

UDR Module Configuration Mode Commands

The UDR Module Configuration Mode allows you to configure Usage Data Record (UDR) file transfer parameters.

Command Modes

Exec > Global Configuration > Context Configuration > UDR Module Configuration

configure > context *context_name* **> udr-module active-charging-service**

Entering the above command sequence results in the following prompt:

`[context_name]host_name(config-udr)#`

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

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cdr

This command allows you to configure EDR/UDR file transfer parameters.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > UDR Module Configuration

configure > context *context_name* **> udr-module active-charging-service**

Entering the above command sequence results in the following prompt:

`[context_name]host_name(config-udr)#`

Syntax Description

cdr { 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* **}] [source-address** *ip_address* **] [via local-context] +] | use-harddisk }**
default cdr [purge | push-interval | push-trigger space-usage-percent | remove-file-after-transfer | transfer-mode [pull [module-only] | push primary via] | use-harddisk] +
no cdr [purge | remove-file-after-transfer | use-harddisk] + | [**cdr push-count** *push_count* **default cdr push-count**]

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 cardMIO is used for push
- **use-harddisk**: Disabled

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

no

If previously configured, disables the specified configuration:

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

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

- **push-count** *push_count*: Specifies the number of EDR/CDR/UDR files transferred in each EDR/UDR push SFTP session. Default value is "1". *push_count* is configured as an integer value between 1 and 32, inclusive.

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

Specifies to purge/delete the UDR 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 *value*

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

value must be an integer from 60 through 3600.

Default: 300

push-trigger space-usage-percent *trigger_percentage*

Specifies the UDR/EDR 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 UDR/EDR 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 UDR/EDR 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* }] [source-address *ip_address*] [via local-context] +]

Specifies the UDR/EDR file transfer mode.

- **pull**: Specifies that the external storage is to pull the UDR files.

- **push**: Specifies that the system is to push UDR files to the configured external storage.
- **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 UDR module; if not configured it is applicable to both EDR and UDR modules. This enables support for individual record transfer-mode configuration for each module.
- **primary encrypted-url** *encrypted_url*: Specifies the primary location in encrypted format to which the system pushes the UDR files.

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

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

  encrypted_secondary_url must be the location in an encrypted format, and must be an alphanumeric string of 1 through 1024 characters.
- **secondary secondary-url** *secondary_url*: Specifies the secondary location to which the system pushes the UDR 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 format: *//user:password@host:[port]/directory*.
- **source-address** *ip_address*: Configures the source IP address to be used to establish the connection for the SFTP/SSH file-transfer operation.
- **via local-context**: Selects the LC/SPIO for transfer of UDRs. The system pushes the UDR files via SPIO in the local context.
- **via local-context**: Selects the MIO for transfer of UDRs. The system pushes the UDR files via the MIO in the local context.

use-harddisk



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

Specifies that on an ASR 5000 chassis, the hard disk on the SMC will be used to store UDR/EDR files. When configured to use the hard disk for UDR/EDR storage, UDR/EDR files are transferred from packet processing cards to the hard disk on the SMC.

Specifies that on an ASR 5500 chassis, the hard disk array on the FSCs will be used to store UDR/EDR files. On configuring to use the array for UDR/EDR storage, UDR/EDR files are transferred from DPCs to the array.

Default: Disabled

+

Indicates that more than one of the previous keywords can be entered within a single command.

push-count *push_count*

Specifies the number of EDR/CDR/UDR files transferred in each EDR/UDR push SFTP session. Default value is "1". push_count is configured as an integer value between 1 and 32,inclusive.



Note When push_count is set to “1”, file transfer operation is functionally identical to legacy behavior.

Usage Guidelines

Use this command to configure how UDRs are moved and stored.

On the ST16 chassis, run this command only from the context where the UDR/EDR module is configured. Running this command in any other context will fail and deliver an error message.

On the ASR 5000ASR 5500 chassis, run this command only from the local context. Running in any other context would fail and deliver an error message.

If PUSH transfer mode is configured, the external storage server URL to which the UDR 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 external storage 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 udr directory created within it.

When changing the transfer-mode from push to pull, after changing, enable PULL on the external storage. 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 **cdr use-harddisk** command is available only on the ASR 5000ASR 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 **cdr use-harddisk** command can be configured either in the UDR or EDR module, but will be applicable to both record types. 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 both 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 **cdr 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.

Example

The following command configures the system to retain a copy of the data file after it has been transferred to the storage location:

```
no cdr remove-file-after-transfer
```

do show

Executes all **show** commands while in Configuration mode.

Product

All

Privilege

Security Administrator, Administrator

Syntax Description

```
do show
```

Usage Guidelines

Use this command to run all Exec mode **show** commands while in Configuration mode. It is not necessary to exit the Config mode to run a **show** command.

The pipe character **|** is only available if the command is valid in the Exec mode.



Caution There are some Exec mode **show** commands which are too resource intensive to run from Config mode. These include: **do show support collection**, **do show support details**, **do show support record** and **do show support summary**. If there is a restriction on a specific **show** command, the following error message is displayed:

```
Failure: Cannot execute 'do show support' command from Config mode.
```

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 UDR file parameters.

Product All

Privilege Security Administrator, Administrator

Command Modes Exec > Global Configuration > Context Configuration > UDR Module Configuration

configure > context *context_name* **> udr-module active-charging-service**

Entering the above command sequence results in the following prompt:

`[context_name]host_name(config-udr)#`

Syntax Description

```
file [ charging-service-name { include | omit } ] [ compression { gzip |
 none } ] [ current-prefix string ] [ delete-timeout seconds ] [ directory
directory_name ] [ exclude-checksum-record ] [ field-separator { hyphen |
omit | underscore } ] [ file-sequence-number rulebase-seq-num ] [ headers
 ] [ name file_name ] [ reset-indicator ] [ rotation [ num-records number |
 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 ] [ udr-seq-num ] [
xor-final-record ] +
default file [ charging-service-name ] [ compression ] [ current-prefix
] [ delete-timeout ] [ directory ] [ field-separator ] [
file-sequence-number ] [ headers ] [ name ] [ reset-indicator ] [ rotation
```

```
{ num-records | time | volume } ] [ sequence-number ] [ storage-limit ]
[ time-stamp ] [ trailing-text ] [ udr-seq-num ]
```

default

Configures the default setting for the specified keyword(s). Using the **default file** command will reset some but not all keyword parameters to their default values. To ensure that the default is reset for a specific parameter, include the corresponding keyword in the command.

charging-service-name { include | omit }

Specifies to include/exclude name of the charging service in the file name.

- **include**: Includes name of the charging service in the UDR file name.
- **omit**: Excludes name of the charging service in the UDR file name.

Default: **include**

compression { gzip | none }

Configures gzip compression of the UDR file.

- **gzip**: Enables GNU zip compression of the UDR 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 UDR file that is currently being used to store UDR 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 UDR 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 UDR files.

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

Default: /records/udr

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 UDR file.

Default: Disabled, inserts checksum record into the UDR file header.

field-separator { hyphen | omit | underscore }

Specifies the field separators to be used between two fields of a UDR 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.

Default: **underscore**

file-sequence-number rulebase-seq-num

Generates unique file sequence numbers for different rulebase-format-name combinations.

headers

Includes a file header summarizing the record layout.

name *file_name*

Default: udr

Specifies a string to use as the base file name for UDR files.

file_name must be an alphanumeric string of 1 through 31 characters. The file name format is as follows:

base_rulebase_format_sequencenum_timestamp

- *base*: Specifies type of record in file or contains the operator-specified string. Default: udr
- *rulebase*: Specifies the name of the ACS rulebase. UDRs from different rulebases go into different UDR files.
- *format*: Specifies the name of the UDR format if **single-udr-format** is specified, else the format field (and the trailing underscore) is omitted from the file name.
- *sequencenum*: This is a 5-digit sequence number to detect the missing file sequence. It is unique among all UDR files on the system.
- *timestamp*: Contains a timestamp based on file creation time in UTC formatted as: MMDDYYYYHHMMSS.

UDR files that have not been closed have a string added to the beginning of their file names.

File name for a UDR file in CSV format that contains information for a rulebase named *rulebase1* and a UDR schema named *udr_schema1* appears as follows:

udr_rulebase1_udr_schema1_00005_01302006143409

If file name is not configured, the system creates files for EDRs/UDRs/FDRs (xDRs) using the following name template with limits to 256 characters:

basename_ChargSvcName_ timestamp_SeqNumResetIndicator_FileSeqNumber

- *basename*: A global-based configurable text string that is unique per system that uniquely identifies the global location of the system running ACS.

- *ChargSvcName*: A system context-based configurable text string that uniquely identifies a specific context-based charging service.
- *timestamp*: Date and time at the instance of file creation. Date and time in the format: "MMDDYYYYHHmmSS", where HH is a 24-hour value from 00-23.
- *SeqNumResetIndicator*: A one-byte counter used to discern the potential for duplicated FileSeqNumber with a range of 0 through 255, which is incremented by a value of 1 for the following conditions:
  - Failure of an ACS software process on an individual packet processing card
  - Failure of the system such that a second system takes over (for example, a standby or backup chassis put in place according to Inter-chassis Session Recovery)
  - File Sequence Number (FileSeqNumber) rollover from 999999999 to 0
- *FileSeqNumber*: unique file sequence number for the file is a 9-digit integer from 000000000 through 999999999. It is unique on each chassis.

File name for a closed xDR file in CSV format that contains information for ACS *xyz_city1* and charging service name *preapaid2* with timestamp *12311969190000*, and file sequence number counter reset indicator to *002* for file sequence number *034939002* appears as follows:

xyz_city1_preapaid2_12311969190000_002_034939002

File name for a running xDR file in CSV format that contains information for the same parameters for file sequence number *034939003* prefixed with *curr_* and appears as follows:

curr_xyz_city1_preapaid2_12311969190000_002_034939002



Important When the "rulebase name" and "edr-format-name" options are enabled through this **file** command, if the "field-separator" value is "underscore" (default value) then, in the filename, the fields Rulebase name and EDR format name will be separated by "hyphen". If the "field-separator" value is "hyphen" then, in the filename, the fields Rulebase name and EDR format name will be separated by "underscore". This will ensure that the number of the fields in the filename is not increased and does not affect the backend billing system.

reset-indicator

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

- An ACSMgr/SessMgr process fails.
- An Inter-chassis Session Recovery (ICSR) peer chassis has transitioned from standby to active.
- The sequence number in sequence-number keyword has rolled over to zero.

rotation { num-records *records* | time *seconds* | volume *bytes* }

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

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

  records must be an integer from 100 through 10240.

Default: 1024

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

  seconds must be an integer from 30 through 86400.

  Default: 3600 seconds

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

  bytes must be an integer from 51200 through 62914560.

  Default: 102400 bytes

  Note that higher settings may provide the best compression ratio when the **compression** keyword is set to *gzip*.

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

Specifies including or excluding the 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.



Important The **length** configuration is applicable in both UDR and EDR modules. When applied in both modules without the **file udr-seq-num** configuration, the minimum among the two values will come into effect for both modules. With the **file udr-seq-num** config, each module will use its own value of length.

- **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.

Default: **padded**

storage-limit *limit*

Specifies deleting files when the specified amount of space, in bytes, is used up for UDR/EDR file storage on packet processing card RAM.

On an ST16 chassis, *limit* must be an integer from 10485760 through 268435456.

On ASR 5500 chassis, *limit* must be an integer from 10485760 through 536870912.

Default: 33554432



Important On the ST16 chassis, the total storage limit is 268435456 bytes (256 MB). This limit is for both UDR and EDR files combined.



Important On the ASR 5500 chassis, the total storage limit is 536870912 bytes (512 MB). This limit is for both UDR and EDR files combined.

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

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

- **expanded-format**: Specifies the UTC MMDDYYYYHHMMSS format.
- **rotated-format**: Specifies the 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 arbitrary text string in the file name.

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

trap-on-file-delete

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

Default: Disabled

udr-seq-num

Specifies that the file sequence numbers that are part of the UDR file names be independently generated. If disabled, a single set of sequence numbers are shared by both UDR and EDR files.

Default: Disabled

xor-final-record

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

Default: Disabled

+

More than one of the previous keywords can be entered within a single command.

Usage Guidelines

Use this command to configure UDR file characteristics.

Example

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

```
file current-prefix current
```

The following command sets the base file name to *UDRfile*:

```
file name UDRfile
```