Annex A

UPDATING OF THE GSM ASSOCIATION ROAMING DATABASE

MTN South Sudan

Date	Change
14/11/2011	New VLR
14/11/2011	New HLR
14/11/2011	New SMSC
14/11/2011	New SGSN,GGSN
01/04/2012	SMSC Global Title Change

Operator name: [1]	**MTN South Sudan**
Country (Abbreviated according to ISO 3166):	**SS**

ROUTING INFORMATION		
CCITT E.164 Number series:	**Country Code (CC)**	**National Destination Code (NDC)**
MSISDN Number range(s):	**211**	**92**
Network nodes Global Title number range(s):	**211**	**92**
MSRN number range(s):	**211**	**92**
E.212 Number series:	**Mobile Country Code (MCC)**	**Mobile Network Code (MNC)**
	659	**02**
E.214 Mobile Global Title: (MGT)	**Country Code of MGT** [2] **(CC)**	**Network Code of MGT (NC)**
	211	**92**
Does Number Portability apply[3]**?**		

INTERNATIONAL SCCP GATEWAY		
Name of SCCP carrier:	**BICS**	
Signature: [4]	**BRU/H**	**BRU/I**
Type: [5]	**Stand-alone SCCP**	**Stand-alone SCCP**
International DPC:	**2-013-1**	**2-014-7**
Date for the ability to transmit and handle XUDT/XUDTS: [6]		**N/A**

1 Maximum 22 letters. This field is only used for administrative purposes, however, it must always be filled in in order to identify the operator.

2 Note: identical to the E.164 Country Code. Additional information due to Number Portability is included in the "Number Information" field of the "Miscellaneous Information" table.

3 Please write YES if number portability applies. Otherwise write NO.

4 Maximum 20 letters. This field is only needed for information and may be omitted.

5 ISC, MSC, Stand-alone SCCP etc. Maximum 20 letters. This field is only needed for information and may be omitted.

6 XUDT means Extended Unit data, this long user data can be handled by the White Book through segmentation and reassembly. XUDTS means Extended Unit data Service, this message is used to indicate that a XUDT can not delivered to destination

DATE FOR THE AVAILABILITY OF WHITE BOOK SCCP IN THE PLMN	
The ability to receive segmented XUDT/XUDTS:	
The ability to send segmented XUDT/XUDTS:	

SIGNALLING SYSTEM NO. 7 ACCESS SOLUTION		
Initial solution:	**Initial solution valid until (date):**	**Subsequent solution:**

AUTOMATIC ROAMING TESTING		
Entity	**Subscriber-Number**	**Location**
Automatic Answering CirCuit (AAC) [7] 1. AAC 2. AAC 3. AAC . . .	**(MSISDN)**	
Automatic Answering Circuit (MSRN) 1.MSRN 2.MSRN 3.MSRN		
Data Automatic Answering Circuit (DAAC) **1. Calls for Data** 1. DAAC 2. DAAC 3. DAAC . . . **2. Fax Gr.3** 1. Fax DAAC 2. Fax DAAC 3. Fax DAAC . . .	**(MSISDN/ISDN)**	

[7] The number of AAC and DAAC installed in the network is decided by each operator

MOBILE APPLICATION PART (MAP)				
Introduction of higher supported MAP version				
Interworking Specifically for Roaming				
Application Context Name	**Current version in**			**Comments**
	Inbound Roaming		**Outbound Roaming**[8]	
	MSC/VLR	**SGSN**		
networkLocUp	**V3**	**N/A**		
roamingNumberEnquiry	**V3**	**N/A**		
infoRetrieval	**V3**	**V3**		
subscriberDataMngt	**V3**	**V3**		
networkFunctionalSs	**V3**	**N/A**		
mwdMngt	**V2**	**N/A**		
shortMsgMT-Relay (called shortMsgRelay in v1)	**V2**	**N /A**		
shortMsgMO-Relay (called shortMsgRelay in v1)	**V2**	**N/A**		
ss-InvocationNotification	**V3**	**N/A**		
subscriberInfoEnquiry	**V3**	**V3**		
gprsLocationUpdate	**N/A**	**V3**		
locationCancellation	**V2**	**V2**		
msPurging	**V2**	**V2**		
reset	**V1**	**V1**		
networkUnstructuredSs	**V2**	**N/A**		
reporting	**V1**	**N/A**		
callCompletion		**N/A**		
istAlerting		**N/A**		
serviceTermination		**N/A**		
locationSvcGateway	**N/A**	**N/A**		
mm-EventReporting		**N/A**		
authenticationFailureReport	**V2**	**V2**		

8 The term "Outbound Roaming" denotes any one of the following nodes that is located in the home PLMN only: HLR, gsmSCF, SMS-IWMSC, SMS-GMSC.

imsiRetrieval		**N/A**		
gprsNotifyContext	**N/A**	**V3**		
gprsLocationInfoRetrieval	**N/A**	**V3**		
failureReport	**N/A**			
secureTransportHandling				

Optimal Routeing of mobile-to-mobile calls

Application Context Name	Current Version			Comments
	(V)MSC[9]	GMSC	HLR	
CallControlTransfer	**N/A**	**N/A**	**N/A**	
LocationInfoRetrieval[10]	**N/A**	**N/A**	**N/A**	

Inter-Operator SMS Enhancement

Application Context Name	Current Version			Comments
	SMS-IWMSC	SMS-GMSC	HLR	
shortMsgGateway	**N/A**	**V2**	**V2**	
shortMsgAlert	**N/A**	**N/A**	**N/A**	

Vendor Information	
BSS vendor(s) and SW/HW version:	**HUW-V900R011/ E//-AXE 810 212 33 C**
HLR vendor(s) and SW/HW version:	**Ericsson / AXE810 / R12**
MSC/VLR vendor(s) and SW/HW version:	
	Ericsson / AXE 810 / R12
	Ericsson / AXE 810 / R12
SMSC vendor(s) and SW/HW version:	**HUWAEI**
SGSN vendor(s) and SW/HW version:1	**Ericsson 2010B CP02**
GGSN vendor(s) and SW/HW version:	**Ericsson R4 , Ericsson 2010B CP05**
MMSC vendor(s) and SW/HW version:	**Huawie InfoX MMSC v100R002**
IN vendor(s) and SW/HW version:	**HUWAEI**

GPRS Information	
APN Operator Identifier[11]:	**mnc002.mcc659.gprs**
DNS IP address & name (primary)[12]:	**197.231.238.245 – extprimary.dns**
DNS IP address & name (secondary):	**197.231.238.246 –extsecondary.dns**

[9] The MSC is acting as a VMSC for a roaming subscriber for ORLCF; see sub-clause 4.2 of 3GPP TS 23.079 for more information.

[10] The "locationInfoRetrieval" application context is only valid for inter-PLMN signalling in Optimal Routeing of mobile-to-mobile calls; otherwise it is only intra-PLMN. Note that the dialogue initiator is a GMSC which is integrated with the calling subscriber's MSC/VLR (and obviously the dialogue responder is the called subscriber's HLR, which is in the called subscriber's HPLMN).

[11] APN Operator Identifier used for GGSN resolution. The last three labels of the APN Operator Identifier must be in the form: MNC.MCC.GPRS

[12] IP address of DNS which resolves the APN Operator Identifier. The secondary DNS IP address field is optional.

Inter PLMN GSN Backbone IP address range(s)[13]:		**197.231.238.0/24 197.231.238.224/28**
Autonomous System Number[14](ASN):		
GRX provider(s):		
List of APN's available for testing and troubleshooting:		
WEB	**APN**	**internet or internet1**
	Username	**N/A**
	Password	**N/A**
	ISP DNS IP address (primary)	**193.108.252.50**
	ISP DNS IP address (secondary)	**198.6.1.2**
WAP	**APN**	**N/A**
	Username	**N /A**
	Password	**N/A**
	WAP Gateway IP address	**N/A**
	WAP Server URL	**N /A**
	Port	**N/A**
MMS	**APN**	**N/A**
	Username	**N /A**
	Password	**N/A**
	WAP Gateway IP address for MMS	**N/A**
	Port	**N /A**
	Messaging Server URL	**N/A**
Push mail	**APN**	**N/A**
	Username	**N /A**
	Password	**N/A**
	ISP DNS IP address (primary)	**N/A**
	ISP DNS IP address (secondary)	**N /A**
GTP version[15]	**SGSN**	**2010B CP02**
	GGSN	**2010B CP05, R4**
BSS information[16] :(optional field)		
Contact person(s) for GPRS[17]: (optional field)		

MMS Interworking Information	
Domain name of MMSC	**N /A**
IP address range for MMSC[18]	**N/A**
IP address(es) of incoming MTA	**N /A**
IP address(es) of outgoing MTA	**N/A**
Max. size of MMS allowed	**N /A**
Delivery Report allowed?	**N/A**
Read Report allowed?	**N /A**
Contact person(s) for IW MMS[19]: (optional field)	**N/A**

13 IP addresses or IP address range(s) of GPRS Support Nodes (GGSN and SGSN) that give onto the inter-PLMN backbone. This information is used for firewall and Border Gateway configuration (see PRD IR.34).

14 The Autonomous System Number (ASN) is a 16 bit integer that every PLMN must assign to their GPRS IP network that is seen as one Autonomous System (AS). The ASN enables the exchange of exterior routing information between neighbouring AS. This can be either a private ASN (64512 through to 65535) or public ASN.

15 The highest GTP version which operators support. (e.g.: R97 and R98: ver.0, R99 and after R99 : ver.1)
It is recommend that GTPver1 be supported from 00:00:00 1st January 2005, otherwise while GTPver0 only is supported by a network that network should apply the configuration defined in IR.34.

16 BSS vendor(s), (software/hardware version) **find table in page 5**
- Ciphering active yes/no: **YES**
- PBCCH: **YES**

17 Contact information for the GPRS specialists as well as working time and Time Zone

18 IP addresses or IP address range(s) of MMSC that give onto the inter-PLMN backbone. This information is used for firewall and Border Gateway configuration

19 Contact information for the MMS specialists as well as working time and Time Zone

WLAN Information	
RADIUS server/ RADIUS proxy IP address(es): IP address range(s) used for WLAN roaming signaling:	N /A
Realm(s):	N/A
Brand name of the WLAN service[20]:	
Contact person(s) for WLAN[21]: (optional field)	

CAMEL Information			
GSMSSF/MSC:			
CAP (CAMEL Application Part) version[22]:	**Yes**	**No**	**Date of planned support (if any)**
CAP version 1	☐	☐	
CAP version 2	◆	☐	
CAP version 3	◆	☐	
CAP version 4	☐	☐	
Partial implementations supported in CAP version 4[23]:	**Yes**	**No**	**Date of planned support (if any)**
CAMEL Phase 4 CSIs:			
O-CSI	☐	☐	
D-CSI	☐	☐	
VT-CSI	☐	☐	
MT-SMS-CSI	☐	☐	
Functionalities:			
Initiate Call Attempt	☐	☐	
Split Leg	☐	☐	
Move Leg	☐	☐	
Disconnect Leg	☐	☐	
Entity Released	☐	☐	
DFC With Argument	☐	☐	
Play Tone	☐	☐	
DTMF Mid Call	☐	☐	
Charging Indicator	☐	☐	
Alerting DP	☐	☐	
Location At Alerting	☐	☐	
Change Of Position DP	☐	☐	
OR Interactions	☐	☐	
Warning Tone Enhancements	☐	☐	
CF Enhancements	☐	☐	
GPRSSSF/SGSN:			
CAP (CAMEL Application Part) version[24]:	**Yes**	**No**	**Date of planned support (if any)**
CAP version 3	◆	☐	
CAP version 4	☐	☐	
Partial implementations supported in CAP version 4[25]:	**Yes**	**No**	**Date of planned support (if any)**
CAMEL Phase 4 CSIs:			
MT-SMS-CSI	☐	☐	

20 Brand name of the Home WO WLAN service seen by the end user in the web based login page. The brand name can be used to mask the realm from the end user in web based login pages e.g. by utilizing a dropdown box into realm known by the network. This enables an operator to change its roaming realm with reduced impact to the user experience. If the operator has multiple roaming realms they have to be mapped one-to-one to brand names.

21 Contact information for the WLAN specialists as well as working time and Time Zone

22 For information: some operators may restrict the use of CAMEL on specific PLMNs.

23 To be completed only if CAP version 4 is supported.

24 For information: some operators may restrict the use of CAMEL on specific PLMNs.

25 To be completed only if CAP version 4 is supported.

MG-CSI	☐	☐
PSI Enhancements	☐	☐

SMSC Information	
SMSC GT addresses[26]:	211921999999

MISCELLANEOUS INFORMATION [27]

Number Information[28]: (if applicable, include additional E.164 Number Ranges due to Number Portability)

CODE	NODE	Vendor	GTT
JUBES1	JUB MSS1	E//	211921999996
JUBEG1	JUB MGW1	E//	211921999919
SGSN	SGSN	E//	211921999995
JUBEHLR	JUB HLR	E//	211921999944
SMC		Huawei	211921999999
IN		Huawei	211921999957

MSRN		
	from	211921940000
	To	211921942999

Contact persons[29]: (specify Time Zone and day light saving zone for contact phone numbers)
SEE TABLE G

24 hours x 7 days numbers for emergency troubleshooting[30]:
SEE TABLE G

Other information[31]:

27 Operator s may enter contact information for providing list of addresses in cases where there are large number of SMSC's
This field has the purpose of giving more detailed information. The content and structure is decided by each operator.

28 In this field more detailed information about numbers relevant for roaming should be given. Also any additional NDC due to Number Portability should be listed in the format: Operator CC NDCs

29 In this field at least the contact points for the following functions should be given:
- Roaming Service Agreements and Scheduling
- International Gateway SS7 Service Agreements and Scheduling
- Routing Information

Also it is recommended to indicate for the contact numbers the Time Zone and an indication if Daylight Saving Time is adopted or not:
- For Time Zone use format "UMT+X" or UMT-Y"
- For Daylight Saving Time: if daylight saving time is implemented then write "Daylight Saving Time adopted" otherwise leave blank

30 When available, this field should contain the phone number and fax of a 24hour x 7 days helpdesk for emergency troubleshooting

31 In this field other miscellaneous information should be given as e.g.:
- The date for when a planned change (in the network or in the roaming data) will take place.
- More detailed network description
- Indication of specific holiday and/or working hours applicable in the country

Contact point (address) for distribution of updatings of the roaming database32:
Mr. Chol Joseph Mayen GSM: +**211 922902052** Email: cmayen@mtn-southsudan.com
Effective date of change: 01/06/2014

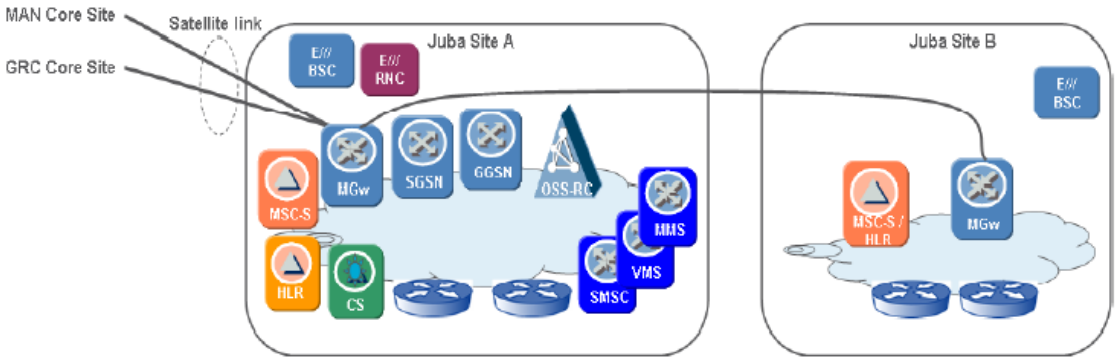
Table G:

IREG
Mr. Andrew Wakabi **Email: awakabi@mtn-southsudan.com; ireg@mtn-southsudan.com** **Mob: +211 92 290 4085**
TADIG **Mr. George Nassif** **Mob:+211922904400** **Email: gnassif@mtn-southsudan.com**
Mr. Ajak Manyang David **Email: ADavid@mtn-southsudan.com; tadig@mtn-southsudan.com** **Mob: +211922904401**
GPRS roaming
Mr. Izedin Shaban Yousif **Senior Engineer** **Email: iyousif@mtn-southsudan.com** **Mob: +211 92 290 4044**
Switching Manager **Mr. Chol Joseph Mayen** **Email: cmayen@mtn-southsudan.com** **Mob: +211 92 290 2052**

32
- SMG compliance of GPRS infrastructure (e.g.: SMG29, SMG30,…)

This field is not a part of the database and is only used by the HQ when distributing updating information.

MTN SOUTH-SUDAN Juba site NETWORK



Juba Y2011 desired Network Layout