device</b>	Configures macro default parameter values.
	<b>macro auto execute</b>	Configures mapping from an event trigger to a built-in macro.
	<b>macro auto mac-address-group</b>	Configures MAC address groups.
	<b>macro auto sticky</b>	Configures macro persistence.
	<b>shell trigger</b>	Creates event triggers.
	<b>show macro auto</b>	Displays information about macros.
	<b>show shell</b>	Displays information about event triggers and macros.

## macro auto sticky

To configure macros to remain active after a link-down event, referred to as *macro persistence*, use the **macro auto sticky** global configuration command. Use the **no** form of this command to disable the macro persistence.

**macro auto sticky**

**no macro auto sticky**

**Syntax Description** This command has no arguments or keywords.

**Command Default** Macro persistence is disabled.

**Command Modes** Global configuration

Command History	Release	Modification
	12.2(52)SE	This command was introduced on the Catalyst 3750-E, 3750, 3560-E, 3560, 2975, 2960, and 2918 switches.
	12.2(53)SE2	This command was introduced on the Catalyst 3750-X and 3560-X switches.

**Usage Guidelines** Use the **macro auto sticky** global configuration command so that macros remain active after a link-down event.

**Examples** This example shows how to enable macro persistence on an interface:

```
Switch# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)# interface gigabitethernet 2/0/1
Switch(config-if)# macro auto port sticky
Switch(config-if)# exit
Switch(config)# end
```

Related Commands	Command	Description
	<b>macro auto device</b>	Configures macro default parameter values.
	<b>macro auto execute</b>	Configures mapping from an event trigger to a built-in macro.
	<b>macro auto global processing</b>	Enables Auto Smartports on a switch.
	<b>macro auto mac-address-group</b>	Configures MAC address groups.
	<b>shell trigger</b>	Creates event triggers.

<b>Command</b>	<b>Description</b>
<b>show macro auto</b>	Displays information about macros.
<b>show shell</b>	Displays information about event triggers and macros.

## macro auto trigger

To enter the configure-macro-trigger mode and define a trigger for a device that has no built-in trigger and associate the trigger with a device or profile, use the **macro auto trigger** global configuration command. To remove the user-defined trigger, use the **no** form of this command.

**macro auto trigger** *trigger\_name* [**device** | **exit** | **no** | **profile**]

**no macro auto trigger** *trigger\_name* [**device** | **exit** | **no** | **profile**]

Syntax Description		
	<i>trigger_name</i>	Specifies a trigger to be associated with the device type or profile name.
	<b>device</b>	Specifies a device name to map to the named trigger.
	<b>exit</b>	Exits device group configuration mode.
	<b>no</b>	Removes any configured device.
	<b>profile</b>	Specifies a profile name to map to the named trigger.

**Command Default** No user-defined triggers are configured.

**Command Modes** Global configuration

Command History	Release	Modification
	15.0(1)SE	This command was introduced on the Catalyst 3750-E, 3750-X, 3750, 3560-E, 3560-X, 3560, 2960, 2960-S, 2360, and 2918 switches.

**Usage Guidelines** If a device is classified by the Device Classifier, but does not have a built-in trigger defined, use the **macro auto trigger** global configuration command to define a trigger based on a device name or a profile name. After you enter the command, the switch is in the configure-macro-trigger mode and the **device**, **exit**, **no**, and **profile** keywords are visible. In this mode, you can provide a device name or a profile name to map to the trigger. It is not necessary to map the trigger to both a device name and a profile name. If you map the trigger to both names, the trigger-to-profile name mapping has preference for macro application.

You must use this command to configure a trigger when you configure a user-defined macro. The trigger name is required for the custom macro configuration.

After the device is profiled, you must add the complete string to the device-group database.

**Examples** This example shows how to configure a user-defined trigger for a profile called DMP\_EVENT mediator for use with a media player that has no built-in trigger:

```
Switch# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)# macro auto trigger DMP
Switch(config-macro-trigger)# profile mediator-DMP
Switch(config-macro-trigger)# exit
```



```
Switch(config)# end
```

---

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>macro auto device</b>	Configures macro default parameter values.
<b>macro auto execute</b>	Configures mapping from an event trigger to a built-in macro.
<b>macro auto global processing</b>	Enables Auto Smartports on a switch.
<b>macro auto mac-address-group</b>	Configures MAC address groups.
<b>shell trigger</b>	Creates event triggers.
<b>show macro auto</b>	Displays information about macros.
<b>show device classifier attached</b> <b>{detail   interface   mac-address}</b>	Displays the devices connected to a switch, along with their properties and classifications.
<b>show device classifier profile type</b>	Displays all the device types known to the device classification agent.
<b>show shell</b>	Displays information about event triggers and macros.

## macro description

To enter a description about which macros are applied to an interface, use the **macro description** interface configuration command. Use the **no** form of this command to remove the description. This command is mandatory for Auto Smartports to work.

**macro description** *text*

**no macro description** *text*

---

**Syntax Description**     **description** *text*    Enters a description about the macros that are applied to the specified interface.

---



---

**Command Default**     This command has no default setting.

---

**Command Modes**     Interface configuration

---

Command History	Release	Modification
	12.1(19)EA1	This command was introduced on the Catalyst 3750 and 3560 switches.
	12.2(25)FX	This command was introduced on the Catalyst 2960 switches.
	12.2(44)SE	This command was introduced on the Catalyst 2918 switches.
	12.2(46)EX	This command was introduced on the Catalyst 2975 switches.
	12.2(35)SE2	This command was introduced on the Catalyst 3750-E and 3560-E switches.
	12.2(53)SE2	This command was introduced on the Catalyst 3750-X and 3560-X switches.

---



---

**Usage Guidelines**     Use the **description** keyword to associate comment text or the macro name with an interface. When multiple macros are applied on a single interface, the description text is from the last applied macro. You can verify your settings by entering the **show parser macro description** privileged EXEC command.

---

**Examples**                This example shows how to add a description to an interface:

```
Switch(config-if)# macro description duplex settings
```

---

Related Commands	Command	Description
	<b>macro apply</b>	Applies a macro on an interface.
	<b>macro global</b>	Applies a macro on a switch or applies and traces a macro on a switch
	<b>macro global description</b>	Adds a description about the macros that are applied to the switch.
	<b>macro trace</b>	Applies and traces a macro on an interface.
	<b>show parser macro</b>	Displays the macro definition for all macros or for the specified macro.

---

# macro global

To apply a macro to a switch or to apply and debug a macro on a switch, use the **macro global** global configuration command.

```
macro global {apply | trace} macro-name [parameter {value}] [parameter {value}]
[parameter {value}]
```

## Syntax Description

<b>apply</b>	Applies a macro to the switch.
<b>trace</b>	Applies a macro to a switch and debugs the macro.
<i>macro-name</i>	Specifies the name of the macro.
<b>parameter value</b>	(Optional) Specifies unique parameter values that are specific to the switch. You can enter up to three keyword-value pairs. Parameter keyword matching is case sensitive. All matching occurrences of the keyword are replaced with the corresponding value.

## Command Default

This command has no default setting.

## Command Modes

Global configuration

## Command History

Release	Modification
12.2(20)SE	This command was introduced on the Catalyst 3750 and 3560 switches.
12.2(25)FX	This command was introduced on the Catalyst 2960 switches.
12.2(44)SE	This command was introduced on the Catalyst 2918 switches.
12.2(46)EX	This command was introduced on the Catalyst 2975 switches.
12.2(35)SE2	This command was introduced on the Catalyst 3750-E and 3560-E switches.
12.2(53)SE2	This command was introduced on the Catalyst 3750-X and 3560-X switches.

## Usage Guidelines



### Note

You can delete a global macro-applied configuration on a switch only by entering the **no** version of each command in the macro.

Use the **macro global apply** *macro-name* global configuration command to apply the macro to an interface.

Use the **macro global trace** *macro-name* global configuration command to apply and then debug the macro to find any syntax or configuration errors.

If a command fails when you apply a macro because of a syntax error or a configuration error, the macro continues to apply the remaining commands to the switch.

When creating a macro that requires the assignment of unique values, use the **parameter value** keywords to designate values specific to the switch.

Keyword matching is case sensitive. All matching occurrences of the keyword are replaced with the corresponding value. Any full match of a keyword, even if it is part of a larger string, is considered a match and is replaced by the corresponding value.

Some macros might contain keywords that require a parameter value. You can use the **macro global apply macro-name ?** command to display a list of any required values in the macro. If you apply a macro without entering the keyword values, the commands are invalid and are not applied.

There are Cisco-default Smartports macros embedded in the switch software. You can display these macros and the commands they contain by using the **show parser macro** user EXEC command.

Follow these guidelines when you apply a Cisco-default Smartports macro on a switch:

- Display all macros on the switch by using the **show parser macro** user EXEC command. Display the contents of a specific macro by using the **show parser macro name macro-name** user EXEC command.
- Keywords that begin with \$ mean that a unique parameter value is required. Append the Cisco-default macro with the required values by using the **parameter value** keywords.

The Cisco-default macros use the \$ character to help identify required keywords. There is no restriction on using the \$ character to define keywords when you create a macro.

When you apply a macro to a switch, the macro name is automatically added to the switch. You can display the applied commands and macro names by using the **show running-config** user EXEC command.

## Examples

After you have created a new macro by using the **macro auto execute** global configuration command, you can apply it to a switch. This example shows how to see the **snmp** macro, how to apply the macro, set the hostname to test-server, and set the IP precedence value to 7:

```
Switch# show parser macro name snmp
Macro name : snmp
Macro type : customizable

#enable port security, linkup, and linkdown traps
snmp-server enable traps port-security
snmp-server enable traps linkup
snmp-server enable traps linkdown
#set snmp-server host
snmp-server host ADDRESS
#set SNMP trap notifications precedence
snmp-server ip precedence VALUE

-----
Switch(config)# macro global apply snmp ADDRESS test-server VALUE 7
```

To debug a macro, use the **macro global trace** global configuration command to find any syntax or configuration errors in the macro when you apply it to a switch. In this example, the **ADDRESS** parameter value was not entered, the **snmp-server host** command failed, and the remainder of the macro is applied to the switch:

```
Switch(config)# macro global trace snmp VALUE 7
Applying command...'snmp-server enable traps port-security'
Applying command...'snmp-server enable traps linkup'
Applying command...'snmp-server enable traps linkdown'
Applying command...'snmp-server host'
%Error Unknown error.
```

Applying command...`snmp-server ip precedence 7`

Related Commands	Command	Description
	<b>macro apply</b>	Applies a macro on an interface.
	<b>macro description</b>	Adds a description about the macros that are applied to an interface.
	<b>macro global description</b>	Adds a description about the macros that are applied to the switch.
	<b>macro trace</b>	Applies and traces a macro on an interface.
	<b>show parser macro</b>	Displays the macro definition for all macros or for the specified macro.

# clear macro auto configuration

To remove the macro applied configuration from the interfaces, use the **clear macro auto configuration** command.



## Note

Before executing the **clear macro auto configuration** command, you must disable auto smartports on the switch.

```
clear macro auto configuration {all | interface [interface-id]}
```

## Syntax Description

<i>all</i>	Removes macro applied configuration from all the interfaces.
<b>interface</b> [interface-id]	Removes macro applied configuration from an interface.

## Command Default

This command has no default setting.

## Command Modes

User EXEC

## Command History

Release	Modification
15.2(2)E	This command was introduced on the Catalyst 3750-X, 3560-X, 3560-C, 2960, 2960-C, 2960-S, 2960-SF, 2960-P, CGS 2520, IE 2000, IE 2000U, IE 3000, and IE 3010 switches.

## Usage Guidelines

Use the command to remove configuration applied by macros from all the interfaces or a particular interface on the switch.

You can verify your settings by entering the **show macro auto interface** privileged EXEC command.

## Examples

This example shows how to remove the configuration from all the switch interfaces:

```
Switch(config)# clear macro auto configuration all
```

This example shows how to remove the configuration from a particular switch interface:

```
Switch(config)# clear macro auto configuration interface [interface-id]
```

## Related Commands

Command	Description
<b>macro apply</b>	Applies a macro on an interface.
<b>macro description</b>	Adds a description about the macros that are applied to an interface.
<b>macro global</b>	Applies a macro on a switch or applies and traces a macro on a switch.
<b>macro trace</b>	Applies and debugs a macro on an interface.
<b>show parser macro</b>	Displays the macro definition for all macros or for the specified macro.

# macro global description

To enter a description about the macros that are applied to a switch, use the **macro global description** global configuration command. Use the **no** form of this command to remove the description.

**macro global description** *text*

**no macro global description** *text*

---

**Syntax Description**     **description** *text*    Enters a description about the macros that are applied to the switch.

---



---

**Command Default**     This command has no default setting.

---

**Command Modes**     Global configuration

---

Command History	Release	Modification
	12.2(20)SE	This command was introduced on the Catalyst 3750 and 3560 switches.
	12.2(25)FX	This command was introduced on the Catalyst 2960 switches.
	12.2(44)SE	This command was introduced on the Catalyst 2918 switches.
	12.2(46)EX	This command was introduced on the Catalyst 2975 switches.
	12.2(35)SE2	This command was introduced on the Catalyst 3750-E and 3560-E switches.
	12.2(53)SE2	This command was introduced on the Catalyst 3750-X and 3560-X switches.

---



---

**Usage Guidelines**    Use the **description** keyword to associate comment text or the macro name with a switch. When multiple macros are applied on a switch, the description text is from the last applied macro.

You can verify your settings by entering the **show parser macro description** privileged EXEC command.

---

**Examples**             This example shows how to add a description to a switch:

```
Switch(config)# macro global description udd aggressive mode enabled
```

---

Related Commands	Command	Description
	<b>macro apply</b>	Applies a macro on an interface.
	<b>macro description</b>	Adds a description about the macros that are applied to an interface.
	<b>macro global</b>	Applies a macro on a switch or applies and traces a macro on a switch.
	<b>macro trace</b>	Applies and debugs a macro on an interface.
	<b>show parser macro</b>	Displays the macro definition for all macros or for the specified macro.

---

# shell trigger

To create an event trigger, use the **shell trigger** global configuration command. Use the **no** form of this command to delete the trigger.

**shell trigger** *identifier description*

**no shell trigger** *identifier description*

Syntax Description	Parameter	Description
	<i>identifier</i>	Specifies the event trigger identifier. The identifier should have no spaces or hyphens between words.
	<i>description</i>	Specifies the event trigger description text.

Command Default	Default Value
System-defined event triggers:	<ul style="list-style-type: none"> <li>• CISCO_DMP_EVENT</li> <li>• CISCO_IPVSC_AUTO_EVENT</li> <li>• CISCO_PHONE_EVENT</li> <li>• CISCO_SWITCH_EVENT</li> <li>• CISCO_ROUTER_EVENT</li> <li>• CISCO_WIRELESS_AP_EVENT</li> <li>• CISCO_WIRELESS_LIGHTWEIGHT_AP_EVENT</li> </ul>

Command Modes	Mode
	Global configuration

Command History	Release	Modification
	12.2(50)SE	This command was introduced on the Catalyst 3750-E, 3750, 3560-E, 3560, and 2960 switches.
	12.2(52)SE	This command was introduced on the Catalyst 2975 switches.
	12.2(53)SE2	This command was introduced on the Catalyst 3750-X and 3560-X switches.

Usage Guidelines	Guidelines
	Use this command to create user-defined event triggers for use with the <b>macro auto device</b> and the <b>macro auto execute</b> global configuration commands.
	To support dynamic device discovery when using IEEE 802.1x authentication, you need to configure the RADIUS authentication server to support the Cisco attribute-value pair: <b>auto-smart-port=event trigger</b> .



**Examples**

This example shows how to create a user-defined event trigger called RADIUS\_MAB\_EVENT:

```
Switch# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)# shell trigger RADIUS_MAB_EVENT MAC_AuthBypass Event
Switch(config)# end
```

**Related Commands**

Command	Description
<b>macro auto device</b>	Configures macro default parameter values.
<b>macro auto execute</b>	Configures mapping from an event trigger to a built-in macro.
<b>macro auto global processing</b>	Enables Auto Smartports on a switch.
<b>macro auto mac-address-group</b>	Configures MAC address groups.
<b>macro auto sticky</b>	Configures macro persistence.
<b>shell trigger</b>	Creates event triggers.
<b>show macro auto</b>	Displays information about macros.
<b>show shell</b>	Displays information about event triggers and macros.

## show macro auto

To display Auto Smartports macro information, use the **show macro auto** user EXEC command.

```
show macro auto { address-group [address-group-name] | device [access-point] [ip-camera]
                 [lightweight-ap] [media-player] [phone] [router] [switch] | global [event_trigger] | interface
                 [interface_id]}
```

Syntax Description		
<b>address-group</b> [ <i>address-group-name</i> ]	Displays address-group information.  (Optional) <i>address-group-name</i> —Displays information for the specified address group.	
<b>device</b> [access-point] [ip-camera] [lightweight-ap] [media-player] [phone] [router] [switch]	Displays device information about one or more devices.	<ul style="list-style-type: none"> <li>(Optional) <b>access-point</b>—Autonomous access point</li> <li>(Optional) <b>ip-camera</b>—Cisco IP video surveillance camera</li> <li>(Optional) <b>lightweight-ap</b>—Lightweight access point</li> <li>(Optional) <b>media-player</b>—Digital media player</li> <li>(Optional) <b>phone</b>—Cisco IP phone</li> <li>(Optional) <b>router</b>—Cisco router</li> <li>(Optional) <b>switch</b>—Cisco switch</li> </ul>
<b>global</b> [ <i>event_trigger</i> ]	Displays Auto Smartports information about the switch.  (Optional) <i>event_trigger</i> —Displays information about the specified event trigger.	
<b>interface</b> [ <i>interface_id</i> ]	Displays interface status.  (Optional) <i>interface_id</i> —Displays information about the specified interface.	

Command Modes	
	User EXEC Privileged EXEC

Command History	Release	Modification
	12.2(52)SE	This command was introduced on the Catalyst 3750-E, 3750, 3560-E, 3560, 2975, 2960, and 2918 switches.
	12.2(53)SE2	This command was introduced on the Catalyst 3750-X and 3560-X switches.
	12.2(55)SE	The <b>global</b> keyword was added on the Catalyst 3750-X, 3750-E, 3750, 3560-X, 3560-E, 3560, 2975, 2960, and 2918 switches. The <b>address-group</b> , <b>device</b> , <b>event manager</b> , and <b>interface</b> keywords are not optional.

**Usage Guidelines**

Use this command to display the Auto Smartports information for the switch. Use the **show macro auto device** privileged EXEC command to display the configurable parameters for a device.

**Examples**

This example shows how to use the **show macro auto device** privileged EXEC command to view the configuration on the switch:

```
Switch# show macro auto device
Device:lightweight-ap
Default Macro:CISCO_LWAP_AUTO_SMARTPORT
Current Macro:CISCO_LWAP_AUTO_SMARTPORT
Configurable Parameters:ACCESS_VLAN
Defaults Parameters:ACCESS_VLAN=1
Current Parameters:ACCESS_VLAN=1

Device:access-point
Default Macro:CISCO_AP_AUTO_SMARTPORT
Current Macro:CISCO_AP_AUTO_SMARTPORT
Configurable Parameters:NATIVE_VLAN
Defaults Parameters:NATIVE_VLAN=1
Current Parameters:NATIVE_VLAN=1

Device:phone
Default Macro:CISCO_PHONE_AUTO_SMARTPORT
Current Macro:CISCO_PHONE_AUTO_SMARTPORT
Configurable Parameters:ACCESS_VLAN VOICE_VLAN
Defaults Parameters:ACCESS_VLAN=1 VOICE_VLAN=2
Current Parameters:ACCESS_VLAN=1 VOICE_VLAN=2

Device:router
Default Macro:CISCO_ROUTER_AUTO_SMARTPORT
Current Macro:CISCO_ROUTER_AUTO_SMARTPORT
Configurable Parameters:NATIVE_VLAN
Defaults Parameters:NATIVE_VLAN=1
Current Parameters:NATIVE_VLAN=1

Device:switch
Default Macro:CISCO_SWITCH_AUTO_SMARTPORT
Current Macro:CISCO_SWITCH_AUTO_SMARTPORT
Configurable Parameters:NATIVE_VLAN
Defaults Parameters:NATIVE_VLAN=1
Current Parameters:NATIVE_VLAN=1

Device:ip-camera
Default Macro:CISCO_IP_CAMERA_AUTO_SMARTPORT
Current Macro:CISCO_IP_CAMERA_AUTO_SMARTPORT
Configurable Parameters:ACCESS_VLAN
Defaults Parameters:ACCESS_VLAN=1
Current Parameters:ACCESS_VLAN=1

Device:media-player
Default Macro:CISCO_DMP_AUTO_SMARTPORT
Current Macro:CISCO_DMP_AUTO_SMARTPORT
Configurable Parameters:ACCESS_VLAN
Defaults Parameters:ACCESS_VLAN=1
Current Parameters:ACCESS_VLAN=1
```

This example shows how to use the **show macro auto address-group** *name* privileged EXEC command to view the TEST3 address group configuration on the switch:

```
Switch# show macro auto address-group TEST3
MAC Address Group Configuration:
```

Group Name	OUI	MAC ADDRESS
-----	-----	-----
TEST3	2233.33	0022.0022.0022
	2233.34	

#### Related Commands

Command	Description
<b>macro auto device</b>	Configures macro default parameter values.
<b>macro auto execute</b>	Configures mapping from an event trigger to a built-in macro.
<b>macro auto global processing</b>	Enables Auto Smartports on a switch.
<b>macro auto mac-address-group</b>	Configures MAC address groups.
<b>macro auto sticky</b>	Configures macro persistence.
<b>shell trigger</b>	Creates event triggers.
<b>show shell</b>	Displays information about event triggers and macros.

# show device classifier clients

To display the clients using the device classifier facility on the switch, use the **show device classifier clients** user EXEC command.

## show device classifier clients

**Syntax Description** This command has no arguments or keywords.

**Command Default** User EXEC  
Privileged EXEC

Command History	Release	Modification
	15.2(2)E	This command replaced the <b>show macro auto monitor clients</b> command on the Catalyst 3750-X, 3560-X, 3560-C, 2960, 2960-C, 2960-S, 2960-SF, 2960-P, CGS 2520, IE 2000, IE 2000U, IE 3000, and IE 3010 switches.

**Usage Guidelines** Device classifier (DC) is enabled by default when you enable a client application (for example, Auto Smartports) that uses its functionality. Use the **show device classifier clients** command to display the clients that are using the DC feature on the switch.

As long as any clients are using the DC, you cannot disable it by using the **no device classifier** command. If you attempt to disable the DC while a client is using it, an error message appears.

**Examples** This example shows how to use the **show device classifier clients** privileged EXEC command to view the clients using the DC on the switch:

```
Switch# show device classifier clients
Client Name
=====
Auto Smart Ports
```

This example shows the error message that appears when you attempt to disable DC while a client is using it:

```
Switch(config)# no device classifier
These subsystems should be disabled before disabling Device classifier
Auto Smart Ports

% Error - device classifier is not disabled
```

Related Commands	Command	Description
	<b>macro auto device</b>	Configures macro default parameter values.
	<b>macro auto execute</b>	Configures mapping from an event trigger to a built-in macro.
	<b>macro auto global processing</b>	Enables Auto Smartports on a switch.

## ■ show device classifier clients

Command	Description
<b>macro auto mac-address-group</b>	Configures MAC address groups.
<b>macro auto sticky</b>	Configures macro persistence.
<b>shell trigger</b>	Creates event triggers.
<b>show device classifier profile type</b>	Displays all the device types recognized by the device classifier.
<b>show shell</b>	Displays information about event triggers and macros.

# show device classifier attached

To display the devices connected to a switch and their associated properties, use the **show device classifier attached** user EXEC command.

```
show device classifier attached [detail | interface interface_id | mac-address mac_address]
```

Syntax Description	detail	Displays detailed device classifier information.
	interface <i>interface_id</i>	Displays information about devices attached to the specified interface.
	mac <i>mac_address</i>	Displays device information for the specified endpoint.

Command Modes	User EXEC Privileged EXEC
---------------	------------------------------

Command History	Release	Modification
	15.2(2)E	This command replaced the <b>show macro auto monitor device</b> command on the Catalyst 3750-X, 3560-X, 3560-C, 2960, 2960-C, 2960-S, 2960-SF, 2960-P, CGS 2520, IE 2000, IE 2000U, IE 3000, and IE 3010 switches.

Usage Guidelines	Use this command to display the devices connected to a switch. Use the <b>show device classifier attached</b> privileged EXEC command to display the configurable parameters for a device.
------------------	--

Examples	This example shows how to use the <b>show device classifier attached</b> privileged EXEC command with no optional keywords to view the devices connected to the switch:
----------	---

```
Switch# show device classifier attached
MAC_Address      Port_Id      Profile Name
=====
000a.b8c6.1e07   Gi1/0/2     Cisco-Device
001f.9e90.1250   Gi1/0/4     Cisco-AP-Aironet-1130
=====
```

This example shows how to use the **show device classifier attached** privileged EXEC command with the optional **mac-address** keyword to view summary information about the connected device with the specified MAC address:

```
Switch# show device classifier attached mac-address 001f.9e90.1250
MAC_Address      Port_Id      Profile Name
=====
001f.9e90.1250   Gi1/0/4     Cisco-AP-Aironet-1130
=====
```

This example shows how to use the **show device classifier attached** privileged EXEC command with the optional **mac-address** and **detail** keywords to view detailed information about the connected device with the specified MAC address:

```
Switch# show device classifier attached mac-address 001f.9e90.1250 detail
```

### show device classifier attached

```

MAC_Address      Port_Id      Certainty Parent  ProfileType  Profile Name
Device_Name
=====
001f.9e90.1250   Gi1/0/4      40         2         Built-in     Cisco-AP-Aironet-1130
cisco AIR-LAP1131AG-E-K9
=====

```

This example shows how to use the **show device classifier attached** privileged EXEC command with the optional **interface** keyword to view summary information about the device connected to the specified interface:

```

Switch# show device classifier attached interface gi 1/0/2
MAC_Address      Port_Id      Profile Name
=====
000a.b8c6.1e07   Gi1/0/2     Cisco-Device
=====

```

This example shows how to use the **show device classifier attached** privileged EXEC command with the optional **interface** and **detail** keywords to view detailed information about the device connected to the specified interface:

```

Switch# show device classifier attached interface gi 1/0/2 detail
MAC_Address      Port_Id      Certainty Parent  ProfileType  Profile Name
Device_Name
=====
000a.b8c6.1e07   Gi1/0/2     10         0         Default     Cisco-Device   cisco
WS-C2960-48TT-L
=====

```

### Related Commands

Command	Description
<b>macro auto device</b>	Configures macro default parameter values.
<b>macro auto execute</b>	Configures mapping from an event trigger to a built-in macro.
<b>macro auto global processing</b>	Enables Auto Smartports on a switch.
<b>macro auto mac-address-group</b>	Configures MAC address groups.
<b>macro auto sticky</b>	Configures macro persistence.
<b>shell trigger</b>	Creates event triggers.
<b>show device classifier profile type</b>	Displays all the device types recognized by the device classifier.
<b>show shell</b>	Displays information about event triggers and macros.



# show device classifier profile type

To display all the device types recognized by the device classifier, use the **show device classifier profile type** user EXEC command.

**show device classifier profile type** [*table* [*built-in* | *default*] | *string filter\_string*]

Syntax Description	table	Displays device classification in a table.
	<i>built-in</i>	Displays device classification information from the built-in device table.
	<i>default</i>	Displays device classification information from the default device table.
	<b>filter</b> <i>string</i>	Displays information for devices that match the filter.

Command Modes	User EXEC Privileged EXEC
---------------	------------------------------

Command History	Release	Modification
	15.2(2)E	This command replaced the <b>show macro auto monitor type</b> command on the Catalyst 3750-X, 3560-X, 3560-C, 2960, 2960-C, 2960-S, 2960-SF, 2960-P, CGS 2520, IE 2000, IE 2000U, IE 3000, and IE 3010 switches.

Usage Guidelines	This command displays all the device types recognized by the device classification engine. The number of available device types is the number of profiles stored on the switch. Because the number of profiles can be very large, you can use the <b>filter</b> keyword to limit the command output.
------------------	--

Examples	This example shows how to use the <b>show device classifier profile type</b> privileged EXEC command with no optional keywords to view the devices recognized by the device classifier:
----------	---

```
Switch# show device classifier profile type table
  Valid      Type      Profile Name      min Conf  ID
  =====  =====  =====
  Valid      Default   Apple-Device      10        0
  Valid      Default   Aruba-Device      10        1
  Valid      Default   Avaya-Device      10        2
  Valid      Default   Avaya-IP-Phone    20        3
  Valid      Default   BlackBerry         20        4
  Valid      Default   Cisco-Device       10        5
  Valid      Default   Cisco-IP-Phone     20        6
  Valid      Default   Cisco-IP-Phone-7902 70        7
  Valid      Default   Cisco-IP-Phone-7905 70        8
  Valid      Default   Cisco-IP-Phone-7906 70        9
  Valid      Default   Cisco-IP-Phone-7910 70       10
  Valid      Default   Cisco-IP-Phone-7911 70       11
  Valid      Default   Cisco-IP-Phone-7912 70       12
  Valid      Default   Cisco-IP-Phone-7940 70       13
  Valid      Default   Cisco-IP-Phone-7941 70       14
```

## show device classifier profile type

Valid	Default	Cisco-IP-Phone-7942	70	15
Valid	Default	Cisco-IP-Phone-7945	70	16
Valid	Default	Cisco-IP-Phone-7945G	70	17
Valid	Default	Cisco-IP-Phone-7960	70	18
Valid	Default	Cisco-IP-Phone-7961	70	19
Valid	Default	Cisco-IP-Phone-7962	70	20
Valid	Default	Cisco-IP-Phone-7965	70	21
Valid	Default	Cisco-IP-Phone-7970	70	22
Valid	Default	Cisco-IP-Phone-7971	70	23
Valid	Default	Cisco-IP-Phone-7975	70	24
Valid	Default	Cisco-IP-Phone-7985	70	25
Valid	Default	Cisco-IP-Phone-9971	70	26
Valid	Default	Cisco-WLC-2100-Series	40	27
Valid	Default	DLink-Device	10	28
Valid	Default	Enterasys-Device	10	29
Valid	Default	HP-Device	10	30
Valid	Default	HP-JetDirect-Printer	30	31
Valid	Default	Lexmark-Device	10	32
Valid	Default	Lexmark-Printer-E260dn	30	33
Valid	Default	Microsoft-Device	10	34
Valid	Default	Netgear-Device	10	35
Valid	Default	NintendoWII	10	36
Valid	Default	Nortel-Device	10	37
Valid	Default	Nortel-IP-Phone-2000-Series	20	38
Valid	Default	SonyPS3	10	39
Valid	Default	XBOX360	20	40
Valid	Default	Xerox-Device	10	41
Valid	Default	Xerox-Printer-Phaser3250	30	42
Valid	Default	Aruba-AP	20	43
Valid	Default	Cisco-Access-Point	10	44
Valid	Default	Cisco-IP-Conference-Station-7935	70	45
Valid	Default	Cisco-IP-Conference-Station-7936	70	46
Valid	Default	Cisco-IP-Conference-Station-7937	70	47
Valid	Default	DLink-DAP-1522	20	48
Valid	Default	Cisco-AP-Aironet-1130	30	49
Valid	Default	Cisco-AP-Aironet-1240	30	50
Valid	Default	Cisco-AP-Aironet-1250	30	51
Valid	Default	Cisco-AIR-LAP	25	52
Valid	Default	Cisco-AIR-LAP-1130	30	53
Valid	Default	Cisco-AIR-LAP-1240	50	54
Valid	Default	Cisco-AIR-LAP-1250	50	55
Valid	Default	Cisco-AIR-AP	25	56
Valid	Default	Cisco-AIR-AP-1130	30	57
Valid	Default	Cisco-AIR-AP-1240	50	58
Valid	Default	Cisco-AIR-AP-1250	50	59
Invalid	Default	Sun-Workstation	10	60
Valid	Default	Linksys-Device	20	61
Valid	Default	LinksysWAP54G-Device	30	62
Valid	Default	HTC-Device	10	63
Valid	Default	MotorolaMobile-Device	10	64
Valid	Default	VMWare-Device	10	65
Valid	Default	ISE-Appliance	10	66
Valid	Built-in	Cisco-Device	10	0
Valid	Built-in	Cisco-Router	10	1
Valid	Built-in	Router	10	2
Valid	Built-in	Cisco-IP-Camera	10	3
Valid	Built-in	Cisco-IP-Camera-2xxx	30	4
Valid	Built-in	Cisco-IP-Camera-2421	50	5
Valid	Built-in	Cisco-IP-Camera-2500	50	6
Valid	Built-in	Cisco-IP-Camera-2520	50	7
Valid	Built-in	Cisco-IP-Camera-2530	50	8
Valid	Built-in	Cisco-IP-Camera-4xxx	50	9
Valid	Built-in	Cisco-Transparent-Bridge	8	10
Valid	Built-in	Transparent-Bridge	8	11

Valid	Built-in	Cisco-Source-Bridge	10	12
Valid	Built-in	Cisco-Switch	10	13
Valid	Built-in	Cisco-IP-Phone	20	14
Valid	Built-in	IP-Phone	20	15
Valid	Built-in	Cisco-DMP	10	16
Valid	Built-in	Cisco-DMP-4305G	70	17
Valid	Built-in	Cisco-DMP-4310G	70	18
Valid	Built-in	Cisco-DMP-4400G	70	19
Valid	Built-in	Cisco-WLC-2100-Series	40	20
Valid	Built-in	Cisco-Access-Point	10	21
Valid	Built-in	Cisco-AIR-LAP	30	22
Valid	Built-in	Cisco-AIR-AP	30	23
Valid	Built-in	Linksys-Device	20	24

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>macro auto device</b>	Configures macro default parameter values.
<b>macro auto execute</b>	Configures mapping from an event trigger to a built-in macro.
<b>macro auto global processing</b>	Enables Auto Smartports on a switch.
<b>macro auto mac-address-group</b>	Configures MAC address groups.
<b>macro auto sticky</b>	Configures macro persistence.
<b>macro auto trigger</b>	Specifies a trigger to be associated with the device type or profile name.
<b>shell trigger</b>	Creates event triggers.
<b>show device classifier attached</b>	Displays information about the devices connected to the switch.
<b>show shell</b>	Displays information about event triggers and macros.

## show parser macro

To display the parameters for all configured macros or for one macro on the switch, use the **show parser macro** user EXEC command.

```
show parser macro [{brief | description [interface interface-id] | name macro-name}]
```

Syntax Description	Parameter	Description
	<b>brief</b>	(Optional) Displays the name of each macro.
	<b>description [interface <i>interface-id</i>]</b>	(Optional) Displays all macro descriptions or the description of a specific interface.
	<b>name <i>macro-name</i></b>	(Optional) Displays information about a single macro identified by the macro name.

Command Modes	Mode
	User EXEC
	Privileged EXEC

Command History	Release	Modification
	12.1(19)EA1	This command was introduced on the Catalyst 3750 and 3560 switches.
	12.2(25)FX	This command was introduced on the Catalyst 2960 switches.
	12.2(44)SE	This command was introduced on the Catalyst 2918 switches.
	12.2(46)EX	This command was introduced on the Catalyst 2975 switches.
	12.2(35)SE2	This command was introduced on the Catalyst 3750-E and 3560-E switches.
	12.2(53)SE2	This command was introduced on the Catalyst 3750-X and 3560-X switches.

**Examples** This is a partial output example from the **show parser macro** command. The output for the Cisco-default macros varies depending on the switch platform and the software image running on the switch:

```
Switch# show parser macro
Total number of macros = 6
-----
Macro name : cisco-global
Macro type : default global
# Enable dynamic port error recovery for link state
# failures
errdisable recovery cause link-flap
errdisable recovery interval 60

<output truncated>

-----
Macro name : cisco-desktop
Macro type : default interface
# macro keywords $AVID
# Basic interface - Enable data VLAN only
# Recommended value for access vlan (AVID) should not be 1
switchport access vlan $AVID
switchport mode access
```

```
<output truncated>
```

```
-----
Macro name : cisco-phone
Macro type : default interface
# Cisco IP phone + desktop template
# macro keywords $AVID $VVID
# VoIP enabled interface - Enable data VLAN
# and voice VLAN (VVID)
# Recommended value for access vlan (AVID) should not be 1
switchport access vlan $AVID
switchport mode access
```

```
<output truncated>
```

```
-----
Macro name : cisco-switch
Macro type : default interface
# macro keywords $NVID
# Access Uplink to Distribution
# Do not apply to EtherChannel/Port Group
# Define unique Native VLAN on trunk ports
# Recommended value for native vlan (NVID) should not be 1
switchport trunk native vlan $NVID
```

```
<output truncated>
```

```
-----
Macro name : cisco-router
Macro type : default interface
# macro keywords $NVID
# Access Uplink to Distribution
# Define unique Native VLAN on trunk ports
# Recommended value for native vlan (NVID) should not be 1
switchport trunk native vlan $NVID
```

```
<output truncated>
```

```
-----
Macro name : snmp
Macro type : customizable

#enable port security, linkup, and linkdown traps
snmp-server enable traps port-security
snmp-server enable traps linkup
snmp-server enable traps linkdown
#set snmp-server host
snmp-server host ADDRESS
#set SNMP trap notifications precedence
snmp-server ip precedence VALUE
-----
```

This is an example of output from the **show parser macro name** command:

```
Switch# show parser macro name standard-switch10
Macro name : standard-switch10
Macro type : customizable
macro description standard-switch10
# Trust QoS settings on VOIP packets
auto qos voip trust
# Allow port channels to be automatically formed
channel-protocol pagp
```

This is an example of output from the **show parser macro brief** command:

```
Switch# show parser macro brief
  default global      : cisco-global
  default interface: cisco-desktop
  default interface: cisco-phone
  default interface: cisco-switch
  default interface: cisco-router
  customizable       : snmp
```

This is an example of output from the **show parser macro description** command:

```
Switch# show parser macro description
Global Macro(s): cisco-global
Interface      Macro Description(s)
-----
G11/0/1        standard-switch10
G11/0/2        this is test macro
-----
```

This is an example of output from the **show parser macro description interface** command:

```
Switch# show parser macro description interface gigabitethernet1/0/2
Interface      Macro Description
-----
G11/0/2        this is test macro
-----
```

#### Related Commands

Command	Description
<b>macro apply</b>	Applies a macro on an interface or applies and traces a macro on an interface.
<b>macro description</b>	Adds a description about the macros that are applied to an interface.
<b>macro global</b>	Applies a macro on a switch or applies and traces a macro on a switch.
<b>macro global description</b>	Adds a description about the macros that are applied to the switch.
<b>show running-config</b>	Displays the operating configuration.

# show shell

To display shell information, use the **show shell** user EXEC command.

**show shell** [**environment** | **functions** [**brief** | *shell\_function*] | **triggers**]

<b>Syntax Description</b>	<b>environment</b>	(Optional) Displays shell environment information.
	<b>functions</b> [ <b>brief</b>   <i>shell_function</i> ]	(Optional) Displays macro information. <ul style="list-style-type: none"> <li>• <b>brief</b>—Names of the shell functions.</li> <li>• <i>shell_function</i>—Name of a shell function.</li> </ul>
	<b>triggers</b>	(Optional) Displays event trigger information.

<b>Command Modes</b>	User EXEC Privileged EXEC
----------------------	------------------------------

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	12.2(50)SE	This command was introduced on the Catalyst 3750-E, 3750, 3560-E, 3560, 2960, and 2918 switches.
	12.2(52)SE	This command was introduced on the Catalyst 2975 switches.
	12.2(53)SE2	This command was introduced on the Catalyst 3750-X and 3560-X switches.

<b>Usage Guidelines</b>	Use this command to display the shell information for the switch.  The <b>show shell</b> command is a feature at the Cisco IOS level. You may first have to enable Cisco IOS Shell by entering the <b>terminal shell</b> command before you can enter the <b>show shell</b> command. For more information, see the Cisco IOS Shell configuration guide on Cisco.com: <a href="http://www.cisco.com/en/US/docs/ios/netmgmt/configuration/guide/nm_ios_shell.pdf">http://www.cisco.com/en/US/docs/ios/netmgmt/configuration/guide/nm_ios_shell.pdf</a>
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<b>Examples</b>	This example shows how to use the <b>show shell triggers</b> privileged EXEC command to view the event triggers in the switch software:
-----------------	---

```
Switch# term shell
Switch# show shell triggers
User defined triggers
-----
Built-in triggers
-----
Trigger Id: CISCO_CUSTOM_EVENT
Trigger description: Custom macroevent to apply user defined configuration
Trigger environment: User can define the macro
Trigger mapping function: CISCO_CUSTOM_AUTOSMARTPORT

Trigger Id: CISCO_DMP_EVENT
Trigger description: Digital media-player device event to apply port configuration
Trigger environment: Parameters that can be set in the shell - $ACCESS_VLAN=(1)
The value in the parenthesis is a default value
```

```

Trigger mapping function: CISCO_DMP_AUTO_SMARTPORT

Trigger Id: CISCO_IPVSC_EVENT
Trigger description: IP-camera device event to apply port configuration
Trigger environment: Parameters that can be set in the shell - $ACCESS_VLAN=(1)
The value in parenthesis is a default value
Trigger mapping function: CISCO_IP_CAMERA_AUTO_SMARTPORT

Trigger Id: CISCO_LAST_RESORT_EVENT
Trigger description: Last resortevent to apply port configuration
Trigger environment: Parameters that can be set in the shell - $ACCESS_VLAN=(1)
The value in the parenthesis is a default value
Trigger mapping function: CISCO_LAST_RESORT_SMARTPORT

Trigger Id: CISCO_PHONE_EVENT
Trigger description: IP-phone device event to apply port configuration
Trigger environment: Parameters that can be set in the shell - $ACCESS_VLAN=(1)
and $VOICE_VLAN=(2), The value in the parenthesis is a default value
Trigger mapping function: CISCO_PHONE_AUTO_SMARTPORT

Trigger Id: CISCO_ROUTER_EVENT
Trigger description: Router device event to apply port configuration
Trigger environment: Parameters that can be set in the shell - $NATIVE_VLAN=(1)
The value in the parenthesis is a default value
Trigger mapping function: CISCO_ROUTER_AUTO_SMARTPORT

Trigger Id: CISCO_SWITCH_ETHERCHANNEL_CONFIG
Trigger description: etherchannel parameter
Trigger environment: $INTERFACE_LIST=(), $PORT-CHANNEL_ID=(),
                    $SEC_MODE=(), $SEC_PROTOCOLTYPE=(),
                    PORT-CHANNEL_TYPE=()
Trigger mapping function: CISCO_ETHERCHANNEL_AUTOSMARTPORT

Trigger Id: CISCO_SWITCH_EVENT
Trigger description: Switch device event to apply port configuration
Trigger environment: Parameters that can be set in the shell - $NATIVE_VLAN=(1)
The value in the parenthesis is a default value
Trigger mapping function: CISCO_SWITCH_AUTO_SMARTPORT

Trigger Id: CISCO_WIRELESS_AP_EVENT
Trigger description: Autonomous ap device event to apply port configuration
Trigger environment: Parameters that can be set in the shell - $NATIVE_VLAN=(1)
The value in the parenthesis is a default value
Trigger mapping function: CISCO_AP_AUTO_SMARTPORT

Trigger Id: CISCO_WIRELESS_LIGHTWEIGHT_AP_EVENT
Trigger description: Lightweight-ap device event to apply port configuration
Trigger environment: Parameters that can be set in the shell - $ACCESS_VLAN=(1)
The value in the parenthesis is a default value
Trigger mapping function: CISCO_LWAP_AUTO_SMARTPORT

Trigger Id: word
Trigger description: word
Trigger environment:
Trigger mapping function:

```



This example shows how to use the **show shell functions** privileged EXEC command to view the built-in macros in the switch software:

```
Switch# show shell functions
#User defined functions:

#Built-in functions:
function CISCO_AP_AUTO_SMARTPORT () {
    if [[ $LINKUP == YES ]]; then
        conf t
            interface $INTERFACE
                macro description $TRIGGER
                switchport trunk encapsulation dot1q
                switchport trunk native vlan $NATIVE_VLAN
                switchport trunk allowed vlan ALL
                switchport mode trunk
                switchport nonegotiate
                auto qos voip trust
                mls qos trust cos
                if [[ $LIMIT == 0 ]]; then
                    default srr-queue bandwidth limit
                else
                    srr-queue bandwidth limit $LIMIT
                fi
                if [[ $SW_POE == YES ]]; then
                    if [[ $AP125X == AP125X ]]; then
                        macro description AP125X
                        macro auto port sticky
                        power inline port maximum 20000
                    fi
                fi
            fi
        exit
    end
fi
if [[ $LINKUP == NO ]]; then
    conf t
        interface $INTERFACE
            no macro description
            no switchport nonegotiate
            no switchport trunk native vlan $NATIVE_VLAN
            no switchport trunk allowed vlan ALL
            no auto qos voip trust
            no mls qos trust cos
            default srr-queue bandwidth limit
            if [[ $AUTH_ENABLED == NO ]]; then
                no switchport mode
                no switchport trunk encapsulation
            fi
            if [[ $STICKY == YES ]]; then
                if [[ $SW_POE == YES ]]; then
                    if [[ $AP125X == AP125X ]]; then
                        no macro auto port sticky
                        no power inline port maximum
                    fi
                fi
            fi
        fi
    exit
end
fi
}
<output truncated>
```

**show shell**

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>macro auto device</b>	Configures macro default parameter values.
	<b>macro auto execute</b>	Configures mapping from an event trigger to a built-in macro.
	<b>macro auto global processing</b>	Enables Auto Smartports on a switch.
	<b>macro auto mac-address-group</b>	Configures MAC address groups.
	<b>macro auto sticky</b>	Configures macro persistence.
	<b>shell trigger</b>	Creates event triggers.
	<b>show macro auto</b>	Displays information about macros.