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A Commands

This chapter describes the Cisco NX-OS Multiprotocol Label Switching commands that begin with A.

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accept-lifetime

To configure the accept lifetime of a key, use the **accept-lifetime** command. To return to the default setting, use the **no** form of this command.

accept-lifetime {*start-time* | **local** *start-time*} {**duration** *seconds* | *end-time* | **infinite**}

no accept-lifetime {*start-time* | **local** *start-time*} {**duration** *seconds* | *end-time* | **infinite**}

Syntax Description		
<i>start-time</i>		Time to start. hh:mm:ss is the time format. The range is from 0 to 23: 0 and from 59: 0 to 59. The maximum size is 8 alphanumeric characters.
local <i>start-time</i>		Specifies the time in the local time zone. hh:mm:ss is the time format.
duration		Sets the key lifetime duration as follows: <ul style="list-style-type: none"> • Enter the number of days from 1 to 31. • Enter the name of the month. • Enter the year from the present to 2035.
<i>seconds</i>		Seconds. The range is from 1 to 2147483646 seconds.
<i>end-time</i>		Time to stop.
infinite		Allows the lifetime period to never expire.

Defaults None

Command Modes Keychain key configuration mode

SupportedUserRoles network-admin
vdc-admin

Command History	Release	Modification
	5.2(1)	This command was introduced.

Usage Guidelines If you enter the **no accept-lifetime** command, the associated password is valid for authenticating incoming TCP segments.

This command requires the MPLS Services license.

Examples This example shows how to configure the accept lifetime of a key:

```
switch# configure terminal
switch(config)# key chain keychain1
switch(config-keychain)# key 10
switch(config-keychain-key)# accept-lifetime 10:00:00 Jan 13 2010 10:00:00 Jun 13 2010
```

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```
switch(config-keychain-key) #
```

Related Commands

Command	Description
mpls ldp configuration	Configures the Multiprotocol Label Switching (MPLS) Label Distribution Protocol (LDP).

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address-family

To configure an address family type that pertains to BGP, use the **address-family** command. To return to the default setting, use the **no** form of this command.

```
address-family {ipv4 {multicast | unicast}} {ipv6 {multicast | unicast | labeled unicast }} {vpngv4
| vpngv6 {unicast }}
```

```
no address-family {ipv4 {multicast | unicast}} {ipv6 {multicast | unicast | labeled unicast }}
{vpngv4 | vpngv6 {unicast }}
```

Syntax Description

ipv4	Specifies an IPv4 address family.
ipv6	Specifies an IPv6 address family.
multicast	Specifies a multicast address family.
unicast	Specifies a unicast address family.
vpngv4	Specifies IPv4 VPN address family.
vpngv6	Specifies IPv6 VPN address family.
unicast	Specifies a unicast sub address family.

Defaults

None

Command Modes

Router BGP configuration mode

Supported User Roles

network-admin
vdc-admin

Command History

Release	Modification
5.2(1)	This command was introduced.

Usage Guidelines

VPNv4 and VPNv6 options require MPLS Services license.

Examples

This example shows how to configure IPV4 multicast address family:

```
switch# configure t
switch(config)# router bgp 1
switch(config-router)# address-family ipv4 multicast
switch(config-router-af)#
```

This example shows how to configure IPV6 unicast address family:

```
switch# configure t
switch(config)# router bgp 1
```

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```
switch(config-router)# address-family ipv6 unicast  
switch(config-router-af)#
```

This example shows how to configure unicast sub address family:

```
switch# configure t  
switch(config)# router bgp 1  
switch(config-router)# address-family VPNv4 unicast  
switch(config-router-af)#
```

Related Commands

Command	Description
mpls ldp configuration	Configures the Multiprotocol Label Switching (MPLS) Label Distribution Protocol (LDP).

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advertise-labels

To configure label advertisements, use the **advertise-labels** command. To return to the default setting, use the **no** form of this command.

advertise-labels [**for** *prefix-list* [**to** *prefix-list*] | **interface** *interface number*]

no advertise-labels [**for** *prefix-list* [**to** *prefix-list*] | **interface** *interface number*]

Syntax Description		
for	(Optional)	Specifies the prefix list controls on destination prefixes.
<i>prefix-list</i>		Name of the prefix list.
to	(Optional)	Specifies the prefix list controls on Label Distribution Protocol (LDP) peers.
interface	(Optional)	Specifies the interface address.
<i>interface-number</i>		Interface number.

Defaults None

Command Modes LDP configuration mode

SupportedUserRoles network-admin
vdc-admin

Command History	Release	Modification
	5.2(1)	This command was introduced.

Usage Guidelines To block label advertisements to the rest of the LDP peers, use the **no advertise-labels** command. This command requires the MPLS Services license.

Examples This example shows how to configure the device to advertise the label on destination prefixes:

```
switch# configure terminal
switch(config)# mpls ldp configuration
switch(config-ldp)# advertise-labels for p1
switch(config-ldp)#
```

This example shows how to configure the device to advertise the label for designated destination prefixes to designated LDP peers:

```
switch# configure terminal
switch(config)# mpls ldp configuration
switch(config-ldp)# advertise-labels for p1 to peer1
switch(config-ldp)#
```

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Related Commands	Command	Description
	mpls ldp configuration	Configures the Multiprotocol Label Switching (MPLS) Label Distribution Protocol (LDP).

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affinity (LSP attribute configuration mode)

To configure attribute flags for links that comprise a label switched path (LSP), use the **affinity** command.

affinity [**mask** *value*]

Syntax Description

mask	(Optional) Link attribute to be checked. A 32-bit decimal number. Valid values are from 0x0 to 0xFFFFFFFF, representing 32 attributes (bits), where the value of an attribute is 0 or 1.
<i>value</i>	Attribute values required for links carrying this tunnel. A 32-bit decimal number. Valid values are from 0x0 to 0xFFFFFFFF, representing 32 attributes (bits), where the value of an attribute is 0 or 1.

Defaults

Value default is 0x00000000
Mask default is 0x0000ffff

Command Modes

LSP attributes configuration mode

Supported User Roles

network-admin
vdc-admin

Command History

Release	Modification
5.2(1)	This command was introduced.

Usage Guidelines

The following holds true for all tunnel-te commands that can be specified both in "TE interface configuration mode" or path-option command line or "LSP attribute configuration mode":

If a setting is specified for an LSP, either via the path-option command directly or by assigning an LSP attribute list to a path-option, takes precedence for that specific path-option.

If no setting is specified for an LSP, then the LSP path-option inherits any setting specified in the tunnel-te configuration mode: affinity, auto-bw, priority, record-route, protection/fast-reroute.

This command requires the MPLS Services license.

Examples

This example shows how to configure attribute flags for links that comprise an LSP:

```
switch# configure terminal
switch(config)# mpls traffic-eng configuration
switch(config-te)# lsp attributes 1
switch(config-lsp-attr)# affinity 0X0101 mask 0X0303
```


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Related Commands	Command	Description
	mpls traffic-eng configuration	Configures the Multiprotocol Label Switching (MPLS) Traffic Engineering protocol (MPLS-TE).

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affinity (TE interface configuration mode)

To configure attribute flags for links that comprise a label switched path (LSP), use the **affinity** command.

affinity [**mask** *value*]

Syntax Description	mask	(Optional) Link attribute to be checked. A 32-bit decimal number. Valid values are from 0x0 to 0xFFFFFFFF, representing 32 attributes (bits), where the value of an attribute is 0 or 1.
	<i>value</i>	Attribute values required for links carrying this tunnel. A 32-bit decimal number. Valid values are from 0x0 to 0xFFFFFFFF, representing 32 attributes (bits), where the value of an attribute is 0 or 1.

Defaults	Value default is 0x00000000 Mask default is 0x0000ffff
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Command Modes	TE interface configuration mode
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SupportedUserRoles	network-admin vdc-admin
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Command History	Release	Modification
	5.2(1)	This command was introduced.

Usage Guidelines	This command requires the MPLS Services license.
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Examples This example shows how to configure attribute flags for links that comprise an LSP:

```
switch# configure terminal
switch(config)# interface tunnel-te 1
switch(config-if-te)# affinity 0x0101 mask 0x0303
switch(config-if-te)#
```

Related Commands	Command	Description
	interface tunnel-te	Configures the traffic engineering (TE) interface.

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area

To configure the sham link on the provider edge (PE) interface within a specified Open Shortest Path First (OSPF) area and with the loopback interfaces specified by the IP addresses as endpoints, use the **area** command. To return to the default setting, use the **no** form of this command.

area *area-id* **sham-link** *source-address destination-address*

no area *area-id* **sham-link** *source-address destination-address*

Syntax Description

<i>area-id</i>	Area ID as an integer or IP address.
sham-link	Specifies the sham link and its parameters.
virtual-link	Specifies a virtual link and its parameters.
<i>source-address</i>	Source address.
<i>destination-address</i>	Destination address.

Defaults

None

Command Modes

Router configuration mode

Supported User Roles

network-admin
vdc-admin

Command History

Release	Modification
5.2(1)	This command was introduced.

Usage Guidelines

This command requires the MPLS Services license.

Examples

This example shows how to configure the maximum number of routes that can be stored in the virtual routing and forwarding (VRF) route table:

```
switch# configure t
switch(config)# feature ospf
switch(config)# router ospf p1
switch(config-router)# timer throttle lsa 0 50 500
switch(config-router)# vrf vpn1
switch(config-router-vrf)# area 1 sham-link 10.2.1.1 10.2.1.2
switch(config-router-vrf)#
```

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Related Commands	Command	Description
	mpls ldp configuration	Configures the Multiprotocol Label Switching (MPLS) Label Distribution Protocol (LDP).

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authentication challenge

To perform a challenge or response handshake with the new Resource Reservation Protocol (RSVP) neighbors, use the **authentication challenge** command. To disable global authentication, use the **no** form of this command.

authentication [**neighbor address** *ip-address*] **challenge**

no authentication [**neighbor address** *ip-address*] **challenge**

Syntax Description	neighbor	(Optional) Specifies the RSVP neighbor.
	address <i>ip-address</i>	(Optional) Specifies the RSVP neighbor address.

Defaults None

Command Modes RSVP configuration mode

SupportedUserRoles network-admin
vdc-admin

Command History	Release	Modification
	5.2(1)	This command was introduced.

Usage Guidelines This command requires the MPLS Services license.

Examples This example shows how to perform a challenge handshake with the new RSVP neighbors:

```
switch# configure terminal
switch(config)# ip rsvp
switch(config-ip-rsvp)# authentication neighbor 1.1.1.1 challenge
switch(config-ip-rsvp)#
```

Related Commands	Command	Description
	mpls ldp configuration	Configures the Multiprotocol Label Switching (MPLS) Label Distribution Protocol (LDP).

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authentication key-chain

To activate the Resource Reservation Protocol (RSVP) cryptographic authentication for a neighbor, use the **authentication key-chain** command. To disable global authentication, use the **no** form of this command.

authentication [**neighbor address** *ip-address*] **key-chain** *key-chain-name*

no authentication [**neighbor address** *ip-address*] **key-chain** *key-chain-name*

Syntax Description

neighbor	(Optional) Specifies the RSVP neighbor.
address <i>ip-address</i>	(Optional) Specifies the RSVP neighbor address.
<i>key-chain-name</i>	Key chain name.

Defaults

None

Command Modes

RSVP configuration mode

Supported User Roles

network-admin
vdc-admin

Command History

Release	Modification
5.2(1)	This command was introduced.

Usage Guidelines

This command requires the MPLS Services license.

Examples

This example shows how to specify the authentication password keychain:

```
switch# configure terminal
switch(config)# ip rsvp
switch(config-ip-rsvp)# authentication neighbor 1.1.1.1 key-chain key1
switch(config-ip-rsvp)#
```

Related Commands

Command	Description
mpls ldp configuration	Configures the Multiprotocol Label Switching (MPLS) Label Distribution Protocol (LDP).

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authentication lifetime

To control how long the Resource Reservation Protocol (RSVP) maintains security associations with a neighbor, use the **authentication lifetime** command. To revert to the default lifetime, use the **no** form of this command.

authentication [**neighbor address** *ip-address*] **lifetime** *hh:mm:ss*

no authentication [**neighbor address** *ip-address*] **lifetime** *hh:mm:ss*

Syntax Description		
neighbor	(Optional) Specifies the RSVP neighbor.	
address <i>ip-address</i>	(Optional) Specifies the RSVP neighbor address.	
<i>hh:mm:ss</i>	Lifetime value in seconds. The range is from 30 to 86400 seconds.	

Defaults 30 minutes

Command Modes RSVP configuration mode

Supported User Roles network-admin
vdc-admin

Command History	Release	Modification
	5.2(1)	This command was introduced.

Usage Guidelines This command requires the MPLS Services license.

Examples This example shows how to specify the maximum lifetime of a neighbor authentication state:

```
switch# configure terminal
switch(config)# ip rsvp
switch(config-ip-rsvp)# authentication neighbor 1.1.1.1 lifetime 60
switch(config-ip-rsvp)#
```

Related Commands	Command	Description
	mpls ldp configuration	Configures the Multiprotocol Label Switching (MPLS) Label Distribution Protocol (LDP).

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authentication type

To configure the algorithm used to generate cryptographic signatures messages for a neighbor, use the **authentication type** command. To revert to the default type, use the **no** form of this command.

```
authentication [neighbor address ip-address] type {md5 | sha-1}
```

```
no authentication [neighbor address ip-address] type {md5 | sha-1}
```

Syntax Description	Parameter	Description
	neighbor	(Optional) Specifies the Resource Reservation Protocol (RSVP) neighbor.
	address	(Optional) Specifies the RSVP neighbor address.
	<i>ip-address</i>	RSVP neighbor address.
	md5	Specifies the Rivest, Shamir, and Adleman (RSA) Message Digest 5 hash algorithm.
	sha-1	Specifies the National Institute of Standards and Technology (NIST) Secure Hash Algorithm 1.

Defaults md5

Command Modes RSVP configuration mode

Supported User Roles network-admin
vdc-admin

Command History	Release	Modification
	5.2(1)	This command was introduced.

Usage Guidelines This command requires the MPLS Services license.

Examples This example shows how to specify the MD5 authentication algorithm:

```
switch# configure terminal
switch(config)# ip rsvp
switch(config-ip-rsvp)# authentication neighbor 1.1.1.1 type md5
switch(config-ip-rsvp)#
```

Related Commands#	Command	Description
	mpls ldp configuration	Configures the Multiprotocol Label Switching (MPLS) Label Distribution Protocol (LDP).

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authentication window-size

To configure the tolerance for the window size for an out-of-sequence message, use the **authentication window-size** command. To revert to the default type, use the **no** form of this command.

authentication [**neighbor address** *ip-address*] **window-size** *value*

no authentication [**neighbor address** *ip-address*] **window-size** *value*

Syntax Description		
neighbor	(Optional) Specifies the Resource Reservation Protocol (RSVP) neighbor.	
address <i>ip-address</i>	(Optional) Specifies the RSVP neighbor address.	
<i>value</i>	Maximum number of messages allowed in a window. The range is from 1 to 64.	

Defaults 1

Command Modes RSVP configuration mode

Supported User Roles network-admin
vdc-admin

Command History	Release	Modification
	5.2(1)	This command was introduced.

Usage Guidelines Use **authentication window-size** command to specify the tolerance for an out-of-sequence messages for a neighbor or globally.

This command requires the MPLS Services license.

Examples This example shows how to configure the tolerance for an out-of-sequence message for a neighbor:

```
switch# configure terminal
switch(config)# ip rsvp
switch(config-ip-rsvp)# authentication neighbor 1.1.1.1 window-size 1
switch(config-ip-rsvp)#
```

Related Commands#	Command	Description
	mpls ldp configuration	Configures the Multiprotocol Label Switching (MPLS) Label Distribution Protocol (LDP).

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autoroute announce

To announce the traffic-engineering tunnel to an Interior Gateway Protocol (IGP), use the **autoroute announce** command. To restore the system to its default condition, use the **no** form of this command.

autoroute announce

no autoroute announce

Syntax Description This command has no arguments or keywords.

Defaults None

Command Modes TE interface configuration mode

SupportedUserRoles network-admin
vdc-admin

Command History	Release	Modification
	5.2(1)	This command was introduced.

Usage Guidelines This command requires the MPLS Services license.

Examples This example shows how to announce the tunnel to IGP:

```
switch# configure terminal
switch(config)# interface tunnel-te 1
switch(config-if-te)# autoroute announce
switch(config-if-te)#
```

Related Commands	Command	Description
	interface tunnel-te	Configures the traffic engineering (TE) interface.

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auto-bw (LSP attribute configuration mode)

To configure the automatic bandwidth configuration, use the **auto-bw** command.

auto-bw [**frequency** *secs*] [**max-bw** *kbps*] [**min-bw** *kbps*] [**collect-bw**]

no auto-bw [**frequency** *secs*] [**max-bw** *kbps*] [**min-bw** *kbps*] [**collect-bw**]

Syntax Description	Parameter	Description
	frequency	(Optional) Specifies the interval between bandwidth adjustments.
	<i>secs</i>	(Optional) Seconds. The range is from 300 to 604800 seconds.
	max-bw	(Optional) Specifies the maximum automatic bandwidth, in kbps, for this path option.
	<i>kbps</i>	(Optional) Kilobits per second. The range is from 0 to 4294967295.
	min-bw	(Optional) Specifies the minimum automatic bandwidth, in kbps, for this path option.
	collect-bw	(Optional) Collects the output rate information for the path option but does not adjust the bandwidth of the path option.

Defaults

If the command is entered with no optional keywords, automatic bandwidth adjustment for the LSP is enabled, with adjustments made every 24 hours and with no constraints on the bandwidth adjustments made. If the **collect-bw** keyword is entered, the bandwidth is sampled but not adjusted, and the other options, if any, are ignored. If the **collect-bw** keyword is not entered and some, but not all of the other keywords are entered, the defaults for the keywords not entered are: **frequency**, every 24 hours; **min-bw**, unconstrained (0); **max-bw**, unconstrained.

Command Modes

LSP attribute configuration mode

Supported User Roles

network-admin
vdc-admin

Command History

Release	Modification
5.2(1)	This command was introduced.

Usage Guidelines

The following conditions apply for all traffic-engineering tunnel (TE) commands that can be specified both in TE interface configuration mode, **path-option** command line or LSP attribute configuration mode:

- If a setting is specified for a label switched path (LSP) either via the **path-option** command directly or by assigning an LSP attribute list to a path option, this setting takes precedence for that specific path option.

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- If no setting is specified for an LSP, then the LSP/path option inherits any setting specified in the tunnel-te configuration mode such as affinity, auto-bw, priority, record-route, protection/fast-reroute.

The **bandwidth** command configures the initial tunnel bandwidth, which is adjusted by the auto bandwidth mechanism.

This command requires the MPLS Services license.

Examples

This example shows how to configure the automatic bandwidth configuration:

```
switch# configure terminal
switch(config)# mpls traffic-eng configuration
switch(config-te)# lsp attributes 1
switch(config-lsp-attr)# auto-bw
```

Related Commands

Command	Description
interface tunnel-te	Configures the traffic engineering (TE) interface.

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auto-bw (TE interface configuration mode)

To configure the automatic bandwidth configuration, use the **auto-bw** command. To restore the system to its default condition, use the **no** form of this command.

auto-bw [**frequency** *secs*] [**max-bw** *kbps*] [**min-bw** *kbps*] [**collect-bw**]

no auto-bw [**frequency** *secs*] [**max-bw** *kbps*] [**min-bw** *kbps*] [**collect-bw**]

Syntax Description	frequency	(Optional) Specifies the interval between bandwidth adjustments.
	<i>secs</i>	(Optional) Seconds. The range is from 300 to 604800 seconds.
	max-bw	(Optional) Specifies the maximum automatic bandwidth, in kbps, for this path option.
	<i>kbps</i>	(Optional) Kilobits per second. The range is from 0 to 4294967295.
	min-bw	(Optional) Specifies the minimum automatic bandwidth, in kbps, for this path option.
	collect-bw	(Optional) Collects the output rate information for the path option but does not adjust the bandwidth of the path option.

Defaults

If the command is entered with no optional keywords, automatic bandwidth adjustment for the LSP is enabled, with adjustments made every 24 hours and with no constraints on the bandwidth adjustments made. If the **collect-bw** keyword is entered, the bandwidth is sampled but not adjusted, and the other options, if any, are ignored. If the **collect-bw** keyword is not entered and some, but not all of the other keywords are entered, the defaults for the keywords not entered are: **frequency**, every 24 hours; **min-bw**, unconstrained (0); **max-bw**, unconstrained.

Command Modes

TE interface configuration mode

Supported User Roles

network-admin
vdc-admin

Command History

Release	Modification
5.2(1)	This command was introduced.

Usage Guidelines

The **bandwidth** command configures the initial tunnel bandwidth, which is adjusted by the auto bandwidth mechanism.

This command requires the MPLS Services license.

Examples

This example shows how to enable automatic bandwidth adjustment for the tunnel and controls how the bandwidth for a tunnel is adjusted:

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```
switch# configure terminal
switch(config)# interface tunnel-te 1
switch(config-if-te)# auto-bw max-bw 2000 min-bw 1000
switch(config-if-te)#
```

Related Commands

Command	Description
interface tunnel-te	Configures the traffic engineering (TE) interface.

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auto-bw timers

To enable automatic bandwidth adjustment on a platform and begin sampling the output rate for tunnels that have been configured for automatic bandwidth adjustment, use the **auto-bw timers** command. To restore the system to its default condition, use the **no** form of this command.

auto-bw timers [*frequency seconds*]

no auto-bw timers [*frequency seconds*]

Syntax Description	frequency	(Optional) Specifies how often tunnel-te output rates should be sampled.
	<i>seconds</i>	(Optional) Interval in seconds, for sampling the output rate of each tunnel configured for automatic bandwidth. The range is 1 through 604800. The recommended value is 300.

Defaults When the optional **frequency** keyword is not specified, the sampling interval is 300 seconds (5 minutes).

Command Modes Traffic engineering global configuration mode

Supported User Roles network-admin
vdc-admin

Command History	Release	Modification
	5.2(1)	This command was introduced.

Usage Guidelines The **bandwidth** command configures the initial tunnel bandwidth, which is adjusted by the auto bandwidth mechanism.

This command requires the MPLS Services license.

Examples This example shows how to enable automatic bandwidth adjustment on a platform that has been configured for automatic bandwidth adjustment:

```
switch# configure terminal
switch(config)# mpls traffic-eng configuration
switch(config-te)# auto-bw timers frequency 600
switch(config-te)#
```

Related Commands	Command	Description
	mpls traffic-eng configuration	Configures the Multiprotocol Label Switching (MPLS) Traffic Engineering Protocol (MPLS-TE).

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