CHAPTER 11

Configuring Command Macros

This chapter describes how to configure and apply command macros on the Cisco ME 3400E switch.

Note For complete syntax and usage information for the commands used in this chapter, see the command reference for this release.

This chapter consists of these sections:

- Understanding Command Macros, page 11-1
- Configuring Command Macros, page 11-1
- Displaying Command Macros, page 11-5

Understanding Command Macros

Command macros provide a convenient way to save and share common configurations. You can use command 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 command macro is a set of command-line interface (CLI) commands that you define. Command macros do not contain new CLI commands; they are simply a group of existing CLI commands.

When you apply a command macro on 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.

Configuring Command Macros

You can create a new command macro or use an existing macro as a template to create a new macro that is specific to your application. After you create the macro, you can apply it globally to a switch, to a switch interface, or to a range of interfaces.

These sections contain this configuration information:

- Default Command Macro Configuration, page 11-2
- Command Macro Configuration Guidelines, page 11-2
- Creating Command Macros, page 11-3

- Applying Command Macros, page 11-4
- Displaying Command Macros, page 11-5

Default Command Macro Configuration

There are no command macros enabled.

Command Macro Configuration Guidelines

Follow these guidelines when configuring macros on your switch:

- When creating a macro, do not use the **exit** or **end** commands or change the command mode by using **interface** *interface-id*. This could cause commands that follow **exit**, **end**, or **interface** *interface-id* to execute in a different command mode.
- When creating a macro, all CLI commands should be in the same configuration mode.
- 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.
- Macro names are case sensitive. For example, the commands **macro name Sample-Macro** and **macro name sample-macro** will result in two separate macros.
- Some macros might contain keywords that require a parameter value. You can use the **macro global apply** *macro-name* **?** global configuration command or the **macro apply** *macro-name* **?** interface configuration 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.
- When a macro is applied globally to a switch or to a switch interface, all existing configuration on the interface is retained. This is helpful when applying an incremental configuration.
- If you modify a macro definition by adding or deleting commands, the changes are not reflected on the interface where the original macro was applied. You need to reapply the updated macro on the interface to apply the new or changed 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. If a command fails because of a syntax error or a configuration error, the macro continues to apply the remaining commands.
- Some CLI commands are specific to certain interface types. If a macro is applied to an interface that does not accept the configuration, the macro will fail the syntax check or the configuration check, and the switch will return 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.
- When you apply a macro to a user network interface (UNI) or enhanced network interface (ENI), you must first enable the port. UNIs and ENIs are disabled by default.

Creating Command Macros

Beginning in privileged EXEC mode, follow these steps to create a command macro:

	Command	Purpose
Step 1	**configure terminal**	Enter global configuration mode.
Step 2	macro name *macro-name*	Create a macro definition, and enter a macro name. A macro definition can contain up to 3000 characters. Enter the macro commands with one command per line. Use the @ character to end the macro. Use the **#** character at the beginning of a line to enter comment text within the macro. (Optional) You can define keywords within a macro by using a help string to specify the keywords. Enter **# macro keywords** *word* to define the keywords that are available for use with the macro. Separated by a space, you can enter up to three help string keywords in a macro. Macro names are case sensitive. For example, the commands **macro name Sample-Macro** and **macro name sample-macro** will result in two separate macros. We recommend that you do not use the **exit** or **end** commands or change the command mode by using **interface** *interface-id* in a macro. This could cause any commands following **exit**, **end**, or **interface** *interface-id* to execute in a different command mode. For best results, all commands in a macro should be in the same configuration mode.
Step 3	**end**	Return to privileged EXEC mode.
Step 4	**show parser macro** name *macro-name*	Verify that the macro was created.

The **no** form of the **macro name** global configuration command only deletes the macro definition. It does not affect the configuration of those interfaces on which the macro is already applied.

This example shows how to create a macro that defines the switchport access VLAN and the number of secure MAC addresses and also includes two help string keywords by using **# macro keywords**:

```
Switch(config)# macro name test
switchport access vlan $VLANID
switchport port-security maximum $MAX
#macro keywords $VLANID $MAX
@
```

Applying Command Macros

Beginning in privileged EXEC mode, follow these steps to apply a command macro:

	Command	Purpose
Step 1	**configure terminal**	Enter global configuration mode.
Step 2	**macro global** {**apply** | **trace**} *macro-name* [**parameter** {*value*}] [**parameter** {*value*}] [**parameter** {*value*}]	Apply each individual command defined in the macro to the switch by entering **macro global apply** *macro-name*. Specify **macro global trace** *macro-name* to apply and debug a macro to find any syntax or configuration errors. (Optional) Specify 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. 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.
Step 3	**macro global description** *text*	(Optional) Enter a description about the macro that is applied to the switch.
Step 4	**interface** *interface-id*	(Optional) Enter interface configuration mode, and specify the interface on which to apply the macro.
Step 5	**no shutdown**	Enable the port, if necessary. By default, UNIs and enhanced network interfaces (ENIs) are disabled, and network node interfaces (NNIs) are enabled.
Step 6	**default interface** *interface-id*	(Optional) Clear all configuration from the specified interface.
Step 7	**macro** {**apply** | **trace**} *macro-name* [**parameter** {*value*}] [**parameter** {*value*}] [**parameter** {*value*}]	Apply each individual command defined in the macro to the interface by entering **macro apply** *macro-name*. Specify **macro trace** *macro-name* to apply and debug a macro to find any syntax or configuration errors. (Optional) Specify 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. 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.
Step 8	**macro description** *text*	(Optional) Enter a description about the macro that is applied to the interface.
Step 9	**end**	Return to privileged EXEC mode.
Step 10	**show parser macro description** [**interface** *interface-id*]	Verify that the macro is applied to the interface.
Step 11	**copy running-config startup-config**	(Optional) Save your entries in the configuration file.

You can delete a global macro-applied configuration on a switch only by entering the **no** version of each command that is in the macro. You can delete a macro-applied configuration on an interface by entering the **default interface** *interface-id* interface configuration command.

This example shows how to apply the user-created macro called **snmp**, to set the hostname address to **test-server**, and to set the IP precedence value to **7**:

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

This example shows how to debug the user-created macro called **snmp** by using the **macro global trace** global configuration command to find any syntax or configuration errors in the macro when it 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'
```

This example shows how to apply the user-created macro called **desktop-config** and to verify the configuration.

```
Switch(config)# interface gigabitethernet0/2
Switch(config-if)# macro apply desktop-config
Switch(config-if)# end
Switch# show parser macro description
Interface    Macro Description
---------------------------------------------------------------
Gi0/2      desktop-config
---------------------------------------------------------------
```

This example shows how to apply the user-created macro called **desktop-config** and to replace all occurrences of VLAN 1 with VLAN 25:

```
Switch(config-if)# macro apply desktop-config vlan 25
```

Displaying Command Macros

To display the command macros, use one or more of the privileged EXEC commands in Table 11-1.

Table 11-1 Commands for Displaying Command Macros

Command	Purpose
show parser macro	Displays all configured macros.
show parser macro name *macro-name*	Displays a specific macro.
show parser macro brief	Displays the configured macro names.
show parser macro description [**interface** *interface-id*]	Displays the macro description for all interfaces or for a specified interface.