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Technical Specification

Digital cellular telecommunications system (Phase 2+);
Multiple Subscriber Profile (MSP) Phase 1
Service description, Stage 1
(GSM 02.97 version 7.1.0 Release 1998)

GLOBAL SYSTEM FOR
MOBILE COMMUNICATIONS

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Foreword

This Technical Specification (TS) has been produced by the Special Mobile Group (SMG).

The present document gives an overall view of how this service shall operate both in the PLMN and within the Mobile Station (MS) within the digital cellular telecommunications system.

The contents of the present document is subject to continuing work within SMG and may change following formal SMG approval. Should SMG modify the contents of the present document, it will be re-released by SMG with an identifying change of release date and an increase in version number as follows:

Version 7.x.y

where:

- 7 indicates GSM Phase 2+ Release 1998;
- y the third digit is incremented when editorial only changes have been incorporated in the specification;
- x the second digit is incremented for all other types of changes, i.e. technical enhancements, corrections, updates, etc.

1 Scope

The present document gives an overall view of how this service shall operate both in the PLMN and within the Mobile Station (MS). The present document defines functionality and is not intended to constrain implementation.

NOTE: MSP phase 1 will be implemented using CAMEL phase 2. The present document reflects this implementation choice.

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.
- A non-specific reference to an ETS shall also be taken to refer to later versions published as an EN with the same number.
- For this Release 1998 document, references to GSM documents are for Release 1998 versions (version 7.x.y).

[1] GSM 01.04: "Digital cellular telecommunications system (Phase 2+); Abbreviations and acronyms".

[2] GSM 02.01: "Digital cellular telecommunications system (Phase 2+); Principles of telecommunication services supported by a GSM Public Land Mobile Network (PLMN)".

[3] GSM 02.30: "Digital cellular telecommunications system (Phase 2+); Man-machine Interface (MMI) of the mobile station (MS)".

[4] GSM 03.40: “Digital cellular telecommunications system (Phase 2+); Technical realization of the Short Message Service (SMS) Point to Point (PP)”.

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the following terms and definitions apply:

Subscriber: The user who is provisioned with the MSP service

Profile: A profile consists of a set of telecommunications services for the subscriber. In the case of the single numbering scheme there is a unique MSISDN associated with each profile. In the multi-numbering scheme there is the ability to have a unique MSISDN associated with each basic service in each profile.

Service Provider (SP): The organisation through which the subscriber obtains GSM telecommunication services. This may be the network operator or possibly a separate body.

Profile Identification (Profile ID): The profile IDs allow unambiguous identification of each profile. This will allow the subscriber to select the preferred profile for outgoing calls and for subscriber actions. For terminating calls the profile ID shall be part of the notification of the profile.

Registered Profile: The registered profile is that registered by/for the subscriber

Selected Profile: For mobile originated calls and short messages this is the registered profile unless the subscriber explicitly selects an alternative profile. For mobile terminating activities, this is the profile associated with the MSISDN addressed.

Mobile Terminating Activities: These include mobile terminating calls, short messages (SMS MT) and Call Independent Supplementary Services (e.g. NI-USSD).

Default Profile: Profile to be used when roaming to non-supporting network

3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply, in addition, abbreviations used in the present document are listed in GSM 01.04 (ETR 350)[1].

MSP Multiple Subscriber Profile

4 Description

Multiple Subscriber Profile is an optional service to enable mobile subscribers to have several profiles associated with a single SIM and a single IMSI, with each profile being a subscription option. Each profile may be used for mobile originated and mobile terminated calls.

Up to four different profiles can be provisioned against a subscriber using the MSP feature. This will allow the subscriber to separate her telecommunication service needs into different identities (e.g. business and home).

The charges accrued for services shall be associated with the appropriate profile, allowing separate charging for each profile.

A supporting visited network shall indicate [on the billing record] for charging purposes the profile used.

4.1 Applicability to telecommunication services

The applicability of this supplementary service is defined in GSM 02.04.

5 Functional requirements

5.1 Handling of the MSP Service

This clause describes the normal procedures for the handling of the MSP service.

5.1.1 Provision

The MSP service shall be provided after prior arrangement with the service provider. If the MSP service is provisioned for the subscriber at the first time the subscriber shall also be provisioned with at least two profiles.

5.1.2 Withdrawal

Withdrawal of the MSP service shall be done by either the service provider at the subscriber’s request or for administrative reasons. The MSP service shall be withdrawn when there is only one profile remaining.

5.1.3 Activation

The MSP service is activated by the service provider as a result of provision.

5.1.4 Deactivation

The MSP service is deactivated by the service provider as a result of withdrawal.

5.1.5 Invocation

The MSP service is invoked by mobile originated and mobile terminating calls.

5.2 Handling of the Profile

This subclause describes the normal procedures for selecting the registered profile for mobile originated calls, short messages and call independent supplementary service related activities. For mobile terminating activities the profile is selected automatically by association with the MSISDN addressed.

5.2.1 Provision

The provision of profiles (up to a maximum of four) is provided by prior arrangement with the service provider. The subscriber may select any provisioned profile on a per call basis or register one of them. The subscriber will nominate one of their provisioned profiles as the default profile to be used when roaming to non-supporting networks. The subscriber may subsequently nominate an alternative default (i.e. roaming) profile, nevertheless the default profile can only be changed by the service provider.

5.2.2 Withdrawal

The Service Provider shall be able to withdraw profiles. The registered profile shall never be withdrawn, and consequently if the registered profile needs to be withdrawn the service provider shall first register the subscriber onto another profile.

5.2.3 Registration

Registration is the procedure by which information is written to the network to allocate a particular profile to be used for all outgoing calls and supplementary service related activities. Registration to a profile shall take place either by the service provider or with an appropriate control procedure by the subscriber as defined in GSM 02.30. At all times only one profile shall be registered. The network shall indicate to the user whether an attempt to register a profile has been successful or not.

5.2.4 Selection

The profile to be used for mobile originated calls is selected either implicitly or explicitly:

- Implicit selection occurs if the served subscriber does not indicate a profile ID when initiating a call or short message. In this case the selected profile is the registered profile.

- Explicit selection occurs if the served subscriber does indicate a profile ID when initiating a call or short message.

The control procedure used to select the profile is as defined in GSM 02.30.

For mobile terminating activities, the profile is selected according to the MSISDN addressed.

5.2.5 Erasure

A previous registration can be erased in the following ways:

- the subscriber can register to another profile which causes the previous registration to be overridden;

- the registered profile is erased as a result of withdrawal of the MSP service.

5.2.6 Interrogation

The subscriber shall be able to interrogate which profile is the registered profile and all other available profile IDs, with an appropriate control procedure as defined in GSM 02.30 [3].

5.3 Normal operation with successful outcome

5.3.1 Mobile Originating Calls

Mobile originating calls shall be handled according to the selected profile. This shall be the registered profile unless an alternative is explicitly selected by the subscriber. Profiles are registered and selected according to control procedures in GSM 02.30.

Any activity that is normally chargeable shall be identified against the selected profile.

5.3.2 Mobile Terminating Calls

The MSISDN addressed shall be used to determine the profile to be used. If there are any active supplementary services, which are applicable to the telecommunication service within the profile, then those supplementary services shall apply. For example, if the MS is busy in a call, further incoming call attempts shall be rejected or busy, even if they were on a different profile. This shall not prevent the normal operation of Call Waiting or Call Forwarding if appropriate.

The serving network shall indicate the profile towards the mobile station. The mobile station may use this information to indicate to the user the profile used for the mobile terminating activities, this could also be done by changing the alerting pattern.

Any activity that is normally chargeable shall be identified against the profile used for the mobile terminating activity.

5.3.3 Mobile Originating Call Independent Supplementary Service Activities

The activity shall be handled according to the registered profile.

5.3.4 Call Related Supplementary Service Activities

The handling of call related supplementary service activities is described in clause 7.

5.4 Exceptional procedures or unsuccessful outcome

5.4.1 Roaming into networks not supporting MSP

The default profile shall be used for outgoing traffic when the subscriber roams to a non-supporting network.

Incoming calls to non-default profiles when roaming to a non-supporting network will be treated as though the subscriber was not reachable.

NOTE: If the subscriber is to roam and knows/believes that the roaming network is non-supporting, then the subscriber can use call forward not reachable to forward calls to the default profile. This will allow incoming calls to be received from other profiles.

Incoming short messages to all profiles will still be received.

5.4.2 Registration or Selection of a profile that is already registered

If there is an attempt to register a profile that is already the registered profile, the registration shall continue uninterrupted and the user shall not be informed.

If there is an attempt to select a profile that is already the registered profile, the selection shall continue uninterrupted and the user shall not be informed.

5.4.3 Registration or Selection of a non-provisioned profile

If there is an attempt to register a profile that has not been provisioned, the registration attempt shall fail and the user shall be informed. The registered profile shall remain unchanged.

If there is an attempt to select a profile that has not been provisioned the selection and associated call activity shall fail. The user shall be informed. The registered profile shall remain unchanged.

5.4.4 Registration or Selection attempts where MSP is not provisioned

If there is an attempt by a subscriber who does not have MSP provisioned to register a profile, the registration attempt shall fail and subscriber shall be informed.

If there is an attempt by a subscriber who does not have MSP provisioned to select a profile, the selection attempt shall fail and subscriber shall be informed.

6 Interaction with supplementary services

The profile used when a supplementary service is invoked will be subject to the charging principles and invocation requirements relevant to that supplementary service. The service provider may decide which profiles to charge for the service provision.

6.1 Line Identification Services

The profile in use for the incoming or outgoing call shall be used for the line identification services.

The Line Identification services will be provisioned on a per subscriber basis. If provisioned, the Line Identification services shall apply over all profiles.

6.2 Call Hold (HOLD)

The HOLD service will be provisioned on a per subscriber basis. If provisioned, the HOLD service shall apply over all profiles.

6.3 Call Waiting (CW)

CW will be provisioned on a per subscriber basis. If provisioned, the CW service applies over all profiles.

6.4 Call Forwarding

Call Forwarding will be available to the subscriber on a per-profile basis. An operator specific control procedure may be used by the subscriber to control the call forwarding service.

The subscriber shall be able to forward calls to from one profile to another profile.

NOTE: This allows the possibility when roaming to a non-supporting network to forward calls from the non-default profiles to the default profile to ensure the calls can be received.

6.5 Multi Party Service (MPTY)

The MPTY service will be provisioned on a per subscriber basis. If provisioned, the MPTY service will apply over all profiles.

6.6 Closed User Group (CUG)

The CUG service will be provisioned on a per-subscriber basis. If provisioned, the CUG service will apply over all profiles.

6.7 Advice of Charge (AoC)

The AoC service will be provisioned on a per-subscriber basis. If provisioned, the AoC service will apply over all profiles.

6.8 Call Barring

Call Barring will be available to the subscriber on a per-profile basis. An operator specific control procedure may be used by the subscriber to control the call barring service.

6.9 Explicit Call Transfer (ECT)

ECT will be provisioned on a per-subscriber basis. If ECT is provisioned, it shall apply over all profiles.

6.10 CCBS

CCBS will not be available to an MSP subscriber.

6.11 eMLPP

eMLPP shall be provisioned on a per subscriber profile basis. Where eMLPP is not explicitly provisioned on a profile, the default priority level shall be assumed.

7 Interaction with other services

7.1 The Multi-Numbering Scheme

[FFS]

7.2 The Short Message Service

The Short Message Service is described in GSM 03.40 [4]. It will not be possible to indicate the profile used for either the MT or the MO case. All MO short messages will be sent from the default profile.

MO short messages will be charged to the default profile.

7.3 Interactions with CAMEL

CAMEL services shall be provisioned on a per profile basis.

For call independent supplementary service procedures for CAMEL based services, information to identify the registered profile shall be passed to the CAMEL server.

7.4 Interactions with OR

No interaction

NOTE: It is a HPLMN option to allow or deny OR of forwarded calls where the HPLMN recognises that the IPLMN does not support MSP. This is due to the requirement to include an indication of the profile ID in call detail records which may be raised in the IPLMN and sent to the HPLMN.

7.5 Operator Determined Barring

ODB shall apply on a per profile basis.

7.6 Roaming restrictions

These will apply on a per subscriber basis.

8 Cross-Phase Compatibility

The default profile will be sent to the visited network and can be addressed by non-supporting networks.

Mobile terminated calls to a non-supporting MS shall still be accepted but the indication of profile may not be supported.

Annex A (informative): Change Request History

Change history					
SMG No.	**TDoc. No.**	**CR. No.**	**Section affected**	**New version**	**Subject/Comments**
SMG#19	367/96	None		2.0.0	Submitted for approval (approved)
SMG#22	306/97 SMG1 106/97	A002		5.1.0	MSP Revision of Stage 1 desciption in line with service principles and phasing
SMG#23	SMG 651/97	A003	5.1.0	5.2.0	Completion of the Stage 1 description of MSP.A number of interactions with other services were identified as missing. These have been added and necessary changes made to associated sections of other recommendations. Various sections have been affected.
SMG#25				7.0.0	Creation of version 7.0.0 as part of GSM release 1998
SMG#29	P-99-374	A004	All	7.1.0	SMG #28 approved the Stage 2 description for MSP which is based upon CAMEL phase 2. This implementation will result in a change of available functionality and the Stage 1 description has been modified to reflect this

History

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