Link Configuration Mode Commands

Command Modes

The Link configuration mode defines the MTP3 link parameters for a specific link in a linkset of an SS7 routing domain instance.

Exec > Global Configuration > SS7 Routing Domain Configuration > Linkset Configuration > Link Configuration

configure > ss7-routing-domain *domain_id* **variant** *var_type* **> linkset id** *linkset_id* **> link id** *link_id*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-ss7-rd-linkset-linkset_id-link-link_id)#
```

Important The commands or keywords/variables that are available are dependent on platform type, product version, and installed license(s).

Important For information on common commands available in this configuration mode, refer to the Common Commands chapter.

arbitration

This command configures link arbitration.

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > SS7 Routing Domain Configuration > Linkset Configuration > Link Configuration

configure > ss7-routing-domain *domain_id* **variant** *var_type* **> linkset id** *linkset_id* **> link id** *link_id*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-ss7-rd-linkset-linkset_id-link-link_id)#
```

Syntax Description

```
arbitration { active | passive }
no arbitration
```

no

Removes the arbitration configuration for the link.

active

The SSCOP initiates the transmission of PDUs.

passive

The SSCOP waits to receive PDUs.

Usage Guidelines

Sets the configuration to initiate transmission of PDUs.

Example

```
arbitration active
```

mtp2-aerm-emergency-threshold

Configure the alignment error rate monitor (AERM) emergency threshold value. This command is only available for a lowspeed-narrowband link-type.

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > SS7 Routing Domain Configuration > Linkset Configuration > Link Configuration

configure > ss7-routing-domain *domain_id* **variant** *var_type* **> linkset id** *linkset_id* **> link id** *link_id*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-ss7-rd-linkset-linkset_id-link-link_id)#
```

Syntax Description

mtp2-aerm-emergency-threshold *value*
default mtp2-aerm-emergency-threshold

default

Resets the parameter to the default value of 1.

value

value : Enter an integer from 1 to 50. Default: 1.

Usage Guidelines

This command sets the emergency threshold for the MTP2 alignment error rate monitor.

Example

Set the emergency AERM threshold to 17:

mtp2-aerm-emergency-threshold *17*

mtp2-aerm-normal-threshold

Configure the alignment error rate monitor (AERM) normal threshold value. This command is only available for a lowspeed-narrowband link-type.

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > SS7 Routing Domain Configuration > Linkset Configuration > Link Configuration

configure > ss7-routing-domain *domain_id* **variant** *var_type* **> linkset id** *linkset_id* **> link id** *link_id*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-ss7-rd-linkset-linkset_id-link-link_id)#
```

Syntax Description

mtp2-aerm-normal-threshold *value*
default mtp2-aerm-normal-threshold

default

Resets the parameter to the default value of 4.

value

value : Enter an integer from 4 to 100. Default: 4.

Usage Guidelines

This command sets the normal threshold for the MTP2 alignment error rate monitor.

Example

Set the normal AERM threshold to 55:

mtp2-aerm-normal-threshold *55*

mtp2-eim-decrement

Configure the errored interval monitor (EIM) emergency decrement value. This command is only available for a highspeed-narrowband link-type.

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > SS7 Routing Domain Configuration > Linkset Configuration > Link Configuration

configure > ss7-routing-domain *domain_id* **variant** *var_type* **> linkset id** *linkset_id* **> link id** *link_id*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-ss7-rd-linkset-linkset_id-link-link_id)#
```

Syntax Description

mtp2-eim-decrement *value*
default mtp2-eim-decrement

default

Resets the parameter to the default value of 11.

value

value : Enter an integer from 1 to 63. Default: 11.

Usage Guidelines

This command sets the emergency decrement value for the EIM.

Example

Reset the EIM emergency decrement to 1:

```
default mtp2-eim-decrement
```

mtp2-eim-increment

Configure the errored interval monitor (EIM) emergency increment value. This command is only available for a highspeed-narrowband link-type.

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > SS7 Routing Domain Configuration > Linkset Configuration > Link Configuration

configure > ss7-routing-domain *domain_id* **variant** *var_type* **> linkset id** *linkset_id* **> link id** *link_id*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-ss7-rd-linkset-linkset_id-link-link_id)#
```

Syntax Description

mtp2-eim-increment *value*
default mtp2-eim-increment

default

Resets the parameter to the default value of 198.

value

value : Enter an integer from 1 to 1023. Default: 198.

Usage Guidelines

This command sets the emergency increment value for the EIM.

Example

Set the EIM emergency increment to 2:

```
mtp2-eim-increment 2
```

mtp2-eim-threshold

Configure the errored interval monitor (EIM) emergency threshold value. This command is only available for a highspeed-narrowband link-type.

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > SS7 Routing Domain Configuration > Linkset Configuration > Link Configuration

configure > ss7-routing-domain *domain_id* **variant** *var_type* **> linkset id** *linkset_id* **> link id** *link_id*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-ss7-rd-linkset-linkset_id-link-link_id)#
```

Syntax Description

mtp2-eim-threshold *value*
default mtp2-eim-threshold

default

Resets the parameter to the default value of 794.

value

value : Enter an integer from 1 to 65535. Default: 794.

Usage Guidelines

This command sets the emergency threshold value for the EIM.

Example

Set the EIM emergency threshold to 154:

mtp2-eim-threshold *154*

mtp2-error-correction

Configure the error correction method to be used. This command is only available for lowspeed or highspeed narrowband link-types.

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > SS7 Routing Domain Configuration > Linkset Configuration > Link Configuration

configure > ss7-routing-domain *domain_id* **variant** *var_type* **> linkset id** *linkset_id* **> link id** *link_id*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-ss7-rd-linkset-linkset_id-link-link_id)#
```

Syntax Description

mtp2-error-correction { basic | preventive-cyclic-retransmission }
default mtp2-error-correction

default

Resets the parameter to the default value.

basic

Basic error correction (BEC) is a positive / negative acknowledgement method that uses backwards retransmission. This method is best for links with less than 30 ms one-way propagation delays.

preventtive-cyclic-retransmission

PCR is recommended for links with 125 ms, or higher, propagation delays.

Usage Guidelines Set the method of MTP2 layer error correct to be used on the link.

Example

Set error correction for a link with 15 ms propagaion delay::

```
mtp2-error-correction basic
```

mtp2-lssu-len

This command sets the length of the link status signal unit (LSSU) which carries link status information used to manage link alignment and indicate the status of the signaling points to each other. This command is only available for lowspeed or highspeed narrowband link-types.

Product SGSN

Privilege Security Administrator, Administrator

Command Modes Exec > Global Configuration > SS7 Routing Domain Configuration > Linkset Configuration > Link Configuration

configure > ss7-routing-domain *domain_id* **variant** *var_type* **> linkset id** *linkset_id* **> link id** *link_id*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-ss7-rd-linkset-linkset_id-link-link_id)#
```

Syntax Description

```
mtp2-lssu-len #_octets
default mtp2-lssu-len
```

default

Using this keyword with the command resets the length to the default of 1 octet.

#_octets

Sets the number of octets for the length of the LSSU.

#_octets: Must be either 1 or 2.

Usage Guidelines Use this command to define the maximum amount of link status information that is to be shared between signaling points.

Example

You can use the following command to set the LSSU length to 2 octets - the maximum length:

mtp2-lssu-len *2*

mtp2-max-outstand-frames

This command sets the maximum number of outstanding packets to be sent by the link manager (linkmgr) - applicable for both high speed (HSL) and low speed (LSL) narrowband links.

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > SS7 Routing Domain Configuration > Linkset Configuration > Link Configuration

configure > ss7-routing-domain *domain_id* **variant** *var_type* **> linkset id** *linkset_id* **> link id** *link_id*

Entering the above command sequence results in the following prompt:

`[local]host_name(config-ss7-rd-linkset-linkset_id-link-link_id)#`

Syntax Description

mtp2-max-outstand-frames *#_bytes*
default mtp2-max-outstand-frames

default

Using this keyword with the command resets number of packets to the default of 7 bytes.

#_bytes

Sets the maximum number of packets sent by the linkmgr that can be allowed to be outsanding.

#_bytes: Must be an integer from 5 to 10.

Usage Guidelines

The linkmgr (MTP2) sends data at a higher rate, than the narrowband (NB) E1 link speed, when in congestion and performing retransmission. This can lead to more congestion leading to more time taken for the link to come out of congestion. If using a value of 10 during congestion, then linkmgr pumps data at a rate higher than 2.5 mbps. To avoid this problem, a lower value is usually considered optimal. This configuration holds good for both HSL and LSL.

Example

Use the following command to reset the default number of outstanding packets sent by the LinkMgr:

default mtp2-max-outstand-frames

Set the maximum number of oustanding packets the linkmgr can send to 6:

mtp2-max-outstand-frames *6*

mtp2-suerm-threshold

Configure the signal unit error rate monitor (SUERM) threshold. This command is only available for lowspeed-narrowband link-types.

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > SS7 Routing Domain Configuration > Linkset Configuration > Link Configuration

configure > ss7-routing-domain *domain_id* **variant** *var_type* **> linkset id** *linkset_id* **> link id** *link_id*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-ss7-rd-linkset-linkset_id-link-link_id)#
```

Syntax Description

mtp2-suerm-threshold *value*
default mtp2-suerm-threshold

default

Resets the parameter to the default value.

value

Defines the threshold for number of bad frames

value: Enter an integer from 64 to 1023. Default is 64.

Usage Guidelines

Sets the threshold for link monitoring of bad frames.

Example

Set a new link monitoring bad frames (SEURM) threshold of 256:

mtp2-suerm-threshold *256*

mtp3-discard-priority

Configure MTP3 message discard priority.

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > SS7 Routing Domain Configuration > Linkset Configuration > Link Configuration

configure > ss7-routing-domain *domain_id* **variant** *var_type* **> linkset id** *linkset_id* **> link id** *link_id*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-ss7-rd-linkset-linkset_id-link-link_id)#
```

Syntax Description

mtp3-discard-priority *priority*
default mtp3-discard-priority

default

Resets the priority to the default value.

priority

priority: must be an integer between 0 and 3.

Default is 0.

Usage Guidelines

Use this command to manage MTP3 messaging.

Example

mtp3-discard-priority *2*

mtp3-max-slt-try

Configure maximum number of times to retry SLT (signaling link test).

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > SS7 Routing Domain Configuration > Linkset Configuration > Link Configuration

configure > ss7-routing-domain *domain_id* **variant** *var_type* **> linkset id** *linkset_id* **> link id** *link_id*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-ss7-rd-linkset-linkset_id-link-link_id)#
```

Syntax Description

mtp3-max-slt-try *retries*
default mtp3-max-slt-try

default

Resets the number of retries to the default value.

retries

retries: must be an integer between 1 to 65535.

Default is 10.

Usage Guidelines Use this command to troubleshoot MTP3 link mismatch.

Example

```
mtp3-max-slt-try 35
```

mtp3-msg-priority

Configures the priority for sending MTP3 management messages.

Product SGSN

Privilege Security Administrator, Administrator

Command Modes Exec > Global Configuration > SS7 Routing Domain Configuration > Linkset Configuration > Link Configuration

configure > ss7-routing-domain *domain_id* **variant** *var_type* **> linkset id** *linkset_id* **> link id** *link_id*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-ss7-rd-linkset-linkset_id-link-link_id)#
```

Syntax Description

```
mtp3-msg-priority priority
default mtp3-msg-priority
```

default

Resets the number of priority to the default value.

priority

priority: must be an integer from 0 to 3.

Default: 0

Usage Guidelines Use this command to set the priority for sending MTP3 management messages.

Example

Use the following to set the message priority to 3:

```
mtp3-msg-priority 3
```

mtp3-msg-size

Configures the size of messages from layer 3 to layer 2.

Product SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > SS7 Routing Domain Configuration > Linkset Configuration > Link Configuration

configure > ss7-routing-domain *domain_id* **variant** *var_type* **> linkset id** *linkset_id* **> link id** *link_id*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-ss7-rd-linkset-linkset_id-link-link_id)#
```

Syntax Description

mtp3-msg-size *size*
default mtp3-msg-size

default

Resets the the size to the default value which is 4096 (for q.2140) or 272 (for MTP2)

size

size: must be an integer from 1 to 272 for high-speed or low-speed narrowband SS7 links.

size: must be an integer from 1 to 4096 for ATM broadband links.

Usage Guidelines

Use this command to set the maximum message size, in bytes.

Example

Use this command to set the MTP3 message size to 4096 bytes:

mtp3-msg-size *4096*

mtp3-p1-qlen

Configure the size for the MTP3 p1 queue length.

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > SS7 Routing Domain Configuration > Linkset Configuration > Link Configuration

configure > ss7-routing-domain *domain_id* **variant** *var_type* **> linkset id** *linkset_id* **> link id** *link_id*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-ss7-rd-linkset-linkset_id-link-link_id)#
```

Syntax Description

mtp3-p1-qlen *size*
default mtp3-p1-qlen

default

Resets the number of size of the priority 1 queue to the default value.

size

size: integer from 1 to 65535. Size should be less than MTP3 p2 qlen and p3 qlen.

Default: 1024

Usage Guidelines Use this command to configure the queue length threshold for raising the congestion priority to level 1.

Example

Use this command to set the queue length priority to 128:

mtp3-p1-qlen *128*

mtp3-p2-qlen

Configure the size of the priority 2 queue.

Product SGSN

Privilege Security Administrator, Administrator

Command Modes Exec > Global Configuration > SS7 Routing Domain Configuration > Linkset Configuration > Link Configuration

configure > ss7-routing-domain *domain_id* **variant** *var_type* **> linkset id** *linkset_id* **> link id** *link_id*

Entering the above command sequence results in the following prompt:

`[local]host_name(config-ss7-rd-linkset-linkset_id-link-link_id)#`

Syntax Description

mtp3-p2-qlen *size*
default mtp3-p2-qlen

default

Resets the number of size of the priority 2 queue to the default value.

size

size: integer from 1 to 65535. Size should be less than MTP3 p3 qlen and greater than p1 qlen.

Default: 1024

Usage Guidelines Use this command to configure the queue length threshold for raising the congestion priority to level 2.

Example

Use this command to set the queue length threshold to 256:

mtp3-p2-qlen *256*

mtp3-p3-qlen

Configure the size of the priority 3 queue.

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > SS7 Routing Domain Configuration > Linkset Configuration > Link Configuration

configure > ss7-routing-domain *domain_id* **variant** *var_type* **> linkset id** *linkset_id* **> link id** *link_id*

Entering the above command sequence results in the following prompt:

`[local]host_name(config-ss7-rd-linkset-linkset_id-link-link_id)#`

Syntax Description

mtp3-p3-qlen *size*
default mtp3-p3-qlen

default

Resets the number of size of the priority 3 queue to the default value.

size

size: integer from 1 to 65535. Size should be greater than MTP3 p1 qlen and p2 qlen .

Default: 1024

Usage Guidelines

Use this command to configure the queue length threshold for raising the congestion priority to level 3.

Example

mtp3-p3-qlen *1024*

mtp3-test-pattern

Configures the character string for the test message.

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > SS7 Routing Domain Configuration > Linkset Configuration > Link Configuration

configure > ss7-routing-domain *domain_id* **variant** *var_type* **> linkset id** *linkset_id* **> link id** *link_id*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-ss7-rd-linkset-linkset_id-link-link_id)#
```

Syntax Description

mtp3-test-pattern *pattern*
default mtp3-test-pattern

default

Resets the pattern to the default value.

pattern

pattern: 1 to 15 alphanumeric characters.

Default: SGSN-ORIGINATED

Usage Guidelines

Use this command to define a test pattern string for the signalling link test match (SLTM).

Example

mtp3-test-pattern *TEST1-HomeOffice*

priority

Configures the MTP3 Link Priority.

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > SS7 Routing Domain Configuration > Linkset Configuration > Link Configuration

configure > ss7-routing-domain *domain_id* **variant** *var_type* **> linkset id** *linkset_id* **> link id** *link_id*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-ss7-rd-linkset-linkset_id-link-link_id)#
```

Syntax Description

priority *pri_value*
no priority

no

Removes the priority configuration.

pri_value

pri_value: 0 represents highest priority and 15 represents the lowest priority.

Usage Guidelines

Use this command to configure the link priority within the MTP3 link set.

Example

```
priority 2
```

signaling-link-code

Configures the signaling link code (SLC).

Product SGSN

Privilege Security Administrator, Administrator

Command Modes Exec > Global Configuration > SS7 Routing Domain Configuration > Linkset Configuration > Link Configuration

configure > ss7-routing-domain *domain_id* **variant** *var_type* **> linkset id** *linkset_id* **> link id** *link_id*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-ss7-rd-linkset-linkset_id-link-link_id)#
```

Syntax Description

```
signaling-link-code code
no signaling-link-code
```

no

Removes the SLC configuration.

code

code: integer from 0 to 15.

Usage Guidelines Use this command to uniquely identify the signaling link to be used for MTP3 management messages.

Example

```
signaling-link-code 4
```

sscf-nni-n1

Configures the SSCF NNI N1. This command is only available for ATM-broadband link-types.

Product SGSN

Privilege Security Administrator, Administrator

Command Modes Exec > Global Configuration > SS7 Routing Domain Configuration > Linkset Configuration > Link Configuration

configure > **ss7-routing-domain** *domain_id* **variant** *var_type* > **linkset id** *linkset_id* > **link id** *link_id*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-ss7-rd-linkset-linkset_id-link-link_id)#
```

Syntax Description

sscf-nni-n1 *value*
no sscf-nni-n1

default

Removes the sscf-nni-n1 configuration.

value

value: integer from 1 to 65535.

Default: 1000

Usage Guidelines

Use this command to identify the network-to-node interface (NNI) between the MTP3 and SSCOP layers.

Example

sscf-nni-n1 *4064*

sscop-max-cc

Configure the maximum value for the SSCOP connection control (CC) state variable. his command is only available for ATM-broadband link-types.

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > SS7 Routing Domain Configuration > Linkset Configuration > Link Configuration

configure > **ss7-routing-domain** *domain_id* **variant** *var_type* > **linkset id** *linkset_id* > **link id** *link_id*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-ss7-rd-linkset-linkset_id-link-link_id)#
```

Syntax Description

sscop-max-cc *value*
no sscop-max-cc

default

Removes the sscop-max-cc configuration.

value

value: integer from 1 to 65535.

Default: 4

Usage Guidelines Use this command as part of the configuration responsible for managing the SSCOP connection. This command sets the number of times retries.

Example

sscop-max-cc *256*

sscop-max-pd

Configures the maximum acceptable value for the SSCOP state variable VT(PD). his command is only available for ATM-broadband link-types.

Product SGSN

Privilege Security Administrator, Administrator

Command Modes Exec > Global Configuration > SS7 Routing Domain Configuration > Linkset Configuration > Link Configuration

configure > ss7-routing-domain *domain_id* **variant** *var_type* **> linkset id** *linkset_id* **> link id** *link_id*

Entering the above command sequence results in the following prompt:

`[local]`*`host_name`*`(config-ss7-rd-linkset-linkset_id-link-link_id)#`

Syntax Description

sscop-max-pd *value*
no sscop-max-pd

default

Removes the **sscop-max-pd** configuration.

value

value: integer from 1 to 65535.

Default: 500

Usage Guidelines Use this command to define the maximum number of data PDUs transmitted between POLL PDUs.

Example

sscop-max-pd *2500*

sscop-max-stat

Configures the maximum number of elements included in a status PDU. his command is only available for ATM-broadband link-types.

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > SS7 Routing Domain Configuration > Linkset Configuration > Link Configuration

configure > ss7-routing-domain *domain_id* **variant** *var_type* **> linkset id** *linkset_id* **> link id** *link_id*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-ss7-rd-linkset-linkset_id-link-link_id)#
```

Syntax Description

sscop-max-stat *value*
no sscop-max-stat

default

Removes the **sscop-max-stat** configuration.

value

value: integer from 3 to 65535. This parameter should be an odd integer greater than or equal to 3.

Defaultz; 67

Usage Guidelines

Received in response to a POLL PDU, the STAT PDU includes information about the number of SD PDUs that have been received.

Example

sscop-max-stat *56000*

timeout

This command enables configuration of an array of signaling and flow control timers - for MTP, SSCF, and SSCOP.

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > SS7 Routing Domain Configuration > Linkset Configuration > Link Configuration

configure > ss7-routing-domain *domain_id* **variant** *var_type* **> linkset id** *linkset_id* **> link id** *link_id*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-ss7-rd-linkset-linkset_id-link-link_id)#
```

Syntax Description

[no] timeout *timer timer_value*

no

Adding **no** to the **timeout** command removes the timer configuration.

timer timer_value

Select the timer and enter a value from the range.

For timers having different ranges for highspeed and lowspeed links or for different variants, the appropriate ranges will be displayed based on the link-type configured.

Important Currently, the China variant uses ITU values.

Timer	Link Type & Variant	Range of Times Granularity = 100ms	Default Time
mtp2-tmr-t1 Alignment ready timer	Highspeed; ITU	160..3500 (16 - 350 seconds)	3000 (300 seconds)
	Lowspeed; ITU	120 - 500 (12 - 50 seconds)	400 (40 seconds)
	Highspeed; ANSI	160 - 3500 (16 to 350 seconds)	1700 (170 seconds)
	Lowspeed; ANSI	120 - 500 (12 - 50 seconds)	130 (13 seconds)
mtp2-tmr-t2 Not aligned timer	Highspeed; ITU	50 - 1500 (5 - 150 seconds)	50 (5 seconds)
	Lowspeed; ITU	50 - 150 (5 - 15 seconds)	50 (5 seconds)
	Highspeed; ANSI	50 - 1500 (5 - 150 seconds)	230 (23 seconds)
	Lowspeed; ANSI	50 - 150 (5 - 15 seconds)	115 (11.5 seconds)
mtp2-tmr-t3 Aligned timer	Highspeed/Lowspeed; ITU	10 - 140 (1 - 14 seconds)	15 (1.5 seconds)
	Highspeed/Lowspeed; ANSI	10 - 140 (1 - 14 seconds)	115 (11.5 seconds)
mtp2-tmr-t4e Emergency proving period timer	Highspeed; ITU	4 - 60 (400 milliseconds - 6 seconds)	5 (500 milliseconds)
	Lowspeed; ITU	4 - 6 (400 - 600 milliseconds)	5 (500 milliseconds)

Timer	Link Type & Variant	Range of Times Granularity = 100ms	Default Time
	Highspeed; ANSI	4 - 60 (400 milliseconds - 6 seconds)	50 (5 seconds)
	Lowspeed; ANSI	4 - 6 (400 - 600 milliseconds)	6 (600 milliseconds)
mtp2-tmr-t4n Normal proving period timer Once set this timer can be reset but it can not be disabled.	Highspeed; ITU	30 - 700 (3 to 70 seconds)	3 (30 seconds)
	Lowspeed; ITU	20 - 95 (2 - 9.5 seconds)	82 (8.2 seconds)
	Highspeed; ANSI	30 - 700 (3 to 70 seconds)	3 (30 seconds)
	Lowspeed; ANSI	20 - 95 (2 - 9.5 seconds)	23 (2.3 seconds)
mtp2-tmr-t5 Sending status indication busy (SIB) timer	Highspeed/Lowspeed ITU/ANSI	1 - 2 (100 - 200 milliseconds)	1 (100 milliseconds)
mtp2-tmr-t6 Remote congestion timer	Highspeed/Lowspeed ITU/ANSI	10 - 60 (1 to 6 seconds)	30 (3 seconds)
mtp2-tmr-t7 Excessive delay of acknowledgement timer	Highspeed/Lowspeed ITU/ANSI	5 - 20 (500 milliseconds - 2 seconds)	10 (1 second)
mtp2-tmr-t8 Interval timer for error interval monitor timer	Highspeed ITU/ANSI	1 - 2 (100 - 200 milliseconds)	1 (100 milliseconds)
mtp3-tmr-t1 Delay to avoid mis-sequencing on changeover timer	Highspeed/Lowspeed ITU/ANSI	5 - 12 (500 - 1200 milliseconds)	5 (500 milliseconds
mtp3-tmr-t12 Waiting for uninhibit acknowledgement timer	Highspeed/Lowspeed ITU/ANSI	8 - 15 (800 - 1500 milliseconds	8 (800 milliseconds
mtp3-tmr-t13 Waiting for force uninhibit timer	Highspeed/Lowspeed ITU/ANSI	8 - 15 (800 - 1500 milliseconds	8 (800 milliseconds
mtp3-tmr-t14 Waiting for inhibition acknowledgement timer	Highspeed/Lowspeed ITU/ANSI	20 - 30 (2000 - 3000 milliseconds	20 (2000 milliseconds

Timer	Link Type & Variant	Range of Times Granularity = 100ms	Default Time
mtp3-tmr-t17 Delay to avoid oscillation of initial alignment failure and link restart	Highspeed/Lowspeed ITU/ANSI	8 - 15 (800 - 1500 milliseconds	8 (800 milliseconds
mtp3-tmr-t2 Waiting for changeover acknowledgement	Highspeed/Lowspeed ITU/ANSI	7 - 20 (700 - 2000 milliseconds	7 (700 milliseconds
mtp3-tmr-t22 Local inhibit test timer	Highspeed/Lowspeed ITU/ANSI	1800 - 3000 (180 - 300 seconds	1800 (180 seconds)
mtp3-tmr-t23 Remote inhibit test timer	Highspeed/Lowspeed ITU/ANSI	1800 - 3000 (180 - 300 seconds	1800 (180 seconds)
mtp3-tmr-t24 Stabilising timer after removal of local processor outage, used in LPO latching to RPO (national option)	Highspeed/Lowspeed ITU/ANSI	5 - 15 (500 - 1500 milliseconds)	5 (500 milliseconds)
mtp3-tmr-t3 Time controlled diversion-delay to avoid mis-sequencing on changeback	Highspeed/Lowspeed ITU/ANSI	5 - 12 (500 - 1200 milliseconds)	5 (500 milliseconds)
mtp3-tmr-t31 BSN requested timer	Highspeed/Lowspeed ITU/ANSI	50 - 100 (5 to 10 seconds)	50 (5 seconds)
mtp3-tmr-t32 SLT timer	Highspeed/Lowspeed ITU/ANSI	40 - 120 (4 - 12 seconds)	100 (10 seconds)
mtp3-tmr-t33 Connecting timer	Highspeed/Lowspeed ITU/ANSI	50 - 100 (5 to 10 seconds)	50 (5 seconds)
mtp3-tmr-t34 Periodic signalling link test timer	Highspeed/Lowspeed ITU/ANSI	300 - 900 (30 to 90 seconds)	600 (60 seconds)
mtp3-tmr-t4 Waiting for changeback acknowledgement (first attempt)	Highspeed/Lowspeed ITU/ANSI	5 - 12 (500 to 1200 milliseconds)	5 (500 milliseconds)
mtp3-tmr-t5 Waiting for changeback acknowledgement (second attempt)	Highspeed/Lowspeed ITU/ANSI	5 - 12 (500 to 1200 milliseconds)	5 (500 milliseconds)

Timer	Link Type & Variant	Range of Times Granularity = 100ms	Default Time
mtp3-tmr-t7 Waiting for signalling data link connection acknowledgement	Highspeed/Lowspeed ITU/ANSI	10 - 20 (1000 - 2000 milliseconds)	10 (1000 milliseconds)

Timer	Link type & Variant	Range of Times	Default Time
sscf-nni-tmr-t1	ATM Broadband ITU/ANSI	1 - 65535 (10 - 655350 milliseconds) Granularity = 10 ms	500 (5 seconds)
sscf-nni-tmr-t2	ATM Broadband ITU/ANSI	1 - 65535 (10 - 655350 milliseconds) Granularity = 10 ms	3000 (30 seconds)
sscf-nni-tmr-t3	ATM Broadband ITU/ANSI	1 - 65535 (10 - 655350 milliseconds) Granularity = 10 ms	1 (10 milliseconds)
sscop-tmr-cc SSCOP CC timer	ATM Broadband ITU/ANSI	1 - 65535 (100 - 6553500 milliseconds) Granularity = 100 ms	2 (200 milliseconds)
sscop-tmr-idle SSCOP idle timer (UNI 3.1 only)	ATM Broadband ITU/ANSI	1 - 65535 (100 - 6553500 milliseconds) Granularity = 100 ms	1 (100 milliseconds)
sscop-tmr-keep-alive SSCOP keep alive timer For stability purposes, tmrKeepAlive >/= tmrPoll and tmrKeepAlive < tmrNoResponse.	ATM Broadband ITU/ANSI	1 - 65535 (100 - 6553500 milliseconds) Granularity = 100 ms	1 (100 milliseconds)
sscop-tmr-no-rsp SSCOP no response timer For stability purposes, tmrNoResponse > tmrKeepAlive.	ATM Broadband ITU/ANSI	1 - 65535 (100 - 6553500 milliseconds) Granularity = 100 ms	15 (1.5 seconds)
sscop-tmr-poll SSCOP poll timer For stability purposes, tmrPoll <= tmrKeepAlive.	ATM Broadband ITU/ANSI	1 - 65535 (100 - 6553500 milliseconds) Granularity = 100 ms	1 (100 milliseconds)

Usage Guidelines

For a single link and specified link-type (highspeed or lowspeed), this command sets the timer values listed above. The SS7 variant is determined when the SS7 routing domain is first defined from the Global Configuration mode.

Repeat the **timeout** command (one timer and value per entry) as needed to configure all required timers.

Important Currently, the China variant uses the same timers, values, and defaults as the ITU variant.

Example

```
timeout timer timer_value
```