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0 Scope

This specification describes the supplementary services belonging to the group CALL OFFERING SUPPLEMENTARY SERVICES.

The general aspects, including definitions and recommended provision, of the description of the supplementary services are given in specification 3TS 22.004.

The group of supplementary services CALL OFFERING SUPPLEMENTARY SERVICES is divided into four different supplementary services:

- Call forwarding unconditional (section 1);
- Call forwarding on mobile subscriber busy (section 2);
- Call forwarding on no reply (section 3);
- Call forwarding on mobile subscriber not reachable (section 4).

Indication of active Call forwarding supplementary service.

An indication that a Call forwarding service is currently active and operative on a number will be given to the forwarding party each time an outgoing call is made. There will be one indication for Unconditional call forwarding and another common indication for the Conditional call forwarding services.

Note on the use of the forwarded-to number at registration.

If the forwarded-to number is a number in the HPLMN country, it may be entered by the served mobile subscriber in three different formats, independent of her actual location, according to the schemes:

- 1) National (significant) number.
- 2) National (trunk) prefix plus national (significant) number.
- 3) International prefix*, country code, national (significant) number.

Scheme 3) Storage of numbers in this format is mandatory for all PLMN operators.

If the forwarded-to number is a number in a country other than the HPLMN country, it shall be entered by the served mobile subscriber, independent of her actual location, according to the following scheme:

- International prefix (NOTE), country code, national (significant) number.

NOTE: The MMI for entering of international prefix is defined in 22.030.

The maximum forwarded-to number length is 28 digits.

Principles for interaction with the Barring of Outgoing Calls supplementary services.

Numbers allowed to call according to the Barring of Outgoing call service condition are allowed as forwarded-to numbers for the served mobile subscriber.

Numbers not allowed to call according to the Barring of Outgoing call service condition are not allowed as forwarded-to numbers for the served mobile subscriber.

For Unconditional Call Forwarding the forwarded leg is treated as an outgoing call from the HPLMN country.

For the Conditional Call Forwarding services the forwarded leg is treated as an outgoing call from the LPLMN (HPLMN or VPLMN) country.

Principles for interaction with the Barring of Incoming Calls supplementary services.

When Barring of all incoming calls is active for the served mobile subscriber - no Call forwarding services are allowed for her.

When Barring of all incoming calls when roaming outside the HPLMN country is active and operative - i.e. the served mobile subscriber is roaming outside the HPLMN country, the Conditional Call Forwarding services are not allowed.

0.1 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
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- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

- [1] 3GPP TR 22.905: "Vocabulary for 3GPP Specifications".
- [2] 3GPP TS 22.004: General on supplementary services".
- [3] 3GPP TS 22.030: Man-Machine Interface (MMI) of the Mobile Station (MS)".
- [4] 3GPP TS 22.081: Line identification supplementary services - Stage 1".
- [5] 3GPP TS22.083Call Waiting (CW) and Call Hold (HOLD) supplementary services - Stage 1".
- [6] 3GPP TS 22.084MultiParty (MPTY) supplementary services - Stage 1".
- [7] 3GPP TS 22.085Closed User Group (CUG) supplementary services - Stage 1".
- [8] 3GPP TS 22.086: Advice of charge (AoC) supplementary services - Stage 1".
- [9] 3GPP TS 22.088: Call Barring (CB) supplementary services – Stage 1'.

0.2 Definitions and abbreviations

Abbreviations used in this specification are listed in TR 22.905 [1].

1 Call Forwarding Unconditional

1.1 Definition

This service permits a called mobile subscriber to have the network send all incoming calls, or just those associated with a specific Basic service group, addressed to the called mobile subscriber's directory number to another directory number. The ability of the served mobile subscriber to originate calls is unaffected. If this service is activated, calls are forwarded no matter what the condition of the termination.

1.2 Description

1.2.1 Description

The served mobile subscriber can request a different forwarded-to number for each Basic service group containing a basic service to which she has subscribed.

1.2.2 Applicability to telecommunication services

The applicability of this supplementary service is defined in 3GPP TS 22.004.

1.2.3 Terminology

A served mobile subscriber is a mobile subscriber of a particular PLMN access who is requesting that calls to her number be forwarded. This subscriber may also be referred to as the forwarding subscriber or the called subscriber.

A forwarded-to subscriber is a subscriber to whom the call shall be forwarded.

1.3 Normal procedures with successful outcome

1.3.1 Provision

The supplementary service will be provisioned for all Basic Services subscribed to and to which it is applicable.

The service can be offered with several subscription options. Options apply to all Basic services subscribed to. For each subscription option, only one value can be selected.

Subscription options	Value
Calling subscriber receives notification the call has been forwarded	No Yes
MSISDN of the served subscriber can be presented to the forwarded-to subscriber	No Yes

1.3.2 Withdrawal

The service will be withdrawn at the subscriber's request or for administrative reasons.

1.3.3 Registration

The following information has to be registered in the network:

- 1) the forwarded-to number, which may be accompanied by a forwarded-to sub-address;
- 2) information as to whether all calls or all calls of one (or several) specific Basic service groups should be forwarded.

If no Basic Service code is inserted by the user this is interpreted as All Basic Services.

Registration can take place either by the service provider or with an appropriate control procedure by the subscriber.

Verification, where possible, of the forwarded-to number should be accomplished before accepting the call forwarding request. This verification is done by a simple check of the forwarded-to number to see if the number is within the allowed number range.

When the mobile subscriber so registers call forwarding unconditional, the network will return notification of acceptance or rejection of the request. This notification will include the forwarded-to number to which call forwarding unconditional is registered.

1.3.4 Erasure

A previous registration can be erased in either of three ways:

Firstly, the subscriber can specifically erase a previous registration with an appropriate control procedure.

Secondly, the subscriber can register information for call forwarding unconditional for the specific Basic service group to another directory number, thus causing the previous registration of call forwarding unconditional to be overridden.

Thirdly, all information is erased as a result of withdrawal of the service.

1.3.5 Activation

The user shall be allowed to activate Call Forwarding Unconditional (CFU) by e.g. using the MMI command described in 3GPP TS 22.030. This activation request may include information of which Basic Service Group(s) it shall apply to. If no such information is included the Activation request applies to all Basic Service Groups.

When receiving an activation request the network shall activate CFU for the Basic Service Groups comprised in the BS group information given by the user against which a CFU forwarded-to-number is registered. The Activation(s) shall be in accordance with the rules set out in 3GPP TS 22.004.

When CFU is activated for Basic Service Group (Voice – MMI service code 11; Fax – MMI service code 13; Data – MMI service code 12) as defined in 3GPP TS 22.030 [3], a notification shall be sent to the user. Subsequently, when the UE is in idle mode, an indication may be given to the user to show that CFU for Basic Service Group Voice – MMI service code 11 is active.

The supplementary service is also activated for a Basic service group as a result of Registration for that Basic service group.

1.3.6 Deactivation

An active CFU can be deactivated in either of two ways:

- The user may deactivate CFU by means of an appropriate control procedure (e.g. as described in 3GPP TS 22.030). A deactivation request may contain information of which Basic Service Group(s) it shall apply to. If no such information is included the Deactivation request applies to all Basic Service Groups.

When receiving a deactivation request the network shall deactivate CFU for the Basic Service Group(s) comprised in the BS group information given by the user against which a CFU forwarded-to-number is registered. However, the registered information shall not be erased. The Deactivation(s) shall be in accordance with the rules set out in 3GPP TS 22.004.

Even if there is no data stored against a particular Basic Service group comprised in a deactivation request, the request shall be accepted by the network for the other Basic Service group(s) included in the information given by the user.

- The service is deactivated as a result of Erasure.

In the former case, and also in the latter if Erasure is user controlled, the user shall receive a notification of whether her request was accepted or rejected in accordance with the rules set out in 3GPP TS 22.004.

1.3.7 Invocation

If the supplementary service is activated for a Basic service incoming calls for the specified Basic service will be forwarded by network invocation.

1.3.8 Normal operation with successful outcome

When call forwarding unconditional is active and operative, incoming calls for the specified Basic Service(s) will be forwarded without being offered to the served mobile subscriber.

The forwarded-to subscriber will receive an indication that the call has been forwarded with the cause. The cause, when available, will be the appropriate forwarding condition. Depending on the value of the served subscribers subscription option, the forwarded-to subscriber may also receive the MSISDN of the served subscriber.

When multiple forwarding occurs the reason for forwarding and the MSISDN given to the forwarded-to subscriber should relate to the last forwarding subscriber in the chain.