



Open Market Handset (OMH) R-UIM Specification

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Revision History

Date	Version	Description
January 2008	1.0	<ul style="list-style-type: none"> • Initial release version • Included in OMH Enabler Package v1
May 2008	2.0	<ul style="list-style-type: none"> • EF_{Model}: Added new field “Software Version Information” • EF_{SMSCAP}: Changed “Default Service Option” to “Preferred Service Option” • EF_{SMSCAP}: SMS Preferred Service Options are byte values, not bits • EF_{SMSCAP}: Added an SMS Flag to indicate whether to use EMS per [CS0015] • EF_{SIPUPPEXT}: Allow LBS application to be associated with more than one profile • EF_{SIPUPPEXT}: Clarified “Unspecified” bit in APPLICATIONS is for use by applications not present in any other profiles • EF_{MIPUPPEXT}: Added notes about NAI entry indexes and anticipated usage • EF_{TCPConfig}: TCP graceful close of dormant connections default is enabled • Added descriptions to require both CHAP and PAP credentials in R-UIM and to require that authentication algorithm fields in EF_{SIPCAP} and EF_{SIPUPP} not be used • EF_{BrowserBM}: Bookmark Name Information is UTF-8 • Added clarification regarding use of Gateway Tag in EF_{BrowserCP} and EF_{MMSICP} • Added Services field to the Gateway Tag • Modify MMS Implementation Tag to include new HTTP value that, unlike WAP, does not require provisioning of Interface to Core Network and Bearer Information • EF_{BREWDownload}: Carrier ID is a 32-bit unsigned integer (uint32) • EF_{BREWDownload}: BREW Download Server is NULL-terminated, 8-bit ASCII string • EF_{BREWDownload}: BREW Subscriber ID is NULL-terminated, 8-bit ASCII string • EF_{BREWDownload}: Removed incorrect ‘LSB’ from BREW Download Flags • EF_{LBSV2PDEADDR}: V2 LBS PDE Address Information is 8-bit ASCII string • EF_{LBSV2PDEADDR}: Corrected typo in V2 LBS PDE Address Information • EF_{LBSV2PDEADDR}: Changed the EF to be Transparent type • EF_{LBSV2MPCADDR}: V2 LBS MPC Address Information is 8-bit ASCII string • EF_{LBSV2MPCADDR}: Changed the EF to be Transparent type

Date	Version	Description
		<ul style="list-style-type: none"> Created references for [OWPVC], [RFC1738], [RFC3629], and [RFC4489] Clarified that 'FF' is for filling the unused bytes and a tag value of 'FF' indicates the end of valid data Added typical sizes and upper limits for the EFs of variable size Editorial changes Included in OMH Enabler Package v2

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1. Overview

1

2 This document contains requirements and detailed specifications for extending the
3 capabilities of the Removable User Identity Module (R-UIM) defined in [CS0023]. This
4 document may reference Elementary Files (EFs) already defined in [CS0023], as well
5 as providing detailed specifications for new EFs. The goal of this document is to enable
6 the R-UIM to store all provisioning information associated with the subscriber and
7 operator network.

8 All EFs required to support Open Market Handsets (OMHs) are identified herein. This
9 document is complementary to and intended to be used with [CDG167].

10



2. Mechanisms

2.1 R-UIM Commands

2.1.1 General

At a minimum, the following general R-UIM commands **shall** be supported:

- | | | | |
|----|-----------------|----|---------------------|
| 5 | ▪ SELECT | 15 | ▪ DISABLE CHV |
| 6 | ▪ STATUS | 16 | ▪ ENABLE CHV |
| 7 | ▪ READ BINARY | 17 | ▪ UNBLOCK CHV |
| 8 | ▪ UPDATE BINARY | 18 | ▪ INVALIDATE |
| 9 | ▪ READ RECORD | 19 | ▪ REHABILITATE |
| 10 | ▪ UPDATE RECORD | 20 | ▪ GET RESPONSE |
| 11 | ▪ SEEK | 21 | ▪ TERMINAL PROFILE |
| 12 | ▪ INCREASE | 22 | ▪ ENVELOPE |
| 13 | ▪ VERIFY CHV | 23 | ▪ FETCH |
| 14 | ▪ CHANGE CHV | 24 | ▪ TERMINAL RESPONSE |

2.1.2 ESN and MEID

The following Electronic Serial Number (ESN) and Mobile Equipment Identifier (MEID) commands **shall** be supported:

- ESN Store ESN_MEID_ME

2.1.3 Voice/SMS Security

The following voice/SMS security-related commands **shall** be supported:

- Update SSD
- Base Station Challenge
- Confirm SSD
- Authenticate
- Generate Key/VPM

2.1.4 Packet Data Security

The following packet data security-related commands **shall** be supported:

- Compute IP Authentication (CHAP, MN-HA, MIP-RRQ, MN-AAA)

2.1.5 OTASP/OTAPA

The following Over-the-Air Service Provisioning/Over-the-Air Parameter Administration (OTASP/OTAPA) commands **shall** be supported:

- Generate Public Key
- Key Generation Request
- Commit
- Validate
- Configuration Request
- Download Request
- SSPR Configuration Request
- SSPR Download Request
- OTAPA Request

2.2 Authentication

The R-UIM **shall** support the following authentication mechanisms:

- Cellular Authentication and Voice Encryption (CAVE) authentication
- Password Authentication Protocol (PAP) for Simple IP authentication
- Challenge Handshaking Authentication Protocol (CHAP) for Simple IP authentication
- CHAP for A12 authentication [High Rate Packet Data (HRPD)]
- Mobile IP authentication

CAVE A-key Generation procedures may be supported.

2.3 Subsidy Lock

OMH does not specify R-UIM support for subsidy lock mechanisms, since such mechanisms are contrary to the goal of creating open devices that may be used across multiple networks.

If an operator desires to subsidize a particular OMH device, it may do so by working with the device original equipment manufacturer (OEM) to implement the desired personalization mechanism on the device. At that point, however, the device would no longer be considered an OMH device.

2.4 Carrier Customization

To enable devices to display an operator’s name, the following EFs already defined in [CS0023] **shall** be supported:

- **EF_{SPN}** (Service Provider Name) contains the service provider name text. This EF **shall** be supported.

To enable additional carrier customization, the EF described in the following subsection has been added. This new EF **shall** be supported.

2.4.1 EF_{AppLabels} (Application Labels)

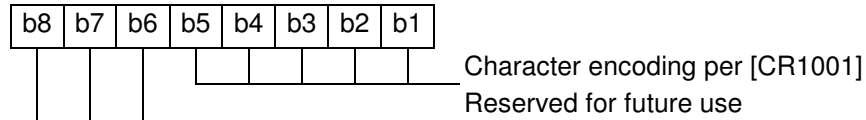
To enable devices to display operator-branded services, the following new EF has been defined to store the text label that should be associated with the icon or menu item used to launch an application. For example, a BREW operator that offers Binary Runtime Environment for Wireless (BREW) services branded as “Content World” could provision the text string “Content World” as the BREW application label. The device’s user interface would use this value and display a BREW icon labeled “Content World.” These labels are optional and need only be provisioned if an operator desires to override the OEM-defined label used on the device with an operator label that has a strong brand.

Identifier: ‘6F92’		Structure: Transparent		Optional
File size: Variable		Update Activity: Low		
Access Conditions:				
READ		CHV1		
UPDATE		ADM		
INVALIDATE		ADM		
REHABILITATE		ADM		
Bytes	Description	M/O	Length	
1	Character Encoding	M	1 byte	
2	Language Indicator	M	1 byte	
3 – 4	Application Labels Present	M	2 bytes	
5 – 36	Application Label ₁	O	32 bytes	
37 – 68	Application Label ₂	O	32 bytes	
...	...	O	...	
5+(X-1)*32 to 36+(X-1)*32	Application Label _N	O	32 bytes	

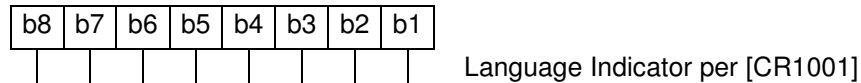
1 Typical EF size: 132 bytes (*assumes 4 application labels*).

2 Maximum EF size: 516 bytes (*assumes 16 application labels*).

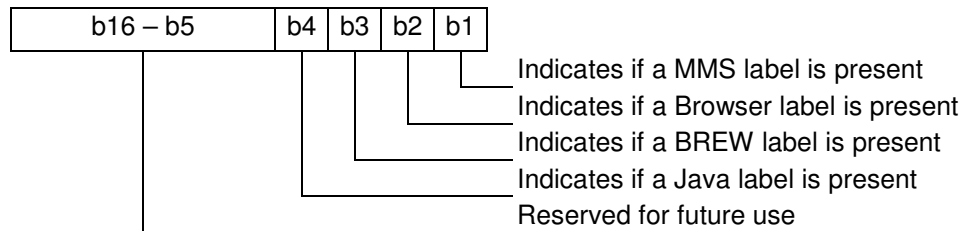
3 **Character Encoding:**



4 **Language Indicator:**



5 **Application Labels Present:** This field is a bitmask used to identify which
6 Application Label Fields are present in the EF. Each bit represents a particular
7 application as shown below:



8
9 If a bit is set to '1,' an Application Label Field for that application **shall** be
10 present. If the bit is set to '0,' an Application Label Field for that application
11 **shall not** be present and the OEM's user interface will display the generic label
12 for that application.

13 *[Default Value: All bits set to 0 (i.e., no Application Label Fields present)]*

14 **Application Label:** Each Application Label field contains the text label to be
15 displayed with the icon or menu item used to launch that application. The
16 Application Label Present field identifies which Application Label fields are present
17 in the EF. These Application Label fields **shall** be present in the same order as their
18 corresponding bits in the Application Labels Present field. For example, if bits 2
19 (Browser) and 3 (BREW) are set to '1,' then the first application label field will be the
20 Browser label and the next will be the BREW label. The string contents of each
21 Application Label field **shall** use the SMS convention as defined in Tables 9.1-1 and
22 9.2-1 of [CR1001]. The string **shall** be left justified. Unused bytes **shall** be set to
23 'FF.'

24 **2.5 CDMA Card Application Toolkit**

25 At a minimum, the following CDMA Card Application Toolkit (CCAT) items **shall** be
26 supported by the R-UIM.

- 27 **Call Control**

- 1 ▪ CCAT – PROVIDE LOCAL INFORMATION
- 2 (IMSI_11_12, SID, NID, BASE_ID, BASE_LONG, BASE_LAT)
- 3 ▪ Event: Access Technology changed
- 4 ▪ Event: Browser Termination
- 5 ▪ Event: Browsing status
- 6 ▪ Event: Call connected (all modes)
- 7 ▪ Event: Call disconnected (all modes)
- 8 ▪ Event: Idle screen available
- 9 ▪ Event: Language selection
- 10 ▪ Event: Location status
- 11 ▪ Event: Mobile-Terminated (MT) call
- 12 ▪ Event: Network Search Mode Change
- 13 ▪ Event: User activity
- 14 ▪ Menu selection
- 15 ▪ Proactive cmd: DISPLAY TEXT
- 16 ▪ Proactive cmd: DISPLAY TEXT (Variable Time out)
- 17 ▪ Proactive cmd: GET INKEY
- 18 ▪ Proactive cmd: GET INKEY (help supported)
- 19 ▪ Proactive cmd: GET INKEY (Variable Timeout)
- 20 ▪ Proactive cmd: GET INPUT
- 21 ▪ Proactive cmd: LANGUAGE NOTIFICATION
- 22 ▪ Proactive cmd: LAUNCH BROWSER
- 23 ▪ Proactive cmd: MORE TIME
- 24 ▪ Proactive cmd: PLAY TONE
- 25 ▪ Proactive cmd: PLAY TONE (Melody tones and Themed tones supported)
- 26 ▪ Proactive cmd: POLL INTERVAL
- 27 ▪ Proactive cmd: POLLING OFF
- 28 ▪ Proactive cmd: PROVIDE LOCAL INFORMATION (Access Technology)
- 29 ▪ Proactive cmd: PROVIDE LOCAL INFORMATION (ESN)
- 30 ▪ Proactive cmd: PROVIDE LOCAL INFORMATION (language)
- 31 ▪ Proactive cmd: PROVIDE LOCAL INFORMATION (MCC)
- 32 ▪ Proactive cmd: PROVIDE LOCAL INFORMATION (Search Mode change)
- 33 ▪ Proactive cmd: PROVIDE LOCAL INFORMATION (battery state)

- 1 ▪ Proactive cmd: REFRESH (all modes)
- 2 ▪ Proactive cmd: SELECT ITEM
- 3 ▪ Proactive cmd: SEND DTMF command
- 4 ▪ Proactive cmd: SEND SHORT MESSAGE
- 5 ▪ Proactive cmd: SET UP CALL
- 6 ▪ Proactive cmd: SET UP EVENT LIST
- 7 ▪ Proactive cmd: SET UP IDLE MODE TEXT
- 8 ▪ Proactive cmd: SET UP MENU
- 9 ▪ Proactive cmd: TIMER MANAGEMENT (get current value)
- 10 ▪ Proactive cmd: TIMER MANAGEMENT (start stop)
- 11 ▪ Profile download
- 12 ▪ Short Message Service Point to Point (SMS-PP) data download
- 13 ▪ Soft keys support for SELECT ITEM
- 14 ▪ Soft Keys support for SET UP MENU
- 15 ▪ Timer expiration

16 **2.6 Device and Model Identification**

17 Device identification refers to electronic serial number (ESN), mobile equipment
 18 identifier (MEID), UIM Identifier (UIMID), or expanded UIM Identifier (EUIMID) of the
 19 device and R-UIM.

- 20 ▪ The R-UIM **shall** be provisioned with an UIMID containing the pUIMID value
 21 derived from EUIMID.
- 22 ▪ The R-UIM **shall** support the use of EUIMID.
- 23 ▪ If SF_EUIMID is being used, the R-UIM **shall** provision n8 (SF_EUIMID-based
 24 EUIMID) in the CDMA Service Table.
- 25 ▪ If SF_EUIMID is being used, the EF_{USGIND} (Usage Indicator) **shall** be configured to
 26 indicate whether the device should use SF_EUIMID or MEID for network
 27 identification.

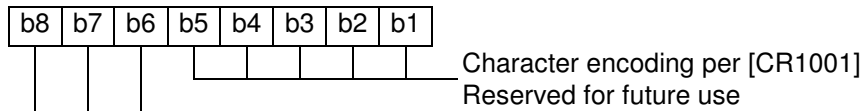
28 **2.6.1 EF_{Model} (Device Model Information)**

29 In addition to supporting device identifiers, the R-UIM supports the storage of model
 30 information using this new EF. Similar to EF_{ESNME}, this file is populated by the device
 31 during powerup. This file enables applications running on the R-UIM to provide model
 32 information to the network either automatically or on demand. This EF **shall** be
 33 present.

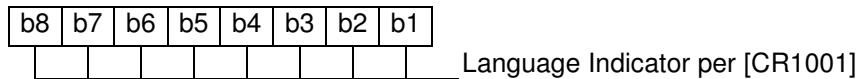
Identifier: '6F90'		Structure: Transparent		Mandatory	
File Size: 126			Update activity: Low		
Access Conditions:					
READ		CHV1			
UPDATE		CHV1			
INVALIDATE		ADM			
REHABILITATE		ADM			
Bytes	Description	M/O	Length		
1	Character Encoding	M	1 byte		
2	Language Indicator	M	1 byte		
3-34	Model Information	M	32 bytes		
35-66	Manufacturer Name	M	32 bytes		
67-126	Software Version Information	M	60 bytes		

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▪ **Character Encoding:**



▪ **Language Indicator:**



- **Model Information:** This field is a string indicating the model name of the device (e.g., "SCH-X359"). The string contents **shall** use the SMS convention as defined in Tables 9.1-1 and 9.2-1 of [CR1001]. The string **shall** be left justified. Unused bytes **shall** be set to 'FF.'
- **Manufacturer Name:** This field is a string indicating the manufacturer of the device (e.g., "Samsung"). The string contents **shall** use the SMS convention as defined in Tables 9.1-1 and 9.2-1 of [CR1001]. The string **shall** be left justified. Unused bytes **shall** be set to 'FF.'
- **Software Version Information:** This field is a string indicating the software version of the device (e.g., "6.0 patch 01"). The string contents **shall** use the SMS convention as defined in Tables 9.1-1 and 9.2-1 of [CR1001]. The string **shall** be left justified. Unused bytes **shall** be set to 'FF.'

2.7 Over-the-Air (OTA) Provisioning and Firmware

2.7.1 SMS-PP Data Download

CCAT SMS-PP data download (service n26) **shall** be supported by the R-UIM. This generic mechanism provides the ability to modify any EF on the R-UIM, including new EFs introduced herein. This CCAT mechanism uses a different teleservice value to allow the handset to distinguish SMS-PP data download messages from regular SMS messages.

All EFs on the R-UIM shall be updatable via the CCAT SMS-PP data download.

UIM Toolkit (UTK) Preferred Roaming List (PRL) updates via SMS-PP shall be supported by the R-UIM. Unlike the CCAT version of SMS-PP data download, UTK PRL update messages via SMS-PP use the same teleservice as regular SMS messages. To distinguish them from regular SMS messages, reserve bits are used to indicate a Message Display Mode. In other words, the R-UIM must be able to check the Message Display Mode to determine whether an SMS message is a UTK PRL update and treat the message appropriately.

2.7.2 OTASP/OTAPA

While OTASP/OTAPA support for provisioning the new EFs on the R-UIM introduced herein may be added in the future, this version of the document does not introduce new OTASP/OTAPA support.

2.8 EF_{RC} (Root Certificates)

This EF contains the root certificates for the applications on the device. One or more applications are associated with each certificate. If service n16 (Root Certificates) is allocated, this EF **shall** be present.

Identifier: 6F91		Structure: Transparent		Optional
File Size: Variable		Update activity: Low		
Access Conditions:				
READ		ALW		
UPDATE		ADM		
INVALIDATE		ADM		
REHABILITATE		ADM		
Bytes	Description	M/O	Length	
1 to X ₁	Certificate TLV Object	M	X ₁ bytes	
X ₁ +1 to X ₁ +X ₂	Certificate TLV Object	O	X ₂ bytes	
...	...	O	...	
X ₁ +X ₂ +...+X _n -1+1 to X ₁ +X ₂ +...+X _n -1+X _n	Certificate TLV Object	O	X _n bytes	

- 1 Typical EF size: 1500 bytes (*assumes one 1.5kB certificate*).
- 2 Maximum EF size: 3000 bytes (*assumes two 1.5kB certificates*).
- 3 Unused bytes shall be set to 'FF.' A Tag value of 'FF' indicates the end of valid data.

4 **▪ Certificate TLV Object – Contents:**

Description	Value	M/O	Length
Certificate Tag	'80'	M	1 byte
Length	Note 1	M	Note 2
Certificate Type	Note 3	M	1 byte
Certificate Information	Note 4	M	Variable
Applications	Note 3	M	16 bits

NOTE 1: This is the total size of the constructed TLV object.
 NOTE 2: The length is coded according to ISO/IEC 8825.
 NOTE 3: See coding below.
 NOTE 4: Binary data for the certificate information as defined in corresponding certificate type, e.g., X.509.

1 ▪ **Certificate Type – Coding:**

Value	Name
0	DER Encoded Binary X.509
1	Base64 Encoded X.509
2	PKCS #7
3	PKCS #12
4-255	Reserved for future use
4-255	Reserved for future use

- 2 ▪ **APPLICATIONS:** This field is a bitmask used to indicate which applications are
 3 associated with a particular certificate. If the same certificate is being used for all
 4 applications signed by the operator, only bit 1 (Unspecified) will be set. Otherwise, if
 5 the operator signs different applications using different certificates, the bit for each
 6 application associated with the certificate shall be set. Note that, while each
 7 certificate may be associated with multiple applications, each application may only
 8 be associated with one certificate.

9 *[Default Value: bit 1 (Unspecified) is set; all other bits are not set]*

Bit	Application
1	Unspecified (all applications use the same profile)
2	Reserved
3	Browser
4	BREW
5	Java
6	LBS
7	Terminal (tethered mode for terminal access)
8-32	Reserved for future use

10 **2.9 CDMA Service Table**

11 The R-UIM **shall** enable service n9 (MEID Support).

12 Support for new services has been added. The following service numbers, currently
 13 defined as “RFU” in the existing **EF_{CST}** (CDMA Service Table), will be used to support
 14 these new services. These new definitions **shall** be supported.

- 15 ▪ Service n15: Messaging and 3GPD Extensions
 16 ▪ Service n16: Root Certificates
 17 ▪ Service n21: Browser

- 1 ▪ Service n22: Java
- 2 ▪ Service n23: BREW
- 3 ▪ Service n24: LBS
- 4 ▪ Service n31: IPv6

5 All OMH R-UIMs **shall** enable service n15 (Messaging and 3GPD Extensions),
6 allowing this service table entry to be used to identify an OMH R-UIM.

7



1 3. Basic Voice Service and Device Operation

2 The following EFs are already defined in [CS0023] and do not require modification.
3 These **shall** be supported for basic voice service and device operation.

- 4 ▪ **EF_{ADN}** (Abbreviated dialing numbers) – *i.e.*, *phonebook*
- 5 ▪ **EF_{COUNT}** (Call Count)
- 6 ▪ **EF_{IMSI_M}** (IMSI_M)
- 7 ▪ **EF_{IMSI_T}** (IMSI_T)
- 8 ▪ **EF_{TMSI}** (TMSI)
- 9 ▪ **EF_{CDMAHOME}** (CDMA Home SID, NID)
- 10 ▪ **EF_{ZNREGI}** (CDMA Zone-Based Registration Indicators)
- 11 ▪ **EF_{SNREGI}** (CDMA System-Network Registration Indicators)
- 12 ▪ **EF_{DISTREGI}** (CDMA Distance-Based Registration Indicators)
- 13 ▪ **EF_{ACCOLC}** (Access Overload Class ACCOLCp)
- 14 ▪ **EF_{TERM}** (Call Termination Mode Preferences)
- 15 ▪ **EF_{SSCI}** (Suggested Slot Cycle Index)
- 16 ▪ **EF_{PRL}** (Preferred Roaming List)
- 17 ▪ **EF_{RUIMID}** (Removable UIM_ID)
- 18 ▪ **EF_{CST}** (CDMA Service Table)
- 19 ▪ **EF_{SPC}** (Service Programming Code)
- 20 ▪ **EF_{OTAPASPC}** (OTAPA/SPC_Enable)
- 21 ▪ **EF_{NAMLOCK}** (NAM_LOCK)
- 22 ▪ **EF_{OTA}** (OTASP/OTAPA Features)
- 23 ▪ **EF_{SP}** (Service Preferences)
- 24 ▪ **EF_{ESNME}** (ESN_ME)
- 25 ▪ **EF_{Revision}** (R-UIM Revision)
- 26 ▪ **EF_{PL}** (Preferred Languages)
- 27 ▪ **EF_{SSFC}** (Supplementary Services Feature Code Table)
- 28 ▪ **EF_{SPN}** (CDMA Home Service Provider Name)
- 29 ▪ **EF_{USGIND}** (Removable UIM ID/SF_EUIMID Usage Indicator)

- 1 ▪ **EF_{AD}** (Administrative Data)
- 2 ▪ **EF_{MDN}** (Mobile Directory Number)
- 3 ▪ **EF_{MAXPRL}** (Maximum PRL)
- 4 ▪ **EF_{SPCS}** (SPC Status)
- 5 ▪ **EF_{ECC}** (Emergency Call Codes)
- 6 No new EFs/fields have been defined for this section.
- 7



4. Short Message Service (SMS)

The following EFs are already defined in [CS0023] and do not require modification. These **shall** be supported for this feature.

Elementary File	Description
EF_{SMS} (Short Messages)	Status MSG_LEN SMS Transport Layer Message
EF_{SMSP} (SMS Parameters)	Teleservice Identifier Parameter Indicators Reserved Destination Address MSG_ENCODING Validity Period Service Category Destination Subaddress Bearer Reply Option Bearer Data
EF_{SMSS} (SMS Status)	MESSAGE_ID WAP MESSAGE_ID SMS "Memory Cap. Exceeded" Notification Flag / SMS Timestamp Mode Reserved
EF_{BCSMScfg} (Broadcast SMS Configuration)	Operator Broadcast Configuration
EF_{BCSMSpref} (Broadcast SMS Preference)	User Broadcast Configuration
EF_{BCSMStable} (Broadcast SMS Table)	Status Service Category Language Max Messages Alert Option Label Encoding Label
EF_{BCSMSP} (Broadcast SMS Parameter)	Select Priority

Items in the following subsections have been added for this feature and **shall** be supported.

1 **4.1 EF_{SMSCAP} (SMS Capabilities)**

2 This new EF contains information about SMS Capabilities. If services n4 (Short
 3 Message Storage) and n15 (Messaging and 3GPD Extensions) are allocated, this EF
 4 **shall** be present.

Identifier: '6F76'		Structure: Transparent		Optional
File size: 4 bytes		Update Activity: Low		
Access Conditions:				
READ		CHV1		
UPDATE		ADM		
INVALIDATE		ADM		
REHABILITATE		ADM		
Bytes	Description	M/O	Length	
1	SMS Retry Period	M	1 byte	
2	SMS Retry Interval	M	1 byte	
3	SMS Flags	M	1 byte	
4	SMS Preferred Service Option	M	1 byte	

- 5 ▪ **SMS Retry Period:** This is the overall time period (in seconds) during which the
 6 Mobile Originated (MO) SMS retries can be performed. 0 means that MO SMS retry
 7 is disabled.

8 *[Default Value: 30 seconds]*

- 9 ▪ **SMS Retry Interval:** This is the time interval (in seconds) that the device shall wait
 10 before the next retry attempt can be made after a MO SMS failure.

11 *[Default Value: 5 seconds]*

- 12 ▪ **SMS Flags:** 0 – disabled; 1 – enabled

Bit	Parameter Indicated
1	Send On Access (Allow MO SMS to be sent over Access Channel) [Default value = 1 (enabled)]
2	Send On Traffic (Allow MO SMS to be sent over Traffic Channel) [Default value = 1 (enabled)]
3	Send as Standard EMS (Network supports standard EMS per [CS0015]) [Default value = 0 (disabled)]
4-8	Reserved for future use

- 13 ▪ **SMS Preferred Service Option:** This is the preferred service option to be used
 14 when the device sets up SMS traffic channel for sending messages.

15 *[Default Value: 1 – Service Option 6]*

<u>Value</u>	<u>Description</u>
0	Device Default
1	Service Option 6
2	Service Option 14
3-255	Reserved for future use

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2



5. 3G Packet Data

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2 The following EFs are already defined in [CS0023] and do not require modification.
 3 These **shall** be supported for this feature.

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Elementary File	Description
EF_{ME3GPDOPC} (ME 3GPD Operation Capability)	SimpleIP MobileIP MobileIP with SimpleIP fallback
EF_{3GPDOPM} (3GPD Operation Mode)	SimpleIP only MobileIP with SimpleIP fallback MobileIP only
EF_{SIPCAP} (SimpleIP Capability Parameters)	MAX_NUM_NAI MAX_NAI_LENGTH MAX_SS_LENGTH AUTH_ALGORITHM
EF_{MIPCAP} (MobileIP Capability Parameters)	MAX_NUM_NAI MAX_NAI_LENGTH MAX_MN-AAA_SS_LENGTH MN-AAA_AUTH_ALGORITHM MAX_MN-HA_SS_LENGTH MN-HA_AUTH_ALGORITHM
EF_{SIPUPP} (SimpleIP User Profile Parameters)	<i>One or more occurrences of:</i> NAI_ENTRY_INDEX NAI_LENGTH NAI AUTH_ALGORITHM
EF_{MIPUPP} (MobileIP User Profile Parameters)	RETRY_INFO_INCLUDED MAX_NUM_RETRY FIRST_RETRY_TIMEOUT REREG_THRESHOLD <i>One or more occurrences of:</i> NAI_ENTRY_INDEX NAI_LENGTH NAI T_BIT HOME_ADDRESS PRIMARY_HOME_AGENT SECONDARY_HOME_AGENT MN-AAA_AUTH_ALGORITHM MN-AAA-SPI_INDICATOR MN-AAA_SPI

Elementary File	Description
	MN-HA_AUTH_ALGORITHM MN-HA_SPI_INDICATOR MN-HA_SPI
EF_{SIPSP} (SimpleIP Status Parameters)	ACT_NAI_ENTRY_INDEX
EF_{MIPSP} (MobileIP Status Parameters)	ACT_NAI_ENTRY_INDEX <i>One or more occurrences of:</i> ADD_ACT_NAI_ENTRY_INDEX
EF_{SIPPAPSS} (SimpleIP PAP SS Parameters)	<i>One or more occurrences of:</i> NAI_ENTRY_INDEX SS_LENGTH SS
SimpleIP CHAP SS Parameter Block	<i>One or more occurrences of:</i> NAI_ENTRY_INDEX SS_LENGTH SS
MobileIP SS Parameter Block	<i>One or more occurrences of:</i> NAI_ENTRY_INDEX MN-AAA_SS_LENGTH MN-AAA_SS MN-HA_SS_LENGTH MN-HA_SS

1

2 Items in the following subsections have been added for this feature and **shall** be
3 supported.

4 **5.1 EF_{MIPFlags} (MobileIP Flags)**

5 This new EF contains the configuration flags for Mobile IP. If services n38 (3GPD-MIP)
6 and n15 (Messaging and 3GPD Extensions) are allocated, this EF **shall** be present.

Identifier: '6F78'		Structure: Transparent		Mandatory	
File size: 1 bytes			Update Activity: Low		
Access Conditions:					
READ		CHV1			
UPDATE		ADM			
INVALIDATE		ADM			
REHABILITATE		ADM			
Bytes	Description	M/O	Length		
1	MIP_FLAGS	M	1 byte		

- 1 ▪ **MIP_FLAGS:** 0 – disabled; 1 – enabled

Bit	Parameter Indicated
1	Mobile IP 2002bis MN HA Authentication
2	Mobile IP Pre Rev 6 handoff optimization
3	Mobile IP PPP Re-sync during hand-down from 1xEV-DO Rev 0 to 1x
4	Mobile IP Re-registration only if data has been transferred since last registration in order to extend Mobile IP address lifetime
5-8	Reserved for future use

2 **5.2 EF_SIPUPPExt (SimpleIP User Profile Parameters Extension)**

3 This new EF contains the additional parameters for Simple IP User Profiles in order to
 4 fully support the feature of multiple profiles. If services n20 (3GPD-SIP) and n15
 5 (Messaging and 3GPD Extensions) are allocated, this EF **shall** be present.

Identifier: '6F7D'		Structure: Transparent		Mandatory
File size: Variable			Update Activity: Low	
Access Conditions:				
READ		CHV1		
UPDATE		ADM		
INVALIDATE		ADM		
REHABILITATE		ADM		
Bytes	Description	M/O	Length	
X	UPP Extension Block	M	X bytes	

6 Typical EF size: 7 bytes (*assumes the common usage of one profile for all*
 7 *applications*).

8 Maximum EF size: 98 bytes (*assumes a wildly unlikely usage of 15 different profiles*).

9 Unused bytes shall be set to 'FF.'

1 **UPP Extension Block structure:**

Field	Length (bits)
NUM_NAI	4

NUM_NAI occurrences of the following fields:

NAI_ENTRY_INDEX	4
APPLICATIONS	32
PRIORITY	8
DATA_RATE_MODE	4
DATA_BEARER	4

RESERVED	0 to 7 (as needed)
----------	--------------------

2

- 3 ▪ **NUM_NAI:** Number of UPP Extension instances. This number shall be the same as
- 4 NUM_NAI in the base user profile EF (EF-SIPUPP or EF-MIPUPP).
- 5 ▪ **NAI_ENTRY_INDEX:** Index to the list of UPP Extension instances. This index shall
- 6 point to the UPP Extension instance that is corresponding to the base UPP instance
- 7 with the same index value as defined in EF-SIPUPP or EF-MIPUPP.
- 8 ▪ **APPLICATIONS:** This field is a bitmask used to indicate which applications are
- 9 associated with a particular profile. The applications **shall** use the profile having the
- 10 “Unspecified” bit set in the APPLICATIONS bitmask if they are not present in any
- 11 other profiles.

12 Note that, while each profile may be associated with multiple applications, each

13 application, with the exception of Location Based Service (LBS), may only be

14 associated with one profile. In other words, with the exception of LBS,

15 applications **shall not** be assigned to more than one profile.

16 LBS may be associated with multiple profiles because LBS sessions can be

17 initiated by the network through no action of the user. Therefore, this exception

18 allows operators to provision profiles such that LBS may share data sessions

19 with one, many, or all other applications, depending on provisioning of this EF.

20 For example, an operator could set up two profiles: one for BREW and another

21 for all other applications. To allow LBS to share any currently established data

22 session in this scenario, one profile would associate BREW and LBS, while the

23 other profile associates Multimedia Message Service (MMS), Browser, Java,

24 Terminal, and LBS. Note that each profile in this example includes LBS, while

25 all other applications appear in only one profile.

26 If LBS is associated with multiple profiles and the user launches an LBS

27 application when a data session is not already established, the device will use

1 the profile that includes LBS and has the lowest priority to set up a new data
 2 session.

3 *[Default Value: bit 1 (Unspecified) is set; all other bits are not set]*

<u>Bit</u>	<u>Application</u>
1	Unspecified (used by applications not present in any other profile)
2	MMS
3	Browser
4	BREW
5	Java
6	LBS (can be present in multiple profiles)
7	Terminal (tethered mode for terminal access)
8-32	Reserved for future use

- 4 ■ **PRIORITY:** When attempting to launch a new application, it is possible that another
 5 application is already active and has already established a data session. If the new
 6 application has the same APP_PRIORITY value as the previous application that
 7 setup the existing data session, the new application may simply reuse the existing
 8 data session.

9 If the new application has a different APP_PRIORITY than the previous
 10 application that set up the existing data session, the device may use the
 11 APP_PRIORITY to determine which application has higher priority, as follows:

<u>Value</u>	<u>Priority</u>
0	Highest priority category
1	Second highest priority category (lower than 0; higher than 2+)
2	Third highest priority category (lower than 0 or 1; higher than 3+)
:	:
255	Lowest priority

- 12 ■ **DATA_RATE_MODE:** Data Rate Mode

13 *[Default Value: 2 – High Speed]*

<u>Value</u>	<u>Application</u>
0	Low Speed: Low speed service options only
1	Medium Speed: F-SCH with service option 33 only
2	High Speed: F-SCH and R-SCH with service option 33
3-255	Reserved for future use

- 14 ■ **DATA_BEARER:** Data Bearer

15 *[Default Value = 0 – Hybrid 1x/1xEV-DO]*

Value	Application
0	Hybrid 1x/1xEV-DO
1	1x only
2	1xEV-DO only
3-255	Reserved for future use

5.3 EF_{MIPUPPEXt} (MobileIP User Profile Parameters Extension)

This new EF contains the additional parameters for Mobile IP User Profiles in order to fully support the feature of multiple profiles for Mobile IP. If services n38 (3GPD-MIP) and n15 (Messaging and 3GPD Extensions) are allocated, this EF **shall** be present.

Identifier: '6F80'		Structure: Transparent	Mandatory
File size: Variable		Update Activity: Low	
Access Conditions:			
READ		CHV1	
UPDATE		ADM	
INVALIDATE		ADM	
REHABILITATE		ADM	
Bytes	Description	M/O	Length
X	UPP Extension Block	M	X bytes

The UPP Extension Block is used by both EF_{SIPUPPEXt} for Simple IP and EF_{MIPUPPEXt} for Mobile IP. See Section 5.2 EFSIPUPPEXt (SimpleIP User Profile Parameters Extension) of this document for the definition of the UPP Extension Block.

Note: In order to enable Mobile IP to Simple IP fallback, the NAI entry indexes used in the profile parameters for Mobile IP and Simple IP must be the same.

Editorial note: The ability to enable multiple profile support for Mobile IP is being defined herein primarily for the purposes of future-proofing the R-UIM. At the time of writing, no known operators are planning to use multiple profiles with Mobile IP. Therefore, the anticipated usage of this EF would be to associate the application value "Unspecified" with a single profile. However, the presence of this EF would allow support for multiple profiles with Mobile IP to be introduced in the future without having to modify the R-UIM specification.

5.4 EF_{IPV6CAP} (IPv6 Capabilities)

This new EF contains information about IPv6 capabilities. If services n31 (IPv6) and n15 (Messaging and 3GPD Extensions) are allocated, this EF **shall** be present.

Identifier: '6F77'		Structure: Transparent		Optional
File size: 21 bytes		Update Activity: Low		
Access Conditions:				
READ		CHV1		
UPDATE		ADM		
INVALIDATE		ADM		
REHABILITATE		ADM		
Bytes	Description	M/O	Length	
1-2	Initial neighbor solicitation delay time	M	2 bytes	
3-4	Solicitation interval	M	2 bytes	
5-6	Re-solicitation interval	M	2 bytes	
7-8	Maximum solicitation attempts	M	2 bytes	
9-10	Maximum re-solicitation attempts	M	2 bytes	
11-12	Pre-RA expiry re-solicitation time	M	2 bytes	
13-20	IID Information	M	8 bytes	
21-21	IPv6 Flags	M	1 byte	

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- **Initial neighbor solicitation delay time** (*in units of 100ms*): Time mobile waits after the IID (Interface ID) has been negotiated before sending an RS (Router Solicitation) in an attempt to receive an RA (Router Advertisement).

[Default Value: 5 (i.e. 500ms)]
- **Solicitation interval** (*in units of 100ms*): Amount of time the mobile waits before sending a subsequent RS after a previous one.

[Default Value: 10 (i.e. 1000ms)]
- **Re-solicitation interval** (*in units of 100ms*): Amount of time between solicitations sent while re-soliciting for a new RA. This interval applies only after the mobile has previously received one valid RA and is soliciting for a new one to renew the lifetimes of the current prefix or retrieve a non-deprecated prefix.

[Default Value: 20 (i.e. 2000ms)]
- **Max solicitation attempts**: Number of solicitation attempts to make for initial IPv6 session setup, when an RA is not received in response before giving up IPv6 auto-configuration.

[Default Value: 3]
- **Max re-solicitation attempts**: Number of solicitation attempts to make to re-solicit for a new RA.

[Default Value: 3]

- 1 ▪ **Pre-RA expiry re-solicitation time** (*in units of 100ms*): Amount of time before the
2 current RA expires to begin re-solicitations.
3 *[Default Value: 0]*
- 4 ▪ **IID Information:** IID is part of the IPv6 address. See [RFC4489] for information on
5 coding.
- 6 ▪ **IPv6 Flags:** Identify IPv6 behavior. Coding (0 – Disabled; 1 – Enabled).

<u>Bit</u>	<u>Parameter Indicated</u>
1	Use IPv6 <i>[Default Value = 0 – Disabled]</i>
2	Failover from IPv6 to IPv4 <i>[Default Value = 0 – Disabled]</i>
3	PDSN as proxy IPv6 DNS server. When enabled, the mobile forwards all DNS requests to the PDSN. The PDSN forwards requests to the appropriate DNS server. This parameter is meaningful only if the primary and secondary DNS server addresses are not available. <i>[Default Value = 0 – Disabled]</i>
4-8	Reserved for future use

7 **5.5 EF_{TCPConfig} (TCP Configurations)**

8 This new EF contains information about Transmission Control Protocol configurations.
9 If services n20 (3GPD-SIP) or n38 (3GPD-MIP) are allocated and service n15
10 (Messaging and 3GPD Extensions) is allocated, this EF **shall** be present.

11

Identifier: '6F79'		Structure: Transparent		Optional
File size: 2 bytes		Update Activity: Medium		
Access Conditions:				
READ		CHV1		
UPDATE		ADM		
INVALIDATE		ADM		
REHABILITATE		ADM		
Bytes	Description	M/O	Length	
1	TCP Flags	M	1 byte	
2	TCP Keep-Alive Idle Timer	M	1 byte	

- 1 ▪ **TCP Flags:**
- 2 Coding (0 – Disabled; 1 – Enabled):
- Bit Parameter Indicated
- 1 TCP Graceful close of dormant connections
- [Default Value = 1 – Enabled]*
- 2-8 Reserved for future use
- [Default Value = 0 – Disabled]*
- 3 ▪ **TCP Keep-Alive Idle Timer:**
- 4 Coding: Number of minutes
- 5 *[Default Value: 120 minutes]*

6 **5.6 EF_{DGC} (Data Generic Configurations)**

7 This new EF contains miscellaneous data configuration items. If services n20 (3GPD-
8 SIP) or n38 (3GPD-MIP) are allocated and service n15 (Messaging and 3GPD
9 Extensions) is allocated, this EF **shall** be present.

Identifier: '6F7A'		Structure: Transparent		Optional
File size: 3 bytes		Update Activity: Medium		
Access Conditions:				
READ		CHV1		
UPDATE		ADM		
INVALIDATE		ADM		
REHABILITATE		ADM		
Bytes	Description	M/O	Length	
1	Data dormant timer	M	1 byte	
2	EPZID Type Information	M	1 byte	
3	Hysteresis Activation Time	M	1 byte	

- 11 ▪ **Data dormant timer:** Number of seconds to wait before going into data dormant
12 mode, which shall be at least 20 seconds.
- 13 *[Default Value: 30 seconds]*
- 14 ▪ **EPZID Type Information:** Contains the Extended Packet Zone ID Types.
- 15 *[Default Value: 0 – Packet Zone ID]*

<u>Value</u>	<u>Description</u>
0	Packet Zone ID
1	Packet Zone ID plus SID
2	Packet Zone ID plus SID and NID
3-255	Reserved for future use

- 1 ▪ **Hysteresis Activation Time:** This is the number of seconds that the device should
2 wait before it adds a new Packet Zone ID.

3 *[Default Value: 30 seconds]*

4 **5.7 Provisioning for Simple IP Authentication**

5 The AUTH_ALGORITHM field defined in **EF_{SIPCAP}** and **EF_{SIPUPP}** will not be used. Both
6 CHAP and PAP credentials (NAIs and Shared Secrets) **shall** be provisioned in the
7 R-UIM using the following EFs:

- 8 ▪ **EF_{SIPUPP}**
9 ▪ **EF_{SIPPAPSS}**
10 ▪ SimpleIP CHAP SS Parameter Block (Hidden EF)

11



6. HRPD (1xEV-DO)

The following EFs are already defined in [CS0023] and do not require modification. These **shall** be supported for this feature.

Elementary File	Description
EF_{HRPDCAP} (HRPD Access Authentication Capability Parameters)	MAX_NAI_LENGTH MAX_SS_LENGTH <i>RESERVED</i> AUTH_ALGORITHM
EF_{HRPDUPP} (HRPD Access Authentication User Profile Parameters)	NAI_LENGTH NAI AUTH_ALGORITHM
HRPD Access Authentication CHAP SS Parameters Block	SS_LENGTH SS

No new EFs/fields have been defined for this feature.



7. Browser

[CS0023] does not define EFs or fields to support the WAP/Browser feature. To enable R-UIM-based support for this feature, items in the following subsections have been added and **shall** be supported.

7.1 EF_{BrowserCP} (Browser Connectivity Parameters)

This new EF contains the connectivity parameters for a Browser application, such as Gateway and Home URL information. At least one gateway shall be configured in this EF as the primary gateway for browsing. Additional gateways as part of the additional instances of Connectivity Parameters can be optionally configured as secondary gateways in the order of priority as they appear in this EF. If service n21 (Browser) is allocated, this EF **shall** be present.

Identifier: '6F7B'		Structure: Transparent		Optional	
File Size: Variable			Update activity: Low		
Access Conditions:					
READ		CHV1			
UPDATE		ADM			
INVALIDATE		ADM			
REHABILITATE		ADM			
Bytes	Description	M/O	Length		
1 to X ₁	Browser Connectivity Parameters TLV object	M	X ₁ bytes		
X ₁ +1 to X ₁ + X ₂	Browser Connectivity Parameters TLV object	O	X ₂ bytes		
...	...				
X ₁ +...+ X _{n-1} +1 to X ₁ +...+ X _n	Browser Connectivity Parameters TLV object	O	X _n bytes		

Typical EF size: 348 bytes (*assumes 2 Connectivity Parameters TLV objects with 70 bytes of Home URL and 104 bytes for gateway information each*).

Maximum EF size: 522 bytes (*assumes 3 Connectivity Parameters TLV objects*).

Unused bytes shall be set to 'FF.' A Tag value of 'FF' indicates the end of valid data.

1 ▪ **Browser Connectivity Parameters Tags:**

Description	Tag Value
Browser Connectivity Parameters Tag	'AC'
Gateway Tag	'83'
HomeURL Tag	'80'

2 ▪ **Browser Connectivity Parameters TLV Object contents:**

Description	Value	M/O	Length (bytes)
Browser Connectivity Parameters Tag	'AC'	M	1
Length	Note 1	M	Note 1
Gateway Tag	'83'	O	1
Gateway Length	Z	O	Note 2
Gateway Information	--	O	Z
HomeURL Tag	'80'	M	1
HomeURL Length	X	M	Note 2
HOME URL Information	--	M	X
NOTE 1: This is the total size of the constructed TLV object. NOTE 2: The length is coded according to ISO/IEC 8825.			

3

4 ▪ **Gateway Tag:** This contains information needed to access the WAP
5 Gateway/Proxy server. The Gateway Tag is used in both Browser and MMS EFs
6 since both are based on WAP. Refer to *Section 8.2 MMS Implementation Tag –*
7 *Modified* in this document for a description of the Gateway Tag.

8 Note: While the structure is the same, both EF_{BrowserCP} and EF_{MMSICP} have their
9 own Gateway Tags. If the same WAP gateway is being used to support
10 both Browser and MMS, a Gateway Tag containing the same
11 information will need to be provisioned in both EF_{BrowserCP} and EF_{MMSICP}.

12 ▪ **HomeURL Tag:** This contains the URL for the Browser's home page for the current
13 particular connectivity parameters. For contents and syntax of URL TLV data object
14 values, see [RFC1738]. The URL shall be encoded to an octet string according to
15 UTF-8 encoding rules as specified in [RFC3629].

16 **7.2 EF_{BrowserBM} (Browser Bookmarks)**

17 This new EF contains bookmarks that may be provisioned by the operator and/or
18 updated by the user. If service n21 (Browser) is allocated, this EF **shall** be present.

Identifier: '6F7C'		Structure: Transparent		Optional
File Size: Variable			Update activity: High	
Access Conditions:				
READ	CHV1			
UPDATE	CHV1			
INVALIDATE	ADM			
REHABILITATE	ADM			
Bytes	Description	M/O	Length	
1 to X_1	Bookmark TLV object	M	X_1 bytes	
X_1+1 to X_1+X_2	Bookmark TLV Object	O	X_2 bytes	
...	...	O	...	
$X_1+X_2+...+X_{n-1}+1$ to $X_1+X_2+...+X_{n-1}+X_n$	Bookmark TLV Object	O	X_n bytes	

1

2 Typical EF size: 500 bytes (assumes 5 bookmarks with 100 bytes for each TLV object).

2

3 Maximum EF size: 2000 bytes (assumes 20 bookmarks).

3

4 Unused bytes shall be set to 'FF.' A Tag value of 'FF' indicates the end of valid data.

4

5 **▪ Bookmark TLV object contents:**

5

Description	Value	M/O	Length (bytes)
Bookmark Tag	'AD'	M	1
Length	Note 1	M	Note 2
URL Tag	'80'	M	1
Length	Y	M	Variable
URL Information		M	Y
Bookmark Name Tag	'81'	O	1
Length	Z	O	1
Bookmark Name Information	Binary	O	Z
NOTE 1: This is the total size of the constructed TLV object. NOTE 2: The length is coded according to ISO/IEC 8825.			

6

7 **▪ URL Information:** For contents and syntax of URL TLV data object values, see
8 [RFC1738]. The URL shall be encoded to an octet string according to UTF-8
9 encoding rules, as specified in [RFC3629].

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10 **▪ Bookmark Name Information:** This field shall be encoded to an octet string
according to UTF-8 encoding rules as specified in [RFC3629].

10



8. Multimedia Messaging Service (MMS)

The following EFs already defined in [CS0023] **shall** be supported for this feature. An asterisk (“*”) following a field name indicates that the field has been modified to support one or more additional values or subfields. In these cases, the modification will be explicitly described in a following subsection.

Elementary File	Description
EF_{MMSN} (MMS Notification)	MMS Status MMS Implementation Tag MMS Notification Extension file record number
EF_{EXT8} (Extension 8)	Record type Extension data Identifier
EF_{MMSICP} (MMS Issuer Connectivity Parameters)	<i>One or more occurrences of:</i> MMS Implementation Tag* MMS Relay/Server Tag Interface to Core Network and Bearer Information Tags* Gateway Tag* MMS Authentication Mechanism Tag MMS Authentication ID Tag
EF_{MMSUP} (MMS User Preferences)	MMS Implementation Tag MMS User Preference Profile Name Tag MMS User Preference information Tag

Items in the following subsections have been added or modified for this feature and **shall** be supported.

8.1 EF_{MMSConfig} (MMS Configuration)

This new EF allows the operator to configure MMS messaging so that it is appropriate to the constraints of its network. If services n40 (Multimedia Messaging Service) and n15 (Messaging and 3GPD Extensions) are allocated, this EF **shall** be present.

Note that this EF does not contain configuration associated with how the MMS client connects to the MMS service. This type of configuration information is included in the MMS Issuer Connectivity Parameters EF (EF_{MMSICP}).

Identifier: '6F7E'		Structure: Transparent		Optional
File size: 8 bytes		Update Activity: Medium		
Access Conditions:				
READ		CHV1		
UPDATE		ADM		
INVALIDATE		ADM		
REHABILITATE		ADM		
Bytes	Description	M/O	Length	
1-4	Max Message Size Value	M	4 bytes	
5	Retry Times Value	M	1 bytes	
6	Retry Interval Value	M	1 bytes	
7-8	MMSC Timeout Value	M	2 bytes	

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- **Max Message Size:** This is the maximum MMS message size (in bytes) allowed by the operator. Coding: 32-bit integer.
[Default Value: 600,000 bytes]
- **Retry Times:** This is the number of times the MMS application will retry for sending a message. Coding: 8-bit integer.
[Default Value: 3]
- **Retry Interval:** This is the number of seconds to wait before the next retry is attempted. Coding: 8-bit integer.
[Default Value: 20 seconds]
- **MMSC Timeout:** This is the number of seconds for the device to wait for response from Mobile Messaging Service Center (MMSC) before declaring it as an MMSC timeout.
[Default Value: 30 seconds]

8.2 MMS Implementation Tag – Modified

The MMS Implementation Tag indicates the used implementation type, e.g., WAP, M-IMAP, SIP, etc. This 8-bit field is currently defined under EF_{MMSN} (MMS Notification) in [CS0023] as follows:

Coding (0 – Not Supported, 1 – Supported)

<u>Bit</u>	<u>Parameter Indicated</u>
1	WAP implementation of MMS
2	M-IMAP implementation of MMS
3	SIP implementation of MMS
4-8	Reserved for future use

A new 'HTTP implementation of MMS' value is being added. The reason for adding this new value rather than simply using the WAP value that is currently defined is that using the WAP value requires provisioning of Interface to Core Network and Bearer Information as per [CS0023]. When the new HTTP value is used, no Interface to Core Network and Bearer Information is needed.

The modified MMS Implementation Tag is coded as follows:

Coding (0 – Not Supported, 1 – Supported)

<u>Bit</u>	<u>Parameter Indicated</u>
1	WAP implementation of MMS
2	M-IMAP implementation of MMS
3	SIP implementation of MMS
4	HTTP implementation of MMS
5-8	Reserved for future use

8.3 Gateway Tag – Modified

The current Gateway Tag referenced in [CS0023] is defined by normative reference in Appendix F of [XS0016-2] to include the following fields. Because each of these fields is specified in [OWPVC], the [OWPVC] terminology for each field is provided in parentheses.

- Address (PXADDR)
- Type of Address (PXADDRTYPE)
- Port Number (PORTNBR)
- Services (SERVICE)
- Authentication Type (PXAUTH-TYPE)

- 1 ▪ Authentication ID (PXAUTH-ID)
- 2 ▪ Authentication Password (PXAUTH-PW)

3 The PXADDR field is defined to support IPv4, IPv6, E.164, and alphanumeric
4 addresses. However, alphanumeric in this context is defined by “ALPHA” set in RFC
5 2396 and does not include characters (e.g., “.”), making it unsuitable for storing a
6 domain name. Therefore, an additional field is being added to the Gateway Tag to
7 support storage of a domain name for the WAP Proxy Address, enabling the IP
8 address to be dynamically obtained via DNS. This new field is already defined in
9 [OWPVC] as PXADDR-FQDN and is simply being added to the Gateway Tag. None of
10 the current Gateway Tag fields are being changed:

11 The modified Gateway Tag will include the following fields:

- 12 ▪ **Domain Name (PXADDR-FQDN)**
- 13 ▪ Address (PXADDR)
- 14 ▪ Type of Address (PXADDRTYPE)
- 15 ▪ Port Number (PORTNBR)
- 16 ▪ Services (SERVICE)
- 17 ▪ Authentication Type (PXAUTH-TYPE)
- 18 ▪ Authentication ID (PXAUTH-ID)
- 19 ▪ Authentication Password (PXAUTH-PW)

20 Note: If the same WAP gateway is being used to support both Browser and MMS, a
21 separate Gateway Tag containing the same information will need to be
22 provisioned in both EF_{BrowserCP} and EF_{MMSICP}.

23
24



9. Java

1
2 Java applications may be pre-loaded and run on the R-UIM or on the device. Additional
3 Java applications may also be downloaded to the device.

4 Each of these Java options may coexist and be used as needed.

5 **9.1 Pre-Loaded Java Applets on the R-UIM**

6 On-card applications allow operators to differentiate their service offering. These
7 applications interact with the device using the CCAT. If operators intend to pre-load
8 such applications, they should ensure that their card vendors provide necessary
9 support (e.g., Java Virtual Machine) and ensure that the target card has sufficient
10 memory and processing capabilities for the application(s) that will be pre-loaded.

11 **9.2 Pre-Loaded Java Applications on the Device**

12 Pre-loaded applications enable OEMs to differentiate their devices from a software
13 features perspective. Such applications are generally self-contained, requiring no
14 support from the R-UIM.

15 **9.3 Download of Java Applications onto the Device**

16 To enable Java application downloads from an operator catalog, a new EF that allows
17 the operator to identify the URL of their Java download catalog has been defined in the
18 following subsection. This new EF **shall** be supported for this feature.

19 All downloaded Java applications, whether from the operator catalog, OEM catalog, or
20 elsewhere, will be stored on and run from the device. The operator may provision a
21 root certificate associated with Java on the R-UIM card to enable operator signing of
22 Java applications. For more information on certificate storage on the R-UIM, refer to
23 *Section 2.8 EFRC (Root Certificates)* in this document.

24 **9.3.1 EF_{JDL} (Java Download URL)**

25 This new EF contains the information for downloading Java applications from the Java
26 download server. If service n22 (Java) is allocated, this EF **shall** be present.

27

Identifier: '6F7F'		Structure: Transparent		Optional
File size: Variable			Update Activity: Low	
Access Conditions:				
READ		CHV1		
UPDATE		ADM		
INVALIDATE		ADM		
REHABILITATE		ADM		
Bytes	Description	M/O	Length	
1-X	Java Download URL	M	X bytes	

1 EF size: 70 bytes.

2 Maximum EF size: 140 bytes.

3 Unused bytes shall be set to 'FF.'

4 **▪ Java Download URL:**

5 This contains the URL for the Java download server. For contents and syntax,
 6 see [RFC1738]. The URL shall be encoded to an octet string according to
 7 UTF-8 encoding rules, as specified in [RFC3629]. This string **shall** be NULL
 8 terminated.

9 Note: If the browser home URL is also used to provide Java content, this
 10 same browser home URL would be provisioned here.

11
 12



10. BREW

[CS0023] does not define EFs or fields to support the BREW feature. To enable R-UIM-based support for this feature, items defined in the following subsections have been added and **shall** be supported.

10.1 EF_{BREWDownload} (**BREW Download**)

This new EF contains information to enable BREW download services. If service n23 (BREW) is allocated, this EF **shall** be present.

Identifier: '6F81'		Structure: Transparent		Optional
File size: 207 bytes		Update Activity: Low		
Access Conditions:				
READ		CHV1		
UPDATE		ADM		
INVALIDATE		ADM		
REHABILITATE		ADM		
Bytes	Description	M/O	Length	
1-4	Carrier ID	M	4 bytes	
5-12	BREW A-Key	M	8 bytes	
13-76	BREW Download Server	M	64 bytes	
77-78	BREW Download Flags	M	2 bytes	
79	BREW Download Authentication Policy	M	1 byte	
80-207	Reserved for future use	O	128 bytes	

- **Carrier ID:** Coding: 32-bit unsigned integer (uint32).
- **BREW A-Key:** Coding: 64-bit binary data.
- **BREW Download Server:** Coding: NULL-terminated, 8-bit ASCII (one octet per character) string. This is either the IP Address or Domain Name associated with the BREW Download Server. The device automatically identifies whether the contents of this field are an IP address or domain name; in the case of domain name, DNS resolution is performed to obtain the IP address. If there is more than one server address, they may be specified with comma delimiters (e.g., *address1,address2*).
- **BREW Download Flags:** Coding: 16-bit flag bits (0 – Not set; 1 – Set)

1 - **Byte 1:**

<u>Bit</u>	<u>Description</u>
1	USE_A_KEY. If set, use A-Key; otherwise use B-Key. Note: The BREW-key (B-Key) is a unique key that can be generated by the OEM per each device. If it is set to 0, BREW autogenerates one. <i>[Default Value: 0 – Use B-Key]</i>
2	MIN_FOR_SID. If set, use the MIN for the Subscriber ID. <i>[Default Value: 0 – Not using MIN for SID]</i>
3	PREPAY. If set, it is a prepay phone. <i>[Default Value: 0 – Not a prepay phone]</i>
4	NO_AUTO_ACK. If set, do not force ACKs until user runs MobileShop. <i>[Default Value: 0 – Auto ACK]</i>
5	SID_ENCODE. Uses Subscriber ID rather than ESN for application encoding <i>[Default Value: 0 – Use ESN for application encoding]</i>
6	SID_VALIDATE_ALL. Validates all applications rather than just SSN applications <i>[Default Value: 0 – Only validate SSN applications]</i>
7	RUIM_DEL_OVERRIDE: Allows one R-UIM user to delete applications owned by another. Note: in an open market environment, it is important for new users to be able to delete applications that were downloaded by a previous owner of the device. Accordingly, the default for this value is to allow deletion. <i>[Default Value: 1 – Allow other R-UIMs to delete apps]</i>
8	Reserved for future use

2
3 - **Byte 2:**

<u>Bit</u>	<u>Description</u>
1	AUTO_UPGRADE. Perform automatic upgrade when new uses purchased. <i>[Default Value: 0 – No auto upgrade]</i>
2	NO_LAUNCH_MOD_ACK_DISABLED. If set, do not start an application with flag MOD_ACK_DISABLED set. <i>[Default Value: 0 – Launch with MOD_ACK_DISABLED]</i>
3-8	Reserved for future use

- 4 ▪ **BREW Download Authentication Policy:** Coding: integer values.
5 *[Default Value: 0 – APOLICY_NONE]*

<u>Value</u>	<u>Policy</u>	<u>Description</u>
0	APOLICY_NONE	No authentication required.
1	APOLICY_SID	User's Subscriber ID (SID) is passed to ADS before any set of transactions started.
2	APOLICY_TEXT	User should be prompted for text "key" and this sent to ADS.
3	APOLICY_NUM	User should be prompted for numeric "key" and this sent to ADS.
4-255	Reserved for future use	

1 **10.2 EF_{BREWTSID} (BREW Teleservice ID)**

2 This new EF contains information about BREW Teleservice ID. If service n23 (BREW)
3 is allocated, this EF **shall** be present.

Identifier: '6F82'		Structure: Transparent		Optional
File size: 4 bytes			Update Activity: Low	
Access Conditions:				
READ		CHV1		
UPDATE		ADM		
INVALIDATE		ADM		
REHABILITATE		ADM		
Bytes	Description	M/O	Length	
1-4	BREW Teleservice ID	M	4 bytes	

- 4 ▪ **BREW Teleservice ID:** The SMS Teleservice ID to be used in BREW directed
5 SMS messages. Coding: 32-bit integer.
6 *[Default Value: 4098 (CMT-95)]*

7 **10.3 EF_{BREWSID} (BREW Subscriber ID)**

8 This new EF contains information about BREW Subscriber ID. If service n23 (BREW)
9 is allocated, this EF **shall** be present.

Identifier: '6F83'		Structure: Transparent		Optional
File size: Variable		Update Activity: Low		
Access Conditions:				
READ		CHV1		
UPDATE		ADM		
INVALIDATE		ADM		
REHABILITATE		ADM		
Bytes	Description	M/O	Length	
X	BREW Subscriber ID	M	X bytes	

1 Typical EF size: 32 bytes.

2 Maximum EF size: 128 bytes.

- 3 ▪ **BREW Subscriber ID:** Coding: NULL-terminated, 8-bit ASCII (one octet per
- 4 character) string.

5 **10.4 EF_{BREWAEF} (BREW Application Execution Policy)**

6 This new EF contains information about the BREW Application Execution Policy. If
 7 service n23 (BREW) is allocated, this EF **shall** be present.

Identifier: '6F89'		Structure: Transparent		Optional
File size: 1 byte		Update Activity: Low		
Access Conditions:				
READ		CHV1		
UPDATE		ADM		
INVALIDATE		ADM		
REHABILITATE		ADM		
Bytes	Description	M/O	Length	
1	BREW Application Execution Policy	M	1 bytes	

- 8
- 9 ▪ **BREW Application Execution Policy:** Coding: integer values.

10 *[Default Value: 3 – PPOLICY_BREW_OR_CARRIER]*

<u>Value</u>	<u>Policy</u>	<u>Description</u>
0	PPOLICY_BREW	TRUE-BREW-signed applet only
1	PPOLICY_CARRIER	Carrier-signed applet only
2	PPOLICY_BREW_AND_CARRIER	TRUE-BREW- and carrier-signed applet only
3	PPOLICY_BREW_OR_CARRIER	TRUE-BREW- or carrier-signed applet
4-255	Reserved for future use	

1



11. Location Based Services (LBS)

[CS0023] does not define EFs or fields to support the LBS feature. To enable R-UIM-based support for this feature, items defined in the following subsections have been added and **shall** be supported.

11.1 gpsOne XTRA Assistance

11.1.1 EF_{LBSXTRAConfig} (LBS XTRA Configuration)

This new EF contains the configuration of the LBS XTRA client on the device. If service n24 (LBS) is allocated, this EF shall be present. Identifier: '6F84'		Structure: Transparent	Mandatory
File size: 4 bytes		Update Activity: Medium	
Access Conditions:			
READ		CHV1	
UPDATE		ADM	
INVALIDATE		ADM	
REHABILITATE		ADM	
Bytes	Description	M/O	Length
1	XTRA Flags	M	1 byte
2	gpsOneXTRA Download Interval	M	1 byte
3	gpsOneXTRA Download Retries	M	1 byte
4	gpsOneXTRA Download Retry Interval	M	1 byte

1 ▪ **XTRA Flags:**

2 Coding (0 – disabled; 1 – enabled):

<u>Bit</u>	<u>Parameter Indicated</u>
1	Allow gpsOneXTRA <i>[Default Value: 1 - enabled]</i>
2	Allow gpsOneXTRA automatic download <i>[Default Value: 0 - disabled]</i>
3-8	Reserved for future use

- 3 ▪ **gpsOneXTRA Download Interval:** This is the number of hours between automatic
4 retrieval of gpsOneXTRAAssistance data from Internet.
5 Coding: 8-bit integer. Range: 1 to 168 (168 hours is a week).

6 *[Default Value: 24 hours]*

- 7 ▪ **gpsOneXTRA Download Retries:** This is the number of unsuccessful attempts
8 (i.e., retries) made to retrieve gpsOneXTRAAssistance data from the Internet before
9 giving up.

10 Coding: 8-bit integer. Range: 0 to 10.

11 *[Default Values: 3 retries]*

- 12 ▪ **gpsOneXTRA Download Retry Interval:** This is the time (in minutes) between
13 unsuccessful download attempts (i.e., retries).

14 Coding: 8-bit integer. Range: 1 to 120.

15 *[Default Value: 10 minutes]*

16 **11.1.2 EF_{LBSXSURL} (LBS XTRA Server URLs)**

17 This new EF contains the XTRA Server URLs for LBS. If service n24 (LBS) is
18 allocated, this EF **shall** be present.

Identifier: '6F85'		Structure: Transparent		Mandatory
File size: $X_1+X_2+X_3$ bytes			Update Activity: Medium	
Access Conditions:				
READ		CHV1		
UPDATE		ADM		
INVALIDATE		ADM		
REHABILITATE		ADM		
Bytes	Description	M/O	Length	
1 to X_1	URL TLV Object for Primary XTRA Server	M	X_1	
X_1+1 to X_1+X_2	URL TLV Object Secondary XTRA Server	M	X_2	
X_1+X_2+1 to $X_1+X_2+X_3$	URL TLV Object Tertiary XTRA Server	M	X_3	

- 1 Typical EF size: 300 bytes (*assumes 100 bytes for each URL TLV Object*).
- 2 Maximum EF size: 510 bytes (*assumes longer URL lengths*).
- 3 Unused bytes shall be set to 'FF.' A Tag value of 'FF' indicates the end of valid data.
- 4
 - **URL TLV Object:** See definition of "URL Tag" in **EF_{BrowserBM}** (Browser Bookmarks)
- 5 for details.

11.2 LBS V2 User Plane

11.2.1 EF_{LBSV2Config} (LBS V2 Configuration)

This new EF contains the configuration of the LBS V2 client on the device. If service n24 (LBS) is allocated, this EF **shall** be present.

Identifier: '6F86'		Structure: Transparent		Mandatory
File size: 1 bytes			Update Activity: Medium	
Access Conditions:				
READ		CHV1		
UPDATE		ADM		
INVALIDATE		ADM		
REHABILITATE		ADM		
Bytes	Description	M/O	Length	
1	V2 LBS Flags	M	1 byte	

- 1 ▪ **V2 LBS Flags:**
- 2 Coding (0 – disabled; 1 – enabled):
- | | |
|------------|---|
| <u>Bit</u> | <u>Parameter Indicated</u> |
| 1 | Allow Sending System Parameter Info Message
<i>[Default Value: 0 - disabled]</i> |
| 2 | Allow gpsOne Seed Position Use
<i>[Default Value: 1 - enabled]</i> |
| 3 | Allow gpsOne Dynamic Mode
<i>[Default Value: 1 – enabled]</i> |
| 4-8 | Reserved for future use |

3 **11.2.2 EF_{LBSV2PDEADDR} (LBS V2 PDE Address)**

4 This new EF contains the Position Determination Entity (PDE) Server IP address¹ and
5 Port Number for V2 LBS. If service n24 (LBS) is allocated, this EF **shall** be present.

6

Identifier: '6F87'		Structure: Transparent		Mandatory
File size: Variable		Update Activity: Medium		
Access Conditions:				
READ		CHV1		
UPDATE		ADM		
INVALIDATE		ADM		
REHABILITATE		ADM		
Bytes	Description	M/O	Length	
1	V2 LBS PDE Address Type	M	1 byte	
2	V2 LBS PDE Address Length	M	1 byte	
3 to X+2	V2 LBS PDE Address Information	M	X bytes	
X+3 to X+4	V2 LBS PDE Port Number	M	2 bytes	

- 7 Typical EF size: 100 bytes (*assumes a 96 byte Domain Name*).
- 8 Maximum EF size: 259 bytes (*assumes a 255 byte Domain Name*).
- 9 Unused bytes shall be set to 'FF.'

¹ Note: If MPC is in the call flow, it will assign the PDE address. Therefore, if an operator uses an MPC, it only needs to provision the MPC. Basically, either the PDE or the MPC address on the R-UIM needs to be provisioned, depending on the implementation, but both options are available.

- 1 ▪ **V2 LBS PDE Address Type:** This identifies the type of address contained in the V2
2 LBS PDE Address Information field. Coding (8-bit integer):

Value	Address Type
1	Domain Name (gpsOne needs to perform DNS resolution)
2	IPv4 address
3	IPv6 address
- 3 ▪ **V2 LBS PDE Address Length:** This identifies the length in bytes of the address
4 contained in the V2 LBS PDE Address Information field. Coding: 8-bit integer.
- 5 ▪ **V2 LBS PDE Address Information:** The field contains the address of the PDE
6 server. The type of PDE server address contained in this field is determined by the
7 Address Type field above. Coding: 8-bit ASCII (one octet per character) string.
- 8 ▪ **V2 LBS PDE Port Number:** This is the Port Number for V2 LBS PDE Server.

9 **11.2.3 EF_{LBSV2MPCADDR} (LBS V2 MPC Address)**

10 This new EF contains the MPC Server IP address and Port Number for V2 LBS. If
11 service n24 (LBS) is allocated, this EF **shall** be present.

12

Identifier: '6F88'		Structure: Transparent		Mandatory
File size: Variable		Update Activity: Medium		
Access Conditions:				
READ		CHV1		
UPDATE		ADM		
INVALIDATE		ADM		
REHABILITATE		ADM		
Bytes	Description	M/O	Length	
1	V2 LBS MPC Address Type	M	1 byte	
2	V2 LBS MPC Address Length	M	1 byte	
3 to X+2	V2 LBS MPC Address Information	M	X bytes	
X+3 to X+4	V2 LBS MPC Port Number	M	2 bytes	

13 Typical EF size: 100 bytes (*assumes a 96 byte Domain Name*).

14 Maximum EF size: 259 bytes (*assumes a 255 byte Domain Name*).

15 Unused bytes shall be set to 'FF.'

- 1 ▪ **V2 LBS MPC Address Type:** This identifies the type of address contained in the
2 V2 LBS MPC Address Information field. Coding (8-bit integer):

<u>Value</u>	<u>Address Type</u>
1	Domain Name (gpsOne needs to perform DNS resolution)
2	IPv4 address
3	IPv6 address

- 3 ▪ **V2 LBS MPC Address Length:** This identifies the length in bytes of the address
4 contained in the V2 LBS PDE Address Information field. Coding: 8-bit integer.
- 5 ▪ **V2 LBS MPC Address Information:** 8-bit ASCII (one octet per character) string.
6 The type of MPC server address contained in this field is determined by the
7 Address Type field above
- 8 ▪ **V2 LBS MPC Port Number:** This is the Port Number for V2 LBS MPC Server.

9



12. Terminology

Acronym	Meaning
AC	Application Characteristics
ADM	Administrator
ADS	Application Download Server
BREW	Binary Runtime Environment for Wireless
CCAT	CDMA Card Application Toolkit
CHAP	Challenge Handshaking Authentication Protocol
CST	CDMA Service Table
ECC	Emergency Call Codes
EF	R-UIM Elementary File
ESN	Electronic Serial Number
HRPD	High Rate Packet Data (i.e., 1xEV-DO)
IID	Interface ID
LBS	Location Based Services
MCC	Mobile Country Code
MDN	Mobile Directory Number
MEID	Mobile Equipment Identifier
MF	R-UIM Master File
MMS	Multimedia Message Service
MMSC	Mobile Messaging Service Center
MO	Management Object
MPC	Mobile Positioning Center
MT	Mobile Terminated
NAI	Network Address Identifier
NAM	Number Assignment Module, a set of MIN/IMSI-related parameters stored in the mobile station

Acronym	Meaning
NID	Network Identifier
OEM	Original Equipment Manufacturer
OTA	Over the Air
OTAPA	Over-the-Air Parameter Administration, a network-initiated OTASP process of provisioning mobile station operational parameters over the air interface
OTASP	Over-the-Air Service Provisioning, a process of provisioning mobile station operational parameters over the air interface
PAP	Password Authentication Protocol
PDE	Position Determination Entity
PDSN	Packet Data Serving Node
Phase	Revision level of the R-UIM
PRL	Preferred Roaming List
RA	Router Advertisement
RFU	Reserved for future use
RS	Router Solicitation
R-UIM	Removable User Identity Module
SID	Subscriber Identifier (as in BREW)
SIM	Subscriber Identity Module
SMS	Short Message Service (text message)
SMS-PP	Short Message Service Point to Point
SO	Service Option, a service capability of the system. Service options may be applications such as voice, data, or facsimile.
SPC	Service Programming Code
SSD	Shared Secret Data
SSN	Subscription (as in BREW)
SSPR	System Selection for Preferred Roaming
TLV	Tag Length Value
UIM	User Identity Module
UPP	User Profile Parameters

Acronym	Meaning
UTK	UIM Toolkit, a China Variant of CCAT, which is also used in Indonesia
XTRA	eXTended Receiver Assistance

1



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