

Configure SCTP Data Flow and Congestion Control

OPERATING INSTRUCTIONS

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1 Description

The property is set per SctpProfile=<X> where <X> is custom profile number from 0 to 255. Profile 0 is used as default and always exists after cluster deployment; other profiles can be created manually if needed.

The following properties can be set:

Retransmission time-out (RTO)

- alphaIndex
- betaIndex
- initRto
- maxRto
- minRto

The value of minRto must be less than or equal to initRto, and less than or equal to maxRto.

Bundling

- bundlingActivated
- bundlingTimer
- bundlingThreshold

The bundlingThreshold takes effect when both bundlingActivated and bundlingTimer are set.

Congestion Control

- ecnCapability
- maxBurst

Buffers

- initARWnd
- thrTransmitBuffer
- thrTransmitBufferCongCeased
- transmitBufferSize

The value of thrTransmitBuffer must be less than the value of transmitBufferSize



Path Retransmissions

- `assocMaxRtx`
- `maxInitRt`
- `maxShutdownRt`
- `pathMaxRtx`

The value of `assocMaxRtx` must be greater than or equal to the `pathMaxRtx`.

Switch Back to Primary (Volatile Mode)

- `noSwitchback`
- `minActivateThr`
- `maxActivateThr`

The `minActivateThr` and `maxActivateThr` make sense if the `noSwitchback` is not set.

The value of `minActivateThr` must be less or equal to `maxActivateThr`.

Primary Path Avoidance

- `primaryPathAvoidance`
- `primaryPathMaxRtx`

The `primaryPathMaxRtx` makes sense if the `primaryPathAvoidance` is set.

MTU

- `maxSctpPduSize`
- `ipv6Pmtu`

2 Procedure

2.1 Configure SCTP Data Flow and Congestion Control

Prerequisites

- No documents are required.



- No tools are required.
- The following conditions must apply:
 - An SctpProfile Managed Object (MO) exists.
 - An Ericsson Command-Line Interface (ECLI) session in Exec mode is in progress.

Steps

1. Navigate to the SctpProfile MO, for example:
`>ManagedElement=1,Transport=1,Sctp=1,SctpProfile=0`
2. Enter Configuration mode:
`(SctpProfile=0)>configure`
3. Set the Alpha Index of RTO calculation in the SCTP protocol with the alphaIndex attribute, for example:
`(config-SctpProfile=0)>alphaIndex=ALPHA_1_2ND`
 Possible values are ALPHA_1_2ND, ALPHA_1_4TH, ALPHA_1_8TH, ALPHA_1_16TH.
4. Set AMR, the maximum number of packet retransmissions in the SCTP protocol with the assocMaxRtx attribute, for example:
`(config-SctpProfile=0)>assocMaxRtx=4`
5. Set the Beta Index of RTO calculation in the SCTP protocol with the betaIndex attribute:
`(config-SctpProfile=0)>betaIndex=BETA_1_2ND`
 Possible values are BETA_1_16TH, BETA_1_2ND, BETA_1_4TH, BETA_1_8TH.
6. Set the Bundling Status in the SCTP protocol with a boolean value in the bundlingActivated attribute, for example:
`(config-SctpProfile=0)>bundlingActivated=false`
 Possible values are true and false.
7. Set the Bundling Threshold (percentage) with a numeric value in the bundlingThreshold attribute, for example:
`(config-SctpProfile=0)>bundlingThreshold=20`
8. Set the Bundling Timer value (in ms) in the SCTP protocol with a numeric value in the bundlingTimer attribute, for example:



```
(config-SctpProfile=0)>bundlingTimer=15
```

9. Enable or disable the Explicit Congestion Notification (ECN) feature in SCTP with the `ecnCapability` attribute, for example:

```
(config-SctpProfile=0)>ecnCapability=YES
```

Possible values are YES and NO.

10. Set the initial value of the advertised receiver window parameter (the receive buffer) in SCTP protocol with the `initARwnd` attribute, for example:

```
(config-SctpProfile=0)>initARwnd=65000
```

11. Set Initial RTO (in ms) of the SCTP protocol with a numeric value in the `initRto` attribute, for example:

```
(config-SctpProfile=0)>initRto=100
```

12. Set the maximum packets burst in SCTP protocol, part of congestion control. Set a numeric value (in packets) in the `maxBurst` attribute, for example:

```
(config-SctpProfile=0)>maxBurst=5
```

13. Set the maximum number of INIT and COOKIE_ECHO chunk retransmission. Set a numeric value for the number of times in the `maxInitRt` attribute, for example:

```
(config-SctpProfile=0)>maxInitRt=5
```

14. Set the maximum RTO (in ms) of the SCTP protocol with a numeric value in the `maxRto` attribute, for example:

```
(config-SctpProfile=0)>maxRto=200
```

15. Set the maximum number of retransmissions of the SHUTDOWN and SHUTDOWN_ACK chunks with a numeric value of the `maxShutdownRt` attribute, for example:

```
(config-SctpProfile=0)>maxShutdownRt=5
```

16. Set the minimum RTO (in ms).with a numeric value in the `minRto` attribute, for example:

```
(config-SctpProfile=0)>minRto=20
```

17. Configure the Path Selection Adjustment with the `noSwitchback` attribute, for example:

```
(config-SctpProfile=0)>noSwitchback=true
```

Possible values are true and false.



18. Set the minimum number of consecutive successful heartbeats needed to switch back to Primary Path with the `minActivateThr` attribute, for example:

```
(config-SctpProfile=0)>minActivateThr=1
```

19. Set the maximum number of consecutive successful heartbeats needed to switch back to Primary Path with the `maxActivateThr` attribute, for example:

```
(config-SctpProfile=0)>maxActivateThr=1
```

20. Set the Path Maximum Retransmission value, the maximum number of consecutive retransmissions on an IP path, with the `pathMaxRtx` attribute, for example:

```
(config-SctpProfile=0)>pathMaxRtx=4
```

21. Set the Primary Path Avoidance option in the Path Selection Adjustment property with the `primaryPathAvoidance` attribute, for example:

```
(config-SctpProfile=0)>primaryPathAvoidance=true
```

Possible values are true and false.

22. Set the Primary Path Maximum Retransmission, the maximum value of the error counter of the current Primary Path if Primary Path avoidance is enabled, with the `primaryPathMaxRtx` attribute, for example:

```
(config-SctpProfile=0)>primaryPathMaxRtx=2
```

23. Set the congestion threshold (in KB) of the transmit buffer (when allocated bytes reach the threshold, the congestion is raised) with the `thrTransmitBuffer` attribute, for example:

```
(config-SctpProfile=0)>thrTransmitBuffer=700
```

24. Set the size of threshold of the transmit buffer (in percent) when congestion cease indication is sent with the `thrTransmitBufferCongCeased` attribute, for example:

```
(config-SctpProfile=0)>thrTransmitBufferCongCeased=85
```

25. Set the size of transmit buffer (in KB) with the `transmitBufferSize` attribute, for example:

```
(config-SctpProfile=0)>transmitBufferSize=1000
```

26. Set the size of MTU for IPv4 (in bytes) with the `maxSctpPduSize` attribute, for example:

```
(config-SctpProfile=0)>maxSctpPduSize=1480
```

27. Set the size of MTU for IPv6 (in bytes) with the `ipv6Pmtu` attribute, for example:



```
(config-SctpProfile=0)>ipv6Pmtu=1460
```

28. Commit the changes:

```
(config-SctpProfile=0)>commit
```

29. Verify the settings:

```
(SctpProfile=0)>show
```

The following is an example output:

```
SctpProfile=0
...alphaIndex=ALPHA_1_2ND
...assocMaxRtx=4
...betaIndex=BETA_1_2ND
...bundlingActivated=false
...bundlingThreshold=20
...bundlingTimer=15
...ecnCapability=YES
...initARwnd=65000
...initRto=100
...ipv6Pmtu=1460
...maxActivateThr=1
...maxBurst=5
...maxInitRt=5
...maxRto=200
...maxSctpPduSize=1480
...maxShutdownRt=5
...minActivateThr=1
...minRto=20
...noSwitchback=true
...pathMaxRtx=4
...primaryPathAvoidance=true
...primaryPathMaxRtx=2
...thrTransmitBuffer=700
...thrTransmitBufferCongCeased=85
...transmitBufferSize=1000
```