

CR-Form-v7

CHANGE REQUEST

⌘ **23.125 CR 2** ⌘ rev **1** ⌘ Current version: **6.0.0** ⌘

For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.

Proposed change affects: UICC apps ME Radio Access Network Core Network

Title: ⌘ Introduction of charging rule identifier

Source: ⌘ Huawei, China Mobile

Work item code: ⌘ CH **Date:** ⌘ 20/04/2004

Category: ⌘ **B** **Release:** ⌘ Rel-6

Use one of the following categories:

- F (correction)
- A (corresponds to a correction in an earlier release)
- B (addition of feature),
- C (functional modification of feature)
- D (editorial modification)

Detailed explanations of the above categories can be found in 3GPP [TR 21.900](#).

Use one of the following releases:

- 2 (GSM Phase 2)
- R96 (Release 1996)
- R97 (Release 1997)
- R98 (Release 1998)
- R99 (Release 1999)
- Rel-4 (Release 4)
- Rel-5 (Release 5)
- Rel-6 (Release 6)

Reason for change: ⌘ The current TS 23.125 for IP flow based charging states when the TPF receives the Provide Charging Rule from CRF, the TPF should support the following cases:

- charging rules are to be installed in the TPF;
- charging rules are to be removed in the TPF;
- charging rules are to be installed and removed in the TPF;
- charging rules are neither installed nor removed in the TPF (only relevant in the response to a request for charging rules).

However, there is no a charging rule identifier to identify each charging rule, in case the CRF requires the TPF to remove a charging rule, e.g. a charging rule previously sent to TPF by CRF, or a pre-defined charging rule stored in the TPF, the TPF will not implement it correctly.

Summary of change: ⌘ When the CRF provides a charging rule to TPF, an identifier to unique identify the charging rule should be allocated by the CRF for a relevant CRF/TPF instance, and the CRF send the identifier to the TPF as an element of the charging rule in the provision charging rule message.

The pre-defined charging rules in the TPF also have identifier.

Consequences if not approved: ⌘ The charging rule can not be removed separately by the TPF.

Comment [H1]: Document numbers are allocated by the Working Group Secretary.

Comment [H2]: Enter the specification number in this box. For example, 04.08 or 31.102. Do not prefix the number with anything . i.e. do not use "TS", "GSM" or "3GPP" etc.

Comment [H3]: Enter the CR number here. This number is allocated by the 3GPP support team. It consists of at least three digits, padded with leading zeros if necessary.

Comment [H4]: Enter the revision number of the CR here. If it is the first version, use a "-".

Comment [H5]: Enter the version of the specification here. This number is the version of the specification to which the CR will be applied if it is approved. Make sure that the latest version of the specification (of the relevant release) is used when creating the CR. If unsure what the latest version is, go to <http://www.3gpp.org/specs/specs.htm>.

Comment [H6]: For help on how to fill out a field, place the mouse pointer over the special symbol closest to the field in question.

Comment [H7]: Mark one or more of the boxes with an X.

Comment [H8]: SIM / USIM / ISIM applications.

Comment [H9]: Enter a concise description of the subject matter of the CR. It should be no longer than one line. Do not use redundant information such as "Change Request number xxx to 3GPP TS xx.xxx".

Comment [H10]: Enter the source of the CR. This is either (a) one or several companies or, (b) if a (sub)working group has already reviewed and agreed the CR, then list the group as the source.

Comment [H11]: Enter the acronym for the work item which is applicable to the change. This field is mandatory for category F, B

Comment [H12]: Enter the date on which the CR was last revised. Format to be

Comment [H13]: Enter a single letter corresponding to the most appropriate category listed below. For more detailed help on

Comment [H14]: Enter a single release code from the list below.

Comment [H15]: Enter text which explains why the change is necessary.

Comment [H16]: Enter text which describes the most important components of the change. i.e. How the change is made.

Comment [H17]: Enter here the consequences if this CR was to be reject

Clauses affected: ⓘ 3.1, 5.2, 6.3.1.3

	Y	N
Other specs affected: ⓘ	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Other core specifications	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Test specifications	<input checked="" type="checkbox"/>	<input type="checkbox"/>
O&M Specifications	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Other comments: ⓘ

Comment [H18]: Enter the number of each clause which contains changes.

Comment [H19]: Tick "yes" box if any other specifications are affected by this change. Else tick "no". You MUST fill in one or the other.

Comment [H20]: List here the specifications which are affected or the CRs which are linked.

Comment [H21]: Enter any other information which may be needed by the group being requested to approve the CR. This could include special conditions for its approval which are not listed anywhere else above.

Comment [H22]: This is an example of pop-up text.

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at <http://www.3gpp.org/specs/CR.htm>. Below is a brief summary:

- 1) Fill out the above form. The symbols above marked ⓘ contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under <ftp://ftp.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

<< First changed clause >>

3.1 Definitions

Charging rule: a set of information ~~comprising including~~ the service data flow filters, ~~and the~~ charging key, ~~and the associated charging actions~~, for a single service data flow (further details can be found in [4.35.2](#)).

<< Next changed clause >>

5.2 Charging rules

Charging rules contain information that allow for filtering of traffic to identify the packets belonging to a particular service data flow, and allow for defining how the service data flow is to be charged. The following apply to charging rules:

- The charging rules for bearer charging are defined by the operator.
- These charging rules are made available to the Traffic Plane function for both offline and online charging.
- Multiple charging rules are supported simultaneously per user.
- Filtering information within a charging rule is applied through filtering functionality at the Traffic Plane Function to identify the packets belonging to a particular service data flow.
- Charging rules with dynamically provisioned filtering information (i.e. made available to the Traffic Plane Function) are supported in order to cover IP service scenarios where the filtering information is dynamically negotiated (e.g. negotiated on the application level (e.g. IMS)).
- Pre-defined charging rules are supported. The pre-defined charging rules stored in the TPF shall have charging rule identifiers, which are different from the charging rule identifiers allocated by the CRF.
- Elements of charging rules may be statically configured at the Traffic Plane Function, or dynamically provisioned.

Note-i: The mechanism to support use of elements statically pre-defined in the TPF (e.g. filter information) is for stage 3 development.

Note-ii: The stage 3 development may also evaluate providing an optimisation to support dynamic provisioning of an entire charging rule pre-defined in the TPF.

- Pre-defined filters that are part of the Pre-defined ~~charging rules~~ ~~filters~~ may support extended capabilities, including enhanced capabilities to identify packets associated with application protocols.
- There may be overlap between the charging rules that are applicable. Overlap can occur between:
 - multiple pre-defined charging rules in the TPF;
 - charging rules pre-defined in the TPF and rules from the Service Data Flow Based Charging Rules Function, which can overlay the pre-defined rules in the TPF.

The precedence identified with each charging rule shall resolve all overlap between the charging rules. When overlap occurs between a dynamically allocated charging rule and a pre-defined charging rule at the TPF, and they both share the same precedence, then the dynamically allocated charging rule shall be used.

- Charging rules contain information on:
 - How a particular service data flow is to be charged: online/offline;
 - In case of offline charging whether to record volume- or time-based charging information;

- Charging key;
 - Service data flow filter(s);
 - Precedence;
 - [Charging rule identifier](#).
- [The identifier of the charging rule allocated by the CRF shall be unique for a CRF/TPF instance.](#)
- Once the charging rule is determined it is applied to the service data flow at the Traffic Plane Function and packets are counted and categorised per the rule set in the charging rule.
 - Separate charging rules can be provided for downlink and uplink.
 - Charging rules can be configured for both user initiated and network initiated flows.
 - Charging rules can change and be overridden, e.g. for a previously established PDP context in the GPRS case, based on specific events (e.g. IM domain events or GPRS domain events, credit control events).
 - Different charging rules can be applied for different users or groups of users.
 - Different charging rules can be applied based on the location of the user (e.g. based on identity of the roamed to network).
 - For GPRS, charging rule assignment can occur at PDP context establishment and modification.
 - For GPRS, the charging rules can be dependent on the APN used.

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<< Next changed clause >>

6.3.1.3 Provision of Charging Rules (from CRF to TPF)

The CRF identifies the charging rules that are applicable to the TPF. The CRF then sends the charging rule information to the TPF to be installed.

Note: The stage 3 development shall support provisioning cases where:

- charging rules are to be installed in the TPF;
- charging rules are to be removed in the TPF;
- charging rules are to be installed and removed in the TPF;
- charging rules are neither installed nor removed in the TPF (only relevant in the response to a request for charging rules).

The provisioning may be a response to a Request for Charging Rules, or it may be unsolicited.

The ~~charging rule provision~~ [Provision of Charging Rules shall](#) includes information about the instance it relates to (i.e. identifier for the relevant CRF/TPF instance), [in addition, the Provision of Charging Rules may include action indications \(install and/or remove\), and the associated charging rules, charging mechanism \(online/offline\), volume or time based charging indication, charging key, service data flow filter\(s\), and precedence.](#)

The service data flow filters are specified separately for the uplink and downlink direction.

Note: A charging rule may provide information for service data flows for one direction, or for both directions.

<< End of changed clause >>

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Page 1: [1] Comment [H11]**Explanation of field**

Enter the acronym for the work item which is applicable to the change. This field is mandatory for category F, B & C CRs for release 4 and later. A list of work item acronyms can be found in the 3GPP work plan. See http://www.3gpp.org/ftp/information/work_plan/.
The list is also included in a MS Excel file included in the zip file containing the CR cover sheet template.

Page 1: [2] Comment [H12]**Explanation of field**

Enter the date on which the CR was last revised. Format to be interpretable by English version of MS Windows ® applications, e.g. 19/02/2002.

Page 1: [3] Comment [H13]**Explanation of field**

Enter a single letter corresponding to the most appropriate category listed below. For more detailed help on interpreting these categories, see the Technical Report [21.900](#) "TSG working methods".

Page 1: [4] Comment [H17]**Explanation of field**

Enter here the consequences if this CR was to be rejected. It is necessary to complete this section only if the CR is of category "F" (i.e. correction).