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Digital cellular telecommunications system (Phase 2+) (GSM);
Universal Mobile Telecommunications System (UMTS);
Follow Me service description;
Stage 1
(3GPP TS 22.094 version 16.0.0 Release 16)

3GPP A GLOBAL INITIATIVE
GSM GLOBAL SYSTEM FOR MOBILE COMMUNICATIONS

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Contents

Foreword

This Technical Specification has been produced by the 3rd Generation Partnership Project (3GPP).

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1 Scope

The present document specifies the stage 1 description for the Follow Me feature.

The Follow Me feature enables a mobile subscriber A to manipulate the Follow Me data of a party B in such a way that - under certain conditions - subsequent calls directed to party B will be forwarded to subscriber A.

The feature is described from the service subscriber's and user's point of view, in particular:

- the procedure for normal operation with successful outcome;
- the action to be taken in exceptional circumstances;
- the interaction with other GSM services and features.

This TS does not deal with the Man-Machine Interface (MMI) requirements, but makes reference to the appropriate specifications.

Any interaction with other services and/or networks not dealt with in this specification are outside the scope of this TS.

2 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.
- For a specific reference, subsequent revisions do not apply.
- 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 21.905: "Vocabulary for 3GPP Specifications".

[2] 3GPP TS 22.004: "General on supplementary services".

[4] 3GPP TS 22.030: "Man-Machine Interface (MMI) of the Mobile Station (MS)".

[5] 3GPP TS 22.082: "Call Forwarding (CF) supplementary services - Stage 1".

[6] 3GPP TS 22.085: "Closed User Group (CUG) supplementary services - Stage 1".

[7] 3GPP TS 22.041: "Operator Determined Barring (ODB) - Stage 1".

[8] 3GPP TS 22.078: "Customized Applications for Mobile network Enhanced Logic (CAMEL); Service definition (Stage 1).

[9] 3GPP TS 22.079: "Support of Optimal Routeing (SOR); Service definition (Stage 1)".

[10] 3GPP TS 22.090: " Unstructured Supplementary Service Data (USSD) Stage 1"

[11] 3GPP TS 42.031: "Fraud Information Gathering System (FIGS); Service description - Stage 1"

[12] 3GPP TS 22.101: "Service Principles".

3 Definitions, symbols and abbreviations

3.1 Definitions

initiating subscriber: the mobile subscriber which modifies the Follow Me data of the remote party.

remote party: Is characterised by a number in E.164 format defined in the numbering plan of a PLMN operator. The Follow Me feature enables the initiating subscriber to modify the Follow Me data associated with this number. In general this number is not assigned to a subscriber. In particular cases the remote party is a subscriber of the PLMN and the number denotes her basic MSISDN.

FM service supervisor: Is an initiating subscriber who is allowed to modify the Follow Me data of a remote party who has been registered to another initiating subscriber for the Follow Me application. The FM service supervisor shall be authorised by her network operator.

3.2 Abbreviations

For the purposes of this TS the following abbreviations apply, in addition, abbreviations used in this TS are listed in 3GPP TS 21.905 [1].

FM Follow Me feature

4 Description

Follow Me enables an initiating mobile subscriber A to have control over the Follow Me data of a remote party B. Initiating Subscriber A shall be able to manipulate the Follow Me data of remote party B such that subsequent calls directed to remote party B are forwarded to initiating subscriber A.

Initiating subscriber A needs to have FM provisioned by her service provider. In case remote party B is a subscriber she needs to have FM provisioned by her service provider too.

The FM service supervisor shall be able to modify the Follow Me data of the remote party who has been registered to another initiating subscriber.

It remains in the responsibility of a FM provisioning service provider to confine

a.) the range of remote parties for which a FM provisioned subscriber may become initiating subscriber

b.) the range of potential initiating subscribers for a remote party.

The mobile subscriber who has been provisioned Follow Me is able to use the following control operations:

Registration available to the initiating subscriber

Interrogation available to the initiating and remote party in case the remote party corresponds to a subscriber

Erasure available to the initiating and remote party in case the remote party corresponds to a subscriber

(There is no explicit activation or deactivation.)

The FM service supervisor is able to use the following control operations:

Interrogation

Erasure (forced erasure)

NOTE 1: The functionality of the Follow Me feature is equivalent to the Call Forwarding Unconditional Supplementary Service (see 3GPP TS 22.082 [5]), controlled by initiating subscriber A and effecting remote party B.

NOTE 2: The Follow Me feature is designed in such a way that the requirements of "functional addressing", which is needed for GSM-Railway operators, can be met. The concept of "functional addressing" enables a subscriber to set up a call to a "function" - e.g. the conductor - on a "train".
The Follow Me feature identifies this "function" with the remote party B. Consequently a "functional number" is the equivalent to the number of remote party B (e.g. the MSISDN of a subscriber B). A call to that "functional number" (the conductor on a particular train - to stay with the example) will be forwarded to the MS of the person, who is on duty as a conductor at this time for this train.
In the context of the Follow Me feature, this person (the train conductor) constitutes the "initiating subscriber" A, who has registered Follow Me with respect to the remote party B (the "function" train conductor).

4.1 Normal Operation

Due to reduced security requirements to the Follow Me feature the service shall not be offered in standard operations of public 3GPP networks. In railway operations it must be enabled by definitive action on the part of the operator.

Fraud Information Gathering System (FIGS) as specified in [11] can be used to protect in CAMEL based inter-working networks.

The Follow Me feature shall be controlled by means of Subscriber Controlled Input using USSD.

5 Applicability to telecommunication services

3GPP TS 22.001 describes the principles of the Telecommunication services provided in a PLMN. It also defines the concepts of Telecommunication services and describes their characterization by appropriate attributes. Bearer services and Teleservices, which are offered by a PLMN in connection with other networks, are defined in 3GPP TS 22.002, 3GPP TS 22.003 and 3GPP TS 22.101. A list of basic service groups can be found in 3GPP TS 22.004.

Follow Me is applicable to the following telecommunication services:

Table 1: Applicability of the Follow Me feature to telecommunication services

Feature	Telephony	Emergency Call	SMS PTP		SMS-CB	Fax	cct Data			Voice Group Services	
	TS11	TS12	TS21	TS22	TS 23	TS 6x	BS2x, BS3x			TS 91	TS 92
Follow Me	Yes					Yes	Yes			No[1]	No[1]

NOTE 1: The feature is in general not applicable for Voice Group Services. However a dispatcher may be an initiating subscriber or a remote party for the Follow Me feature.

EDITOR's Note: The applicability of FM to SMS is for further study.

6 Normal procedures with successful outcome

6.1 Provision

Follow Me shall be provided after prior arrangement with the service provider. Follow Me will be provisioned for all Basic Services subscribed to and to which it is applicable.

NOTES:

- A Follow Me provision is required for the initiating subscriber and for the remote party in case the remote party corresponds to a subscriber.

- If Follow Me is provisioned for a mobile subscriber she may assume the role of an initiating subscriber and/or the role of a remote party.

- A Follow Me provisioning service provider may confine:

    a.) the range of remote parties for which a FM provisioned subscriber may become initiating subscriber

    b.) the range of potential initiating subscribers for a remote party.

    c) the range of remote parties for which a FM provisioned subscriber may become FM service supervisor.

NOTE: (Health warning on security) The Follow Me feature is designed in such a way as to meet the security requirements of GSM-Railway operators. If the Follow Me feature is to be used by other operators - in particular if the remote party corresponds to a subscriber - operators are strongly advised to care for additional suitable security mechanisms to protect the remote party from potential harm by misuse of FM. These mechanisms are out of scope of this specification.
To support such mechanisms the possibility is foreseen to convey additional operator-specific information in the registration, interrogation and erasure procedures to the PLMN of the remote party. It should however be noted, that this is not a very secure mechanism. Operators should try to use existing security mechanisms where possible

6.2 Withdrawal

Follow Me will be withdrawn at the subscriber's request or for administrative reasons.

6.3 Registration

Follow Me shall be registered with an appropriate control procedure by the initiating subscriber.

The initiating Subscriber registers the Follow Me feature with respect to a particular remote party.

The initiating subscriber shall provide the following information to the network:

the number of the remote party (e.g. the Basic MSISDN of a subscriber);

The initiating subscriber shall receive an indication if the FM registration request was accepted or rejected by the network.

As an operator's option additional information (such as passwords) for registration may be required from the initiating subscriber. The registration procedure shall transport this information from the initiating subscriber to the network of the remote party. This information shall be coded as a USSD string with a length not exceeding 30 characters. The content of this information and the use of it are out of scope of this specification.

NOTE 1: The Follow Me feature may, at an instant, be registered to an initiating subscriber with respect to several remote parties. Conversely, a remote party can be registered only to one initiating subscriber at a time.

6.4 Erasure

A previous FM registration can be erased in either of the following ways:

a) The initiating subscriber can specifically erase her previous registration with an appropriate control procedure.

b) In case the remote party corresponds to a subscriber the remote party

can erase any previous registration with an appropriate control procedure.

c) The FM service supervisor can erase any previous registration to any remote party with an appropriate control procedure (forced erasure).

The subscriber who initiates the FM erase request shall be informed of the outcome of the request by the network.

For forced erasure by the FM service supervisor the initiating subscriber whose registration of Follow Me with respect to a remote party has been erased shall be informed of the successful forced erasure by the network.

As an operator's option additional information (such as passwords) for erasure may be required from the subscriber. The registration procedure shall transport this information from the subscriber to the network of the remote party. This information shall be coded as a USSD string with a length not exceeding 30 characters. The content of this information and the use of it are out of scope of this specification.

6.5 Activation

Follow Me is activated by registration.

6.6 Deactivation

Follow Me is deactivated by erasure.

6.7 Invocation

Follow Me is automatically invoked by the network if it was previously registered. If Follow Me is registered all incoming calls to the remote party will be forwarded to the initiating subscriber by network invocation.

When Follow Me is active and operative and if the remote party is a subscriber, the ability of the remote party to originate calls is not affected.

6.8 Interrogation

An initiating subscriber (also the FM service supervisor) shall be able to interrogate the Follow Me data of any remote party, for which she is authorised to become initiating subscriber.

In case the remote party corresponds to a subscriber the remote party shall be able to interrogate her own Follow Me data stored in the network.

The network shall return the basic MSISDN of the initiating subscriber for which the remote party is registered to Follow Me.

As an operator's option additional information (such as passwords) for interrogation may be required from the subscriber. The registration procedure shall transport this information from the subscriber to the network of the remote party. This information shall be coded as a USSD string with a length not exceeding 30 characters. The content of this information and the use of it are out of scope of this specification.

7 Exceptional procedures or unsuccessful outcome

7.1 Registration

If the system cannot accept a registration request, the initiating subscriber shall receive a notification that Follow Me registration was not successful. Possible causes are:

- insufficient information;
- feature not provisioned to initiating subscriber;
- feature not provisioned to remote party (in case the remote party is a subscriber);
- conflicting situation with supplementary services (e.g. incoming call barring has been activated);
- remote party already registered to a different initiating subscriber;
- insufficient authorisation for initiating subscriber or remote party.

7.2 Erasure

If the network cannot accept a mobile initiating or remote subscriber's request for erasure, cause will be returned to the subscriber, such as:

- insufficient information;
- remote party not registered;
- remote party registered to a different initiating subscriber;
- insufficient authorisation for initiating subscriber or remote party;
- feature not provisioned to initiating subscriber;
- feature not provisioned to remote party (in case the remote party is a subscriber).

7.3 Interrogation

If the network cannot accept a mobile initiating or remote subscriber's request for interrogation, cause will be returned to the subscriber, such as:

- insufficient information;
- insufficient authorisation for initiating subscriber or remote party;
- feature not provisioned to initiating subscriber;
- feature not provisioned to remote party (in case the remote party is a subscriber).

7.4 Invocation

Within a PLMN or different PLMNs the number of tandem forwarding connections (including call forwarding, call deflection, Follow Me) should be limited. The maximum number of tandem forwarding connections should be limited to a value between 1 and 5. This is to prevent infinite looping.

If the limit of successive forwardings of a call has already been reached, an unsuccessful call set up indication is sent backwards.

If the call cannot be completed to the Follow Me destination, then the network will clear the forwarded part of the call and an unsuccessful call set up indication is sent backwards.

8 Alternate procedures

None identified.

9 Charging requirements

None identified.

10 Interactions with supplementary services

Interactions of the Follow Me feature with supplementary services may occur only for the remote party.

The interactions of the Follow Me feature with supplementary services other than Call Forwarding Unconditional (CFU) are the same as the interactions of CFU with supplementary services (see 3GPP TS 22.082 [5]).

NOTE: The “served mobile subscriber” in 3GPP TS 22.082 [5] corresponds to the “remote party” in this document. The “forwarded-to subscriber” in 3GPP TS 22.082 [5] corresponds to the “initiating subscriber” in this document

10.1 Call Forwarding unconditional

Follow Me and the Call Forwarding Unconditional Supplementary Service are mutually exclusive. That is:

If Follow Me is registered with respect to a remote party, registration or activation of Call forwarding unconditional by the remote party is rejected. The remote party shall be informed of this incompatibility.

If Call forwarding unconditional is registered or active for the remote party, registration of Follow Me is rejected. The initiating subscriber shall be informed of this incompatibility.

11 Interaction with Operator Determined barring

Same as interaction between Operator Determined barring and call forwarding unconditional as defined in 3GPP TS 22.082.

12 Interaction with Optimal Routeing

Same as interaction between Optimal Routeing and call forwarding unconditional as defined in 3GPP TS 22.079.

13 Interaction with CAMEL

Same as interaction between CAMEL and call forwarding unconditional as defined in 3GPP TS 22.078.

14 Interworking considerations

If a forwarded call due to invocation of Follow Me meets an interworking situation, then an interworking indication should be sent to the calling party. When interworking with non-PLMN or non-ISDN networks, tones and announcements will be required.

NOTE 1: The number of times a call has been forwarded once it has exited the PLMN or ISDN may not be limited.

NOTE 2: Tones and/or announcements should not be provided to the calling party if the information transfer capability is set to UDI.

Annex A (informative) : Change history

Change history											
TSG SA#	**SA Doc.**	**SA1 Doc**	**Spec**	**CR**	**Rev**	**Rel**	**Cat**	**Subject/Comment**	**Old**	**New**	**WI**
SP-06	SP-99517 SP99-595	S1-991015	22.094	001		R99	B	Introduction of the rôle of a " Follow Me service supervisor:"	3.0.0	3.1.0	Follow-Me
SP-11	SP-010065	S1-010258	22.094			Rel-4		Transferred to 3GPP Release 4	3.1.0	4.0.0	
SP-15	SP-020045	S1-020457	22.094	002	-	Rel-4	F	Editorial CR to correct terms and references	4.0.0	4.1.0	CORRECT
SP-16	SP-020267	S1-021043	22.094			Rel-5		Updated from Rel-4 to Rel5	4.1.0	5.0.0	
SP-22	SP-030699	S1-031219	22.094	003	-	Rel-6	B	Notify of forced erasure to initiating subscriber A	5.0.0	6.0.0	TEI6
SP-36			22.094			Rel-7		Updated from Rel-6 to Rel-7	6.0.0	7.0.0	
SP-42	-	-				Rel-8		Updated from Rel-7 to Rel-8	7.0.0	8.0.0	
SP-46	-	-	-	-	-	-	-	Updated to Rel-9 by MCC	8.0.0	9.0.0	
2011-03	-	-	-	-	-	-	-	Update to Rel-10 version (MCC)	9.0.0	10.0.0	
2012-09	-	-	-	-	-	-	-	Updated to Rel-11 by MCC	10.0.0	11.0.0	
2014-10	-	-	-	-	-	-	-	Update to Rel-12 version (MCC)	11.0.0	12.0.0	
2015-12	-	-	-	-	-	-	-	Updated to Rel-13 by MCC	12.0.0	13.0.0	
2017-03	-	-	-	-	-	-	-	Updated to Rel-14 by MCC	13.0.0	14.0.0	
2018-06	-	-	-	-	-	-	-	Updated to Rel-15 by MCC	14.0.0	15.0.0	
SA#88e	-	-	-	-	-	-	-	Updated to Rel-16 by MCC	15.0.0	16.0.0	

History

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