



## CHAPTER 16

# Configuring Smartports Macros

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## Finding Feature Information

Your software release may not support all the features documented in this chapter. For the latest feature information and caveats, see the release notes for your platform and software release.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to <http://www.cisco.com/go/cfn>. An account on Cisco.com is not required.

## Information About Configuring Smartports Macros

Smartports macros provide a convenient way to save and share common configurations. You can use Smartports macros to enable features and settings based on the location of a switch in the network and for mass configuration deployments across the network.

Each Smartports macro is a set of CLI commands that you define. Smartports macros do not contain new CLI commands; they are simply a group of existing CLI commands.

When you apply a Smartports macro to an interface, the CLI commands within the macro are configured on the interface. When the macro is applied to an interface, the existing interface configurations are not lost. The new commands are added to the interface and are saved in the running configuration file.

## How to Configure Smartports Macros

### Default Smartports Settings

There are no Smartports macros enabled on the switch.

Table 16-1 Default Smartports Macros

Macro Name <sup>1</sup>	Description
<b>cisco-ie-global</b>	Use this global configuration macro to configure the switch settings for the industrial Ethernet environment. This macro is automatically applied when you use Express Setup to initially configure the switch.  <b>Note</b> You must first apply the <b>cisco-ie-global</b> macro for the <b>cisco-ethernetip</b> macro to work properly.
<b>cisco-desktop</b>	Use this interface configuration macro for increased network security and reliability when connecting a desktop device, such as a PC, to a switch port. This macro is optimized for industrial automation traffic.
<b>cisco-phone</b>	Use this interface configuration macro when connecting a desktop device such as a PC with a Cisco IP phone to a switch port. This macro is an extension of the <b>cisco-ie-desktop</b> macro and provides the same security and resiliency features, but with the addition of dedicated voice VLANs to ensure proper treatment of delay-sensitive voice traffic. This macro is optimized for industrial automation traffic.
<b>cisco-ie-switch</b>	Use this interface configuration macro when connecting an access switch and a distribution switch or between access switches connected using small form-factor pluggable (SFP) modules. This macro is optimized for industrial automation traffic.
<b>cisco-router</b>	Use this interface configuration macro when connecting the switch and a WAN router. This macro is optimized for industrial automation traffic.
<b>cisco-ethernetip</b>	Use this interface configuration macro when connecting the switch to an EtherNet IP device.  <b>Note</b> You must first apply the <b>cisco-ie-global</b> macro for the <b>cisco-ethernetip</b> macro to work properly.
<b>cisco-ie-qos-map-setup</b>	Use this global configuration macro to configure the QoS policy map for for the industrial Ethernet environment.
<b>cisco-ie-qos-queue-setup</b>	Use this global configuration macro to configure the QoS policy map for for the industrial Ethernet environment.

1. Cisco-default Smartports macros vary, depending on the software version running on your switch.

## Smartports Configuration Guidelines

- When a macro is applied globally to a switch or to a switch interface, all of the existing configurations on the interface are retained. This is helpful when applying an incremental configuration.
- If a command fails because of a syntax or a configuration error, the macro continues to apply the remaining commands. You can use the **macro global trace macro-name** global configuration command or the **macro trace macro-name** interface configuration command to apply and debug a macro to find any syntax or configuration errors.
- Some CLI commands are specific to certain interface types. If you apply a macro to an interface that does not accept the configuration, the macro fails the syntax or the configuration check, and the switch returns an error message.
- Applying a macro to an interface range is the same as applying a macro 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.

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

## Applying Smartports Macros

	Command	Purpose
Step 1	<b>show parser macro</b>	Displays the Cisco-default Smartports macros embedded in the switch software.
Step 2	<b>show parser macro name</b> <i>macro-name</i>	Displays the specific macro that you want to apply.
Step 3	<b>configure terminal</b>	Enters global configuration mode.
Step 4	<b>macro global</b> { <b>apply</b>   <b>trace</b> } <i>macro-name</i> [ <b>parameter</b> { <i>value</i> }] [ <b>parameter</b> { <i>value</i> }] [ <b>parameter</b> { <i>value</i> }]	<p>Applies each individual command defined in the macro to the switch by entering <b>macro global apply</b> <i>macro-name</i>. Specifies <b>macro global trace</b> <i>macro-name</i> to apply and to debug a macro to find any syntax or configuration errors.</p> <p>Appends the macro with the required values by using the <b>parameter value</b> keywords. Keywords that begin with \$ require a unique parameter value.</p> <p>You can use the <b>macro global apply</b> <i>macro-name</i> ? command to display a list of any required values for the macro. If you apply a macro without entering the keyword values, the commands are invalid and are not applied.</p> <p>(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. The corresponding value replaces all matching occurrences of the keyword.</p>
Step 5	<b>interface</b> <i>interface-id</i>	(Optional) Enters interface configuration mode and specifies the interface on which to apply the macro.
Step 6	<b>default interface</b> <i>interface-id</i>	(Optional) Clears all configuration from the specified interface.
Step 7	<b>macro</b> { <b>apply</b>   <b>trace</b> } <i>macro-name</i> [ <b>parameter</b> { <i>value</i> }] [ <b>parameter</b> { <i>value</i> }] [ <b>parameter</b> { <i>value</i> }]	<p>Applies each individual command defined in the macro to the port by entering <b>macro global apply</b> <i>macro-name</i>. Specifies <b>macro global trace</b> <i>macro-name</i> to apply and to debug a macro to find any syntax or configuration errors.</p> <p>Appends the macro with the required values by using the <b>parameter value</b> keywords. Keywords that begin with \$ require a unique parameter value.</p> <p>You can use the <b>macro global apply</b> <i>macro-name</i> ? command to display a list of any required values for the macro. If you apply a macro without entering the keyword values, the commands are invalid and are not applied.</p> <p>(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. The corresponding value replaces all matching occurrences of the keyword.</p>
Step 8	<b>end</b>	Returns to privileged EXEC mode.

	Command	Purpose
Step 9	<code>show running-config interface interface-id</code>	Verifies that the macro is applied to an interface.
Step 10	<code>copy running-config startup-config</code>	(Optional) Saves your entries in the configuration file.

## Monitoring and Maintaining Smartports Macros

Table 16-2 Commands for Displaying Smartports Macros

Command	Purpose
<code>show parser macro</code>	Displays all Smartports macros.
<code>show parser macro name macro-name</code>	Displays a specific Smartports macro.
<code>show parser macro brief</code>	Displays the Smartports macro names.
<code>show parser macro description [interface interface-id]</code>	Displays the Smartports macro description for all interfaces or for a specified interface.

## Configuration Examples for Smartports Macros

### Applying the Smartports Macro: Examples

This example shows how to display the `cisco-ie-desktop` macro, how to apply the macro and to set the access VLAN ID to 25 on an interface:

```
Switch# show parser macro name cisco-ie-desktop
-----
Macro name : cisco-ie-desktop
Macro type : default interface
# macro keywords ACCESS_VLAN
#macro name cisco-ie-desktop
switchport mode access
switchport access vlan ACCESS_VLAN
switchport port-security
switchport port-security maximum 1
switchport port-security aging time 2
switchport port-security violation restrict
switchport port-security aging type inactivity
spanning-tree portfast
spanning-tree bpduguard enable
no macro description
macro description cisco-ie-desktop
-----

Switch#
Switch# configure terminal
Switch(config)# interface gigabitethernet1/4
Switch(config-if)# macro apply cisco-ie-desktop $AVID 25
```

This example shows how to display the `cisco-ethernetip` macro and how to apply it to an interface:

```
Switch# show parser macro name cisco-ethernetip
Macro name : cisco-ie-global
```

```

Macro type : default interface
#macro name cisco-ethernetip
#macro keywords ACCESS_VLAN
#macro description cisco-ethernetip
switchport host
switchport access vlan ACCESS-VLAN
storm-control broadcast level 3.00 1.00
service-policy input CIP-Traffic
#service-policy input 1588

Switch# configure terminal
Switch(config)# interface fastethernet 1/1
Switch(config-if)# macro apply cisco-ethernetip ACCESS_VLAN 1
switchport mode will be set to access
spanning-tree portfast will be enabled
channel group will be disabled

```

## Additional References

The following sections provide references related to switch administration:

### Related Documents

Related Topic	Document Title
Cisco IE 2000 commands	<i>Cisco IE 2000 Switch Command Reference</i> , Release 15.0(1)EY
Cisco IOS basic commands	<i>Cisco IOS Configuration Fundamentals Command Reference</i>

### Standards

Standards	Title
No new or modified standards are supported by this feature, and support for existing standards has not been modified by this feature.	—

### MIBs

MIBs	MIBs Link
—	To locate and download MIBs using Cisco IOS XR software, use the Cisco MIB Locator found at the following URL and choose a platform under the Cisco Access Products menu: <a href="http://cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml">http://cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml</a>

## RFCs

RFCs	Title
No new or modified RFCs are supported by this feature, and support for existing RFCs has not been modified by this feature.	—

## Technical Assistance

Description	Link
The Cisco Technical Support website contains thousands of pages of searchable technical content, including links to products, technologies, solutions, technical tips, and tools. Registered Cisco.com users can log in from this page to access even more content.	<a href="http://www.cisco.com/techsupport">http://www.cisco.com/techsupport</a>