



Configuring Policies for Session Maintenance

The Intelligent Service Architecture (ISA) is a core set of Cisco IOS components that provide a structured framework in which access edge devices can deliver flexible and scalable services to subscribers. ISA provides two commands, **timeout absolute** and **timeout idle**, that each allow control over a session and a traffic class configured on the session as defined by a service policy map. Additionally, the Internet Engineering Task Force (IETF) RADIUS attributes Session-Timeout (attribute 27) and Idle-Timeout (attribute 28) can be used in service profiles on a authentication, authorization, and accounting (AAA) server to configure the same session maintenance control.

Module History

This module was first published on April 28, 2005, and last updated on April 28, 2005.

Finding Feature Information in This Module

Your Cisco IOS software release may not support all features. To find information about feature support and configuration, use the [“Feature Information for Configuring Policies for Session Maintenance” section on page 157](#).

Contents

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Prerequisites for Configuring Policies for Session Maintenance

A traffic class is required only if the idle timer or session timer is being installed on a service that has a traffic class definition in it. If the timer is installed on a session or service that has no traffic class, a traffic class is not required. See the “[Configuring ISA Subscriber Services](#)” module for information about how to configure a traffic class.

Restrictions for Configuring Policies for Session Maintenance

For the idle timeout that is applied on an IP session (rather than on a PPP session), there is currently no way to specify the direction. By default, the direction in which the idle timer is applied is always outbound.

Information About Configuring Policies for Session Maintenance

Before you configure the ISA session maintenance timers, you should understand the following concepts:

- [Session Maintenance Timers, page 148](#)
- [Benefits of the Session Maintenance Timers, page 148](#)

Session Maintenance Timers

ISA provides two commands (each of which can be set independently) to maintain control over a session and its connection. The **timeout absolute** command controls how long a session can be connected before it is terminated. The **timeout idle** command controls how long a connection can be idle before it is terminated. Both commands detect both PPP and IP sessions and can be applied in a service, on a per-session basis, or in a flow. All subscriber traffic will reset the timers; however non-network traffic such as PPP control packets will not reset the timers.

The scope of the session timers and connection timers is determined by the type of service within which the timer is specified. If specified in a service profile for which no traffic class is defined, the timer action will be to terminate the session or connection. If a traffic class specifier resides in the service profile, the timer action will be to deactivate the service.

Benefits of the Session Maintenance Timers

The PPP idle timeout functionality has been replaced by the ISA idle timeout feature. The idle timer is a generic feature that can be set to detect idle traffic in both PPP and IP sessions.

You set the idle timer in a service profile that is installed on a session to control how long that service stays installed before it is removed from the session because no traffic is flowing through that service. If the service has traffic class parameters associated with it, that traffic class is terminated when this timer expires, or when the session itself is terminated.

The same is true for the session timer, except that this timer determines how long the session or service stays up, regardless of traffic flowing through it.

How to Configure the Session Maintenance Timers

Two separate tasks are involved to configure the session maintenance timers, one to set the idle timer and one to set the session timer. Either one or both of these tasks can be performed when it is desirable to set session maintenance control. The following tasks show how to set these timers in a service policy map and in a RADIUS AAA server profile:

- [Configuring the Session Timer in a Service Policy Map, page 149](#) (required)
- [Configuring the Session Timer on a AAA Server, page 150](#) (required)
- [Configuring the Connection Timer in a Service Policy Map, page 150](#) (required)
- [Configuring the Connection Timer on a AAA Server, page 152](#) (required)
- [Verifying the Session and Connection Timer Settings, page 152](#) (optional)
- [Troubleshooting the Session and Connection Timer Settings, page 152](#) (optional)

Configuring the Session Timer in a Service Policy Map

Perform this task to set the session timer in a service policy map.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **policy-map type service** *policy-map-name*
4. **class type traffic** *class-map-name*
5. **timeout absolute** *duration-in-seconds*
6. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable Example: Router> enable	Enables privileged EXEC mode. <ul style="list-style-type: none">• Enter your password if prompted.
Step 2	configure terminal Example: Router# configure terminal	Enters global configuration mode.
Step 3	policy-map type service <i>policy-map-name</i> Example: Router(config)# policy-map type service policy1	Enters policy map configuration mode so you can begin configuring the service policy.

	Command or Action	Purpose
Step 4	class type traffic <i>class-map-name</i> Example: Router(config-control-policymap)# class type traffic class1	Associates a previously configured traffic class to the policy map.
Step 5	timeout absolute <i>duration-in-seconds</i> Example: Router(config-control-policymap-class-control)# timeout absolute 30	Specifies the session lifetime, in a range from 30 to 4294967 seconds.
Step 6	end Example: Router(conf-subscriber-profile)# end	(Optional) Returns to privileged EXEC mode.

What to Do Next

You may want to configure a method of activating the service policy map or service profile; for example, control policies can be used to activate services. For more information about methods of service activation, see the module “[Configuring ISA Subscriber Services](#).”

Configuring the Session Timer on a AAA Server

Perform this task to set the session timer on a AAA server profile.

SUMMARY STEPS

1. Add the RADIUS Session-Timeout attribute to a user or service profile.

DETAILED STEPS

	Command or Action	Purpose
Step 1	Session-Timeout = <i>duration-in-seconds</i>	Sets the IETF RADIUS session timer (attribute 27) in a user or service profile, in a range from 30 to 4294967 seconds.

Configuring the Connection Timer in a Service Policy Map

Perform this task to set the connection timer in a service policy map.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **policy-map type service** *policy-map-name*
4. **class type traffic** *class-map-name*

5. **timeout idle** *duration-in-seconds*
6. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable Example: Router> enable	Enables privileged EXEC mode. <ul style="list-style-type: none"> Enter your password if prompted.
Step 2	configure terminal Example: Router# configure terminal	Enters global configuration mode.
Step 3	policy-map type service <i>policy-map-name</i> Example: Router(config)# policy-map type service policy1	Enters policy map configuration mode so you can begin configuring the service policy.
Step 4	class type traffic <i>class-map-name</i> Example: Router(config-control-policymap)# class type traffic class1	Associates a previously configured traffic class to the policy map.
Step 5	timeout idle <i>duration-in-seconds</i> Example: Router(config-control-policymap-class-control)# timeout idle 3000	Specifies how long a connection can be idle before it is terminated, in a range from 1 to 4294967 seconds.
Step 6	end Example: Router(conf-subscriber-profile)# end	(Optional) Returns to privileged EXEC mode.

What to Do Next

You may want to configure a method of activating the service policy map or service profile; for example, control policies can be used to activate services. For more information about methods of service activation, see the module “[Configuring ISA Subscriber Services](#).”

Configuring the Connection Timer on a AAA Server

Perform this task to set the connection timer on a AAA server profile.

SUMMARY STEPS

1. Add the RADIUS Idle-Timeout attribute to a user or service profile.

DETAILED STEPS

	Command or Action	Purpose
Step 1	<code>idle-timeout=duration-in-seconds</code>	Sets IETF RADIUS (attribute 28) in a user or service profile, in a range from 1 to 4294967 seconds.

Verifying the Session and Connection Timer Settings

Perform this task to verify that the timers have been installed correctly.

SUMMARY STEPS

1. `enable`
2. `show subscriber session all`
3. `end`

DETAILED STEPS

	Command or Action	Purpose
Step 1	<code>enable</code> Example: <code>Router> enable</code>	Enables privileged EXEC mode. <ul style="list-style-type: none"> • Enter your password if prompted.
Step 2	<code>show subscriber session all</code> Example: <code>Router# show subscriber session all</code>	Displays current subscriber information, including reports about the timers that are enabled.
Step 3	<code>end</code> Example: <code>Router# end</code>	Exits privileged EXEC mode.

Troubleshooting the Session and Connection Timer Settings

The following sections list the **debug** commands that can be used to troubleshoot the session maintenance timers and describes the tasks you perform to enable them:

- [Prerequisites for Troubleshooting the Session Maintenance Timers, page 153](#)
- [Restrictions for Troubleshooting the Session Maintenance Timers, page 153](#)

- [Debug Commands Available for the Session Maintenance Timers, page 153](#)
- [Enabling the Session Maintenance Timer Debug Commands, page 153](#)

Prerequisites for Troubleshooting the Session Maintenance Timers

Before performing the task in this section, it is recommended that you be familiar with the use of Cisco IOS **debug** commands described in the introductory chapters of the *Cisco IOS Debug Command Reference*, Release 12.3T. Also see the module “[Troubleshooting ISA with Session Monitoring and Distributed Conditional Debugging](#).”

Restrictions for Troubleshooting the Session Maintenance Timers



Caution

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use the Cisco IOS **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users, or on a debug chassis with a single active session. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Debug Commands Available for the Session Maintenance Timers

[Table 14](#) lists the **debug** commands that can be used to diagnose problems with the session maintenance timers.

Table 14 *Debug Commands for Troubleshooting Session Maintenance Timers*

Command	Purpose
debug subscriber feature error	Displays general Feature Manager errors.
debug subscriber feature event	Displays general Feature Manager events.
debug subscriber feature name idle-timer error	Displays idle timer errors.
debug subscriber feature name idle-timer event	Displays idle timer events.
debug subscriber feature name session-timer error	Displays session timer errors.
debug subscriber feature name session-timer event	Displays session timer events.

Enabling the Session Maintenance Timer Debug Commands

Perform this task to enable the session maintenance timer **debug** commands.

SUMMARY STEPS

1. **enable**
2. **debug** *command*
3. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable	Enables higher privilege levels, such as privileged EXEC mode.
	Example: Router> enable	<ul style="list-style-type: none"> Enter your password if prompted.
Step 2	debug <i>command</i>	Enter one or more of the debug commands listed in Table 14 .
	Example: Router# debug subscriber feature name session-timer error	<ul style="list-style-type: none"> Enter the specific no debug command when you are finished.
Step 3	end	Exits privileged EXEC mode.
	Example: Router# end	

Configuration Examples for Session Maintenance Timers

This section contains the following examples:

- [Session Timer Configuration in a Service Policy Map: Example, page 154](#)
- [Connection Idle Timer Configuration in a Service Policy Map: Example, page 155](#)
- [Session Timer Show Command Output: Example, page 155](#)
- [Connection Idle Timer Show Command Output: Example, page 155](#)
- [Session Timer Debug Output: Example, page 156](#)
- [Connection Idle Timer Debug Output: Example, page 156](#)

Session Timer Configuration in a Service Policy Map: Example

The following example limits session time in a service policy map to 4800 seconds (80 minutes):

```
class-map type traffic match-any traffic-class
  match access-group input 101
  match access-group output 102
policy-map type service video-service
  class traffic-class
    police input 20000 30000 60000
    police output 21000 31500 63000
    timeout absolute 4800
  class type traffic default
  drop
```


Connection Idle Timer Configuration in a Service Policy Map: Example

The following example limits idle connection time in a service policy map to 30 seconds:

```
class-map type traffic match-any traffic-class
  match access-group input 101
  match access-group output 102
policy-map type service video-service
  class type traffic traffic-class
    police input 20000 30000 60000
    police output 21000 31500 63000
    timeout idle 30
  class type traffic default
  drop
```

Session Timer Show Command Output: Example

The following example shows the settings for the session timer displayed by the **show subscriber session all** privileged EXEC command. Reports of interest are highlighted in **bold text**.

```
Current Subscriber Information: Total sessions 1
-----
Unique Session ID: 3
Identifier: user01
SIP subscriber access type(s): PPPoE/PPP
Current SIP options: Req Fwding/Req Fwded
Session Up-time: 00:02:50, Last Changed: 00:02:53
AAA unique ID: 4
Interface: Virtual-Access2.1

Policy information:
  Context 02DE7380: Handle 1B000009
  Authentication status: authen
  User profile, excluding services:
    Framed-Protocol      1 [PPP]
    username              "user01"
    Framed-Protocol      1 [PPP]
    username              "user01"
  Prepaid context: not present

Non-datapath features:
Feature: Session Timeout
Timeout value is 180000 seconds
Time remaining is 2d01h
Configuration sources associated with this session:
Interface: Virtual-Template1, Active Time = 00:02:52
```

Connection Idle Timer Show Command Output: Example

The following example shows the settings for the idle timer as displayed by the **show subscriber session all** privileged EXEC command. Reports of interest are highlighted in **bold text**.

```
Current Subscriber Information: Total sessions 1
-----
Unique Session ID: 4
Identifier: user01
SIP subscriber access type(s): PPPoE/PPP
Current SIP options: Req Fwding/Req Fwded
```

```

Session Up-time: 00:01:44, Last Changed: 00:01:46
AAA unique ID: 5
Interface: Virtual-Access2.1

Policy information:
  Context 02DE7380: Handle AD00000C
  Authentication status: authen
  User profile, excluding services:
    Framed-Protocol      1 [PPP]
    username              "user01"
    Framed-Protocol      1 [PPP]
    username              "user01"
  Prepaid context: not present

Session outbound features:
Feature: PPP Idle Timeout
Timeout value is 2000
Idle time is 00:01:44
Configuration sources associated with this session:
Interface: Virtual-Template1, Active Time = 00:01:47

```

Session Timer Debug Output: Example

The following example shows output when the session timer debug commands (**debug subscriber feature error**, **debug subscriber feature event**, **debug subscriber feature name session-timer error**, and **debug subscriber feature name session-timer event**) are enabled. Reports of interest are highlighted in **bold text**.

```

*Jan 12 18:38:51.947: SSF[Vi2.1/Abs Timeout]: Vaccess interface config
update; not per-user, ignore
*Jan 12 18:38:53.195: SSF[Vt1/uid:3]: Install interface configured
features
*Jan 12 18:38:53.195: SSF[Vt1/uid:3]: Associate segment element handle
0x95000002 for session 1191182344, 1 entries
*Jan 12 18:38:53.195: SSF[Vt1/uid:3/Abs Timeout]: Group feature install
*Jan 12 18:38:53.195: SSF[uid:3/Abs Timeout]: Adding feature to none segment(s)

```

Connection Idle Timer Debug Output: Example

The following example shows output when the idle timer debug commands (**debug subscriber feature error**, **debug subscriber feature event**, **debug subscriber feature name idle-timer error**, and **debug subscriber feature name idle-timer event**) are enabled. Reports of interest are highlighted in **bold text**.

```

*Jan 12 18:43:15.167: SSF[Vt1/uid:4]: Install interface configured
features
*Jan 12 18:43:15.167: SSF[Vt1/uid:4]: Associate segment element handle
0xF4000003 for session 67108875, 1 entries
*Jan 12 18:43:15.167: SSF[Vt1/uid:4/Idle Timeout]: Group feature install
*Jan 12 18:43:15.167: SSF[uid:4/Idle Timeout]: Adding feature to outbound
segment(s)
*Jan 12 18:43:15.167: Idle Timeout[uid:4]: Idle timer start, duration 2000
seconds, direction: outbound
*Jan 12 18:43:16.327: SSM FH: [SSS:PPPoE:8198:Idle Timeout:4097] created
02DFFDD8
*Jan 12 18:43:16.327: SSM FH: [SSS:PPPoE:8198:Idle Timeout:4097] added
02DFFDD8 [outbound]
*Jan 12 18:43:16.327: SSM FH: [SSS:PPPoE:8198:Idle Timeout:4097]
installed: ok

```

```
*Jan 12 18:43:16.327: SSM FH: [SSS:PPPoE:8198:Idle Timeout:4097]
installed: ok
*Jan 12 18:43:19.147: SSM FH: [SSS:PPPoE:8198:Idle Timeout:4097] bound
```

Additional References

The following sections provide references related to session maintenance timers.

Related Documents

Related Topic	Document Title
ISA commands	<i>Cisco IOS Intelligent Service Architecture Command Reference</i>
ppp timeout idle and timeout absolute PPP timer commands	<i>Cisco IOS Dial Technologies Command Reference</i> , Release 12.3T

Technical Assistance

Description	Link
Technical Assistance Center (TAC) home page, containing 30,000 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.	http://www.cisco.com/public/support/tac/home.shtml

Feature Information for Configuring Policies for Session Maintenance

[Table 15](#) lists the features in this module and provides links to specific configuration information. Only features that were introduced or modified in Cisco IOS Release 12.2(27)SBA or later releases appear in the table.

Not all commands may be available in your Cisco IOS software release. For details on when support for specific commands was introduced, see the command reference documents.

If you are looking for information on a feature in this technology that is not documented here, see the “[Intelligent Service Architecture Features Roadmap](#).”

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**Note**

[Table 15](#) lists only the Cisco IOS software release that introduced support for a given feature in a given Cisco IOS software release train. Unless noted otherwise, subsequent releases of that Cisco IOS software release train also support that feature.

Table 15 *Feature Information for <Phrase Based on Module Title>*

Feature Name	Releases	Feature Configuration Information
ISA: Session: Lifecycle: Idle Timeout	12.2(27)SBA	<p>The ISA idle timeout controls how long a connection can be idle before it is terminated.</p> <p>The following sections provide information about this feature:</p> <ul style="list-style-type: none"> • Session Maintenance Timers, page 148 • How to Configure the Session Maintenance Timers, page 149

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