

Diameter HDD Module Configuration Mode Commands

The HDD Module Configuration Mode allows you to configure Hard Disk Drive (HDD) module to store the failed CCR-T messages during OCS failure.

Important The commands in this configuration mode are license dependent. For more information, contact your Cisco account representative.

Command Modes Exec > Global Configuration > Context Configuration > Diameter HDD Module Configuration

configure > context *context_name* **> diameter-hdd-module**

Entering the above command sequence results in the following prompt:

`[context_name]host_name(config-diameter-hdd)#`

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

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diameter-event

This command allows you to configure the HDD specific parameters.

Important This command is license dependent. For more information, contact your Cisco account representative.

Product HA

P-GW

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > Diameter HDD Module Configuration

configure > context *context_name* **> diameter-hdd-module**

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-diameter-hdd)#
```

Syntax Description

diameter-event { purge { storage-limit *storage_limit* **| time-limit** *time_limit* **} [max-files** *max_records_to_purge* **] | push-interval** *push_interval* **| push-trigger space-usage-percent** *trigger_percentage* **| remove-file-after-transfer | transfer-mode { pull [module-only] | push primary { encrypted-url** *encrypted_url* **| url** *url* **} [[max-files** *max_records* **] [max-tasks** *task_num* **] [module-only] [secondary { encrypted-secondary-url** *encrypted_secondary_url* **| secondary-url** *secondary_url* **}] [via local-context] +] | use-harddisk }**
default diameter-event [purge | push-interval | push-trigger space-usage-percent | remove-file-after-transfer | transfer-mode [module-only | push via] | use-harddisk] +
no diameter-event [purge | remove-file-after-transfer | use-harddisk] +

default

Configures the default setting for the specified keyword(s):

- **purge**: Disabled
- **push-interval**: 300 seconds
- **push-trigger**: 80 percent
- **remove-file-after-transfer**: Disabled
- **transfer mode**: Pull
- **push via**: Line Card (LC) is used for push
- **use-harddisk**: Disabled

Important The **use-harddisk** keyword is available only on the ASR 5000 and ASR 5500 chassis.

no

If previously configured, disables the specified configuration:

- **purge**: Disables purging of Diameter records.
- **remove-file-after-transfer**: Retains a copy of the Diameter file even after it has been pushed or pulled to another server.
- **use-harddisk**: Disables data storage on the ASR 5000 SMC hard disk or ASR 5500 hard disk array.



Important The **use-harddisk** keyword is available only on the ASR 5000 and ASR 5500 chassis.

purge { storage-limit *storage_limit* | time-limit *time_limit* } [max-files *max_records_to_purge*]

Specifies to purge/delete the Diameter records based on "time" or "volume" limit.

When the configured threshold limit is reached on the hard disk drive, the records that are created dynamically in the */mnt/hd-raid/data/records/* directory are automatically deleted. Files that are manually created should be deleted manually.

- **storage-limit** *storage_limit*: Specifies to start deleting files when the specified megabytes of space is used for storage. *storage_limit* specifies the volume limit for the record files, in megabytes, and must be an integer from 10 through 143360.
- **time-limit** *time_limit*: Specifies to start deleting files older than the specified time limit. *time_limit* specifies the time limit for the record files, and must be an integer from 600 through 2592000.
- **max-files** *max_records_to_purge*: Specifies the maximum number of records to purge.

  max_records_to_purge can be 0, or an integer from 1000 through 10000. If the value is set to 0, during each cycle, the records will be deleted until the purge condition is satisfied. If the value is set between 1000 and 10000, during each cycle, the records will be deleted until either the purge condition is satisfied or the number of records deleted equals the configured **max-files** value.

  Default: 0

push-interval *push_interval*

Specifies the transfer interval (in seconds) to push Diameter files to an external file server.

push_interval must be an integer from 60 through 3600.

Default: 300

push-trigger space-usage-percent *trigger_percentage*

Specifies the record disk space utilization percentage, upon reaching which an automatic push is triggered and files are transferred to the configured external server.

trigger_percentage specifies the record disk utilization percentage for triggering push, and must be an integer from 10 through 80.

Default: 80

remove-file-after-transfer

Specifies that the system must delete Diameter files after they are transferred to the external file server. Default: Disabled

transfer-mode { pull [module-only] | push primary { encrypted-url *encrypted_url* | url *url* } [[max-files *max_records*] [max-tasks *task_num*] [module-only] [secondary { encrypted-secondary-url *encrypted_secondary_url* | secondary-url *secondary_url* }] [via local-context] +]

Specifies the file transfer mode—how the Diameter files are transferred to an external file server.

- **pull**: Specifies that the external server is to pull the Diameter files.
- **push**: Specifies that the system is to push Diameter files to the configured external server.
- **max-files** *max_records*: Specifies the maximum number of files sent per iteration based on configured file size.

  Default: 4000
- **max-tasks** *task_num*: Specifies the maximum number of tasks (child processes) that will be spawned to push the files to the remote server. The *task_num* must be an integer from 4 through 8.

  Default: 4



Important Note that increasing the number of child processes will improve the record transfer rate. However, spawning more child will consume additional resource. So, this option needs to be used with proper resource analysis.

- **module-only**: Specifies that the transfer-mode is only applicable to the HDD module. This enables to support individual record transfer-mode configuration for each module.
- **primary encrypted-url** *encrypted_url*: Specifies the primary URL location in encrypted format to which the system pushes the Diameter files.

  encrypted_url must be the location in an encrypted format, and must be an alphanumeric string of 1 through 1024 characters.
- **primary url** *url*: Specifies the primary URL location to which the system pushes the Diameter files.

  url must be the location, and must be an alphanumeric string of 1 through 1024 characters in the "*//user:password@host:[port]/directory*" format.
- **secondary encrypted-secondary-url** *encrypted_secondary_url*: Specifies the secondary URL location in encrypted format to which the system pushes the Diameter files when the primary location is unreachable or fails.

  encrypted_secondary_url must be the secondary location in an encrypted format, and must be an alphanumeric string of 1 through 1024 characters in the "*//user:password@host:[port]/directory*" format.
- **secondary secondary-url** *secondary_url*: Specifies the secondary location to which the system pushes the Diameter files when the primary location is unreachable or fails.

  secondary_url must be the secondary location, and must be an alphanumeric string of 1 through 1024 characters in the "*//user:password@host:[port]/directory*" format.
- **via local-context**: Configuration to select LC/SPIO for transfer of Diameter records. The system pushes the Diameter files via SPIO in the local context.

use-harddisk



Important The **use-harddisk** keyword is available only on the ASR 5000 and ASR 5500 chassis.

ASR 5000: Specifies that on the ASR 5000 chassis the hard disk on the SMC be used to store Diameter files. On configuring to use the hard disk for Diameter record storage, Diameter files are transferred from packet processing cards to the hard disk on the SMC. Default: Disabled

ASR 5500: Specifies that on the ASR 5500 chassis the hard disk the FSC hard disk array be used to store Diameter files. On configuring to use the hard disk for Diameter record storage, Diameter files are transferred from DPCs to the hard disk array. Default: Disabled

+

Indicates that multiple keywords can be specified in a single command entry. When the "+" appears in the syntax, any of the keywords that appear prior to the "+" can be entered in any order.

Usage Guidelines

Use this command to configure how the Diameter records are moved and stored.

On the ASR 5000 or ASR 5500 chassis, you must run this command only from the local context. If you run this command in any other context it will fail and result in an error message.

If PUSH transfer mode is configured, the external server URL to which the Diameter files need to be transferred to must be specified. The configuration allows a primary and a secondary server to be configured. Configuring the secondary server is optional. Whenever a file transfer to the primary server fails for four consecutive times, the files will be transferred to the secondary server. The transfer will switch back to the original primary server when:

- Four consecutive transfer failures to the secondary server occur.
- After switching from the primary server, 30 minutes elapses.

When changing the transfer-mode from pull to push, disable the PULL from the external server and then change the transfer mode to push. Make sure that the push server URL configured is accessible from the local context. Also, make sure that the base directory that is mentioned contains the "diameter" directory created within it.

When changing the transfer mode from push to pull, after changing, enable PULL on the external server. Any of the ongoing PUSH activity will continue till all the scheduled file transfers are completed. If there is no PUSH activity going on at the time of this configuration change, all the PUSH related configuration is nullified immediately.

The **use-harddisk** command is available only on the ASR 5000 and ASR 5500 chassis. This command can be run only in a context where CDRMOD is running. Configuring in any other context will result in failure with the message *"Failure: Please Check if CDRMOD is running in this context or not."*

The **use-harddisk** command is configured to store EDR/UDR/EVENT/DIAMETER files. Configuring in one of the modules will prevent the configuration to be applied in the other module. Any change to this configuration must be done in the module in which it was configured, the change will be applied to all the record types.

The VPNMgr can send a maximum of 4000 files to the remote server per iteration. However if the individual file size is big (say when compression is not enabled), then while transferring 4000 files SFTP operation takes a lot of time. To prevent this, the **transfer-mode push** command can be configured with the keyword **max-files**, which allows operators to configure the maximum number of files sent per iteration based on configured file size.

Limitations:

- When an ICSR event occurs unexpectedly before the CCR-T message is written, the CCR-T will not written to the HDD and hence the usage will be lost.

- It is expected that the customers requiring this feature should monitor the HDD and periodically pull and delete the files so that the subsequent records can be buffered.

Example

The following command retains a copy of the Diameter file after it has been transferred to the storage location:

```
no diameter-event remove-file-after-transfer
```

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.

file

This command allows you to configure the file creation properties for Diameter records.



Important This command is license dependent. For more information, contact your Cisco account representative.

Product HA

P-GW

Privilege Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > Diameter HDD Module Configuration

configure > context *context_name* **> diameter-hdd-module**

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-diameter-hdd)#
```

Syntax Description

file [compression { gzip | none }] [current-prefix *string* **] [delete-timeout** *seconds* **] [directory** *directory_name* **] [exclude-checksum-record] [field-separator { hyphen | omit | underscore }] [name** *file_name* **] [reset-indicator] [rotation [num-records** *number* **| tariff-time minute** *minute_value* **hour** *hour_value* **| time** *seconds* **| volume** *bytes* **]] [sequence-number { length** *length* **| omit | padded | padded-six-length | unpadded }] [storage-limit** *limit* **] [time-stamp { expanded-format | rotated-format | unix-format }] [trailing-text** *string* **] [trap-on-file-delete] [xor-final-record] +**
default file [compression] [current-prefix] [delete-timeout] [directory] [field-separator] [name] [reset-indicator] [rotation { num-records | tariff-time | time | volume }] [sequence-number] [storage-limit] [time-stamp] [trailing-text] [trap-on-file-delete] +

default

Configures the default setting for the specified keyword(s).

compression { gzip | none }

Specifies compression of Diameter files.

- **gzip**: Enables GNU zip compression of the Diameter file at approximately 10:1 ratio.
- **none**: Disables Gzip compression.

  Default: **none**

current-prefix *string*

Specifies a string to add to the beginning of the Diameter file that is currently being used to store Diameter records.

string must be an alphanumeric string of 1 through 31 characters.

Default: **curr**

delete-timeout *seconds*

Specifies a timeout period (in seconds) when completed Diameter files are deleted. By default, files are never deleted.

seconds must be an integer from 3600 through 31536000.

Default: Disabled

directory *directory_name*

Specifies a subdirectory in the default directory in which to store Diameter files.

directory_name must be an alphanumeric string of 1 through 191 characters.

Default: **/records/diameter**

exclude-checksum-record

When entered, this keyword excludes the final record containing #CHECKSUM followed by the 32-bit Cyclic Redundancy Check (CRC) of all preceding records from the Diameter file.

Default: Disabled (inserts checksum record into the Diameter file)

field-separator [hyphen | omit | underscore]

Specifies the field inclusion/exclusion type of separators between two fields of Diameter file name:

- **hyphen**: Specifies to use "-" (hyphen) as the field separator.
- **omit**: Excludes the field separator.
- **underscore**: Specifies to use "_" (underscore) as the field separator. This is the default field separator.

name *file_name*

Specifies a string to be used as the base file name for Diameter files.

Default: **diameter**

file_name must be an alphanumeric string of 1 through 31 characters.

reset-indicator

Specifies inclusion of the reset indicator counter value, from 0 through 255, in the Diameter file name, and is incremented (by one) whenever any of the following conditions occur:

- An ACSMgr/SessMgr process fails.
- A peer chassis has taken over in compliance with the Interchassis Session Recovery feature.
- The sequence number has rolled over to zero.

rotation { num-records *number* | tariff-time minute *minute_value* hour *hour_value* | time *seconds* | volume *bytes* }

Specifies when to close a Diameter file and create a new one.

- **num-records** *number*: Specifies the number of records that should be added to the file. When the number of records in the file reaches the specified value, the file is complete.

  number must be an integer from 100 through 10240.

  Default: 1024

- **time** *seconds*: Specifies the period of time (in seconds) to wait before closing the Diameter file and creating a new one.

seconds must be an integer from 30 through 86400.

Default: 3600

- **tariff-time minute** *minute_value* **hour** *hour_value*: Specifies the time of day (hour and minute) at which the files are rotated once per day.

  minute_value is an integer value from "0" up to "59".

  hour_value is an integer value from "0" up to "23".



Important The options **time** and **tariff-time** are mutually exclusive and only any one of them can be configured. Other file rotation options can be used with either of them.

- **volume** *bytes*: Specifies the maximum size (in bytes) of the Diameter file before closing it and creating a new one.

  bytes must be an integer from 51200 through 62914560.

  Default: 102400

  Note that a higher setting may improve the compression ratio when the compression keyword is set to gzip.

sequence-number { length *length* | omit | padded | padded-six-length | unpadded }

Specifies including/excluding sequence number in the file name.

- **length** *length*: Includes the sequence number with the specified length.

  length must be the length of the file sequence number, with preceding zeroes, in the file name, and must be an integer from 1 through 9.

- **omit**: Excludes the sequence number from the file name.
- **padded**: Includes the padded sequence number with preceding zeros in the file name. This is the default setting.
- **padded-six-length**: Includes the padded sequence number with six preceding zeros in the file name.
- **unpadded**: Includes the unpadded sequence number in the file name.

storage-limit *limit*

Specifies deleting files when the specified amount of space (in bytes) is used up for Diameter file storage RAM on packet processing cards.

limit must be an integer from 10485760 through 536870912. Default: 33554432



Important The total storage limit is 536870912 bytes (512 MB). This limit is for all the record (EDR/UDR/EVENT/Diameter) files.

time-stamp { expanded-format | rotated-format | unix-format }

Specifies the timestamp of when the file was created to be included in the file name.

- **expanded-format**: Specifies the UTC MMDDYYYYHHMMSS format. This is the default setting.
- **rotated-format**: Specifies the time stamp format to YYYYMMDDHHMMSS format.
- **unix-format**: Specifies the UNIX format of *x.y*, where *x* is the number of seconds since 1/1/1970 and *y* is the fractional portion of the current second that has elapsed.

trailing-text *string*

Specifies the inclusion of an arbitrary text string in the file name.

string must be an alphanumeric string of 1 through 30 characters.

Deafult: Disabled

trap-on-file-delete

Instructs the system to send an SNMP notification (starCDRFileRemoved) when the Diameter file is deleted due to lack of space.

Default: Disabled

xor-final-record

Specifies inserting an XOR checksum (in place of the CRC checksum) into the Diameter file header if the **exclude-checksum-record** is left at its default setting.

Default: Disabled

+

Indicates that multiple keywords can be specified in a single command entry. When the "+" appears in the syntax, any of the keywords that appear prior to the "+" can be entered in any order.

Usage Guidelines

Use this command to configure file characteristics for Diameter records.

Example

The following command sets the prefix of the current active Diameter file to *Current*:

```
file current-prefix Current
```