

GTPC Load Control Profile Configuration Mode Commands

Load control enables a GTP-C entity (for example, an S-GW/P-GW) to send its load information to a GTP-C peer (e.g. an MME/SGSN, ePDG, TWAN) to adaptively balance the session load across entities supporting the same function (for example, an S-GW cluster) according to their effective load. The load information reflects the operating status of the resources of the GTP-C entity.

Command Modes

This chapter describes the GTPC Load Control Profile Configuration Mode commands.

Exec > Global Configuration > GTPC Load Control Profile Configuration

configure > gtpc-load-control-profile *profile_name*

Entering the above command results in the following prompt:

```
[local]host_name(config-gtpc-load-control-profile)#
```

Important Available commands or keywords/variables vary based on platform type, product version, and installed license(s).

- end, on page 1
- exit, on page 2
- inclusion-frequency, on page 2
- load-control-handling, on page 3
- load-control-publishing, on page 5
- threshold, on page 6
- weightage, on page 7

end

Exits the current configuration mode and returns to the Exec mode.

Product

All

Privilege

Security Administrator, Administrator

Syntax Description `end`

Usage Guidelines Use this command to return to the Exec mode.

exit

Exits the current mode and returns to the parent configuration mode.

Product All

Privilege Security Administrator, Administrator

Syntax Description `exit`

Usage Guidelines Use this command to return to the parent configuration mode.

inclusion-frequency

Configures parameters to determine the inclusion frequency of the Load Control Information IE for a GTP-C Load Control Profile configuration.

Product



Important GTP-C Load Control Profile is a license-controlled feature. For more information, contact your Cisco account or support representative.

P-GW

SAEGW

S-GW

Privilege Administrator, Security Administrator

Command Modes Exec > Global Configuration > GTPC Load Control Profile Configuration

configure > gtpc-load-control-profile *profile_name*

Entering the above command results in the following prompt:

```
[local]host_name(config-gtpc-load-control-profile)#
```

Syntax Description

```
inclusion-frequency { advertisement-interval interval_in_seconds |
change-factor change_factor  }
default inclusion-frequency  { advertisement-interval | change-factor }
```

inclusion-frequency

Specifies that parameters to determine the inclusion frequency of the Load Control Information IE for a GTP-C Load Control Profile configuration will be configured. The Load Control Information IE is a 3GPP-specific

IE that is sent to peers when a configured threshold is reached. This parameter specifies how often the operator wants to send this information to the peers.

advertisement-interval *interval_in_seconds*

Configures the advertisement-interval for Load Control in seconds. Specifies how often load control information should be sent to the peers. If configured to 0, the node will send load control information in each and every outgoing message to the peers.

interval_in_seconds must be an integer from 0 to 3600.

Default: 300

change-factor *change_factor*

Configures the change factor for Load Control. If the load control factor changes by the configured factor, whether it is an increase or decrease, the load control information should be sent to the peers. This information is only sent to the peers when the load factor changes by the factor configured.

change_factor must be an integer from 1 to 20.

Default: 5%

default

Returns configured parameters to their default value.

Usage Guidelines

Use this command to specify parameters to determine the inclusion frequency of the Load control information IE for a GTP-C Load Control Profile configuration. This IE reflects the current operating status of the network element based on the configured **weightage** parameters. The network element ensures that new/updated load control information is propagated to the target receivers within an acceptable delay, so that the purpose of the information (i.e., effective load balancing) is achieved.

The **weightage** command in GTP-C Load Control Profile Configuration Mode should also be configured along with the **inclusion-frequency** setting.

If this setting is not configured, the node will use the default setting.

The Load Control profile must be associated with a P-GW, S-GW, or SAEGW service using one of the following commands:

- P-GW: **associate** command in P-GW Service Configuration Mode
- S-GW: **associate** command in S-GW Service Configuration Mode
- SAEGW: **associate** commands in both P-GW and S-GW Service Configuration modes

Example

This example configures the inclusion-frequency advertisement-interval to 120 seconds.

```
inclusion-frequency  advertisement-interval 120
```

load-control-handling

Enables or disables the handling of GTP-C load control information provided to the MME and S-GW.

Product



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P-GW

S-GW

SAEGW

Privilege

Administrator, Security Administrator

Command Modes

Exec > Global Configuration > GTPC Load Control Profile Configuration

configure > gtpc-load-control-profile *profile_name*

Entering the above command results in the following prompt:

```
[local]host_name(config-gtpc-load-control-profile)#
```

Syntax Description

```
[ no ] load-control-handling { home | visited }
[ default ] load-control-handling
```

no

Disables load-control-handling for the specified option (home or visited).

default

Returns the load-control-handling feature to its default behavior (enabled).

load-control-handling

Enables load control handling for the specified option.

home

Enables load control handling information for the home PLMN.

visited

Enables/disables load control handling information for the visited PLMN.

Usage

Use this command to enable/disable the handling of load control information handling for the home or visited PLMN.

If no parameters are specified, the system will use the default settings.

The Load Control Profile must be associated with a P-GW, S-GW, or SAEGW service using one of the following commands:

- P-GW: **associate** command in P-GW Service Configuration Mode

- S-GW: **associate** command in S-GW Service Configuration Mode
- SAEGW: **associate** commands in both P-GW and S-GW Service Configuration modes

Example

This command enables load control handling for the home PLMN.

```
load-control-handling home
```

load-control-publishing

Enables/disables the publishing of GTP-C load control information.

Product



Important GTP-C Load Control Profile is a license-controlled feature. For more information, contact your Cisco account or support representative.

P-GW

S-GW

SAEGW

Privilege

Adminstrator, Security Administrator

Command Modes

Exec > Global Configuration > GTPC Load Control Profile Configuration

configure > gtpc-load-control-profile *profile_name*

Entering the above command results in the following prompt:

```
[local]host_name(config-gtpc-load-control-profile)#
```

Syntax Description

```
[ no ] load-control-publishing { home | visited }
default load-control-publishing
```

no

Disables load control publishing for the specified option.

default

Returns load control publishing to its default behavior (enabled).

load-control-publishing

Enables the publishing of load control information towards the home or visited PLMN.

home

Enables load control publishing information for the home PLMN.

visited

Enables load control publishing information for the visited PLMN.

Usage Guidelines

Use this command to enable/disable load control information publishing for the home or visited PLMN.

The Load Control Profile must be associated with a P-GW, S-GW, or SAEGW service using one of the following commands:

- P-GW: **associate** command in P-GW Service Configuration Mode
- S-GW: **associate** command in S-GW Service Configuration Mode
- SAEGW: **associate** commands in both P-GW and S-GW Service Configuration modes

Example

This command enables the publishing of load control information towards the visited peers.

```
load-control-publishing visited
```

threshold

Configures the minimum threshold value above which PGW-provided GTP-C load control information should be utilized for calculating the PGW effective weight during initial node selection.

Product



Important GTP-C Load Control Profile is a license-controlled feature. For more information, contact your Cisco account or support representative.

P-GW

S-GW

SAEGW

Privilege

Administrator, Security Administrator

Command Modes

Exec > Global Configuration > GTPC Load Control Profile Configuration

configure > gtpc-load-control-profile *profile_name*

Entering the above command results in the following prompt:

```
[local]host_name(config-gtpc-load-control-profile)#
```

Syntax Description

threshold *percentage*
[no] threshold

threshold

Enables the configuration of the minimum threshold value above which PGW-provided load control information should be utilized for calculating the P-GW effective weight during initial node selection.

percentage

Enter the threshold setting as a percentage of 100%. The entry must be an integer from 1 to 100. The default setting is 50%.

no

Disables the configured threshold setting.

Usage Guidelines

Use this command to configure the minimum threshold value above which PGW-provided load control information should be utilized for calculating the P-GW effective weight during initial node selection.

The Load Control Profile must be associated with a P-GW, S-GW, or SAEGW service using one of the following commands:

- P-GW: **associate** command in P-GW Service Configuration Mode
- S-GW: **associate** command in S-GW Service Configuration Mode
- SAEGW: **associate** commands in both P-GW and S-GW Service Configuration modes

Example

This command sets the threshold to 60%.

```
threshold 60
```

weightage

Configures weightage for various GTP-C load control profile parameters.

Product



Important GTP-C Load Control Profile is a license-controlled feature. For more information, contact your Cisco account or support representative.

P-GW

SAEGW

S-GW

Privilege

Administrator, Security Administrator

Command Modes

Exec > Global Configuration > GTPC Load Control Profile Configuration

configure > gtpc-load-control-profile *profile_name*

Entering the above command results in the following prompt:

```
[local]host_name(config-gtpc-load-control-profile)#
```

Syntax Description

weightage system-cpu-utilization *percentage* **system-memory-utilization** *percentage* **license-session-utilization** *percentage*
default weightage

weightage

Specifies that system memory, system CPU, and license session utilization parameters will be configured.

Important All parameters must be specified. The total of all three parameter settings should total, but not exceed, 100%.

system-cpu-utilization *percentage*

Specifies system CPU utilization weightage as a percentage of 100.

percentage must be an integer from 0 to 100.

Default: 40%

system-memory-utilization *percentage*

Specifies system memory utilization weightage as a percentage of 100.

percentage must be an integer from 0 to 100.

Default: 30%

license-session-utilization *percentage*

Specifies the license session utilization as a percentage of 100.

percentage must be an integer from 0 to 100.

Default: 30%

default weightage

Returns all parameters to their default settings.

Usage Guidelines

Use this command to set weightage percentages for system CPU, memory, and license session utilization as part of a GTP-C Load Control Profile configuration. These settings constitute the basic Load Control Profile for this network element. These parameters allow the P-GW/S-GW/SAEGW to send its load information to a peer GTP control plane node which the receiving GTP control plane peer node uses to augment existing GW selection procedure for the P-GW and S-GW. Load Information reflects the operating status of the resources of the originating GTP control plane node.

If no parameters are specified, the system will use the default settings.

Operators should also configure the **inclusion-frequency** command in GTP-C Load Control Profile Configuration mode to specify parameters to determine the inclusion frequency of the Load Control Information IE sent to peers for the GTP-C Load Control Profile configuration.

The Load Control Profile must be associated with a P-GW, S-GW, or SAEGW service using one of the following commands:

- P-GW: **associate** command in P-GW Service Configuration Mode
- S-GW: **associate** command in S-GW Service Configuration Mode
- SAEGW: **associate** commands in both P-GW and S-GW Service Configuration modes

Example

The following example configures system-cpu-utilization at 30%, system-memory utilization at 40%, and license-utilization at 30%.

```
weightage system-cpu-utilization 30 system-memory-utilization 40
license-session-utilization 30
```